Transitions toward an open society?

Intergenerational occupational mobility in Hungary in the 19th and 20th centuries

Zoltán Lippényi

Manuscript committee:

Prof.dr. H. Hoijtink (chairman, Utrecht University)

Prof.dr. H.A.J. Bras (Wageningen University)

Prof.dr. H.B.G. Ganzeboom (Free University Amsterdam)

Prof.dr. J.O. Jonsson (Nuffield College / Stockholm University)

Prof.dr. P. Róbert (Széchenyi István University / TÁRKI)

Cover design	Alexandra Kecskés
LaTeX	Zoltán Gilián
Printed by	Ridderprint BV
ISBN	978-90-393-6127-6

Transitions toward an open society?

Intergenerational occupational mobility in Hungary
in the 19th and 20th centuries

Transities naar een open samenleving?

Intergenerationele beroepsmobiliteit in Hongarije
in de 19de en 20ste eeuw
(*met een samenvatting in het Nederlands*)

Átmenetek egy nyitott társadalom felé?

Nemzedékek közötti társadalmi mobilitás Magyarországon
a 19. és 20. században
(*magyar nyelvű összefoglalóval*)

PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de
Universiteit Utrecht op gezag van de rector magnificus,
prof.dr. G. J. van der Zwaan, ingevolge het besluit van
het college voor promoties in het openbaar te verdedigen
op vrijdag 16 mei 2014 des middags te 4.15 uur

door

Zoltán Lippényi

geboren op

20 november 1984 te Boedapest, Hongarije

Promotoren: Prof.dr. M.H.D. van Leeuwen
Prof.dr. I. Maas

The research for this thesis was made possible by the European Research Council, Advanced Grant, no: 230279, 2009-14 "Towards Open Societies? Trends, Variations and Driving Forces of Intergenerational Social Mobility in Europe over the Past Three Centuries"

to my parents,
Györgyi and Tivadar,
to whom I owe my belief in open society,
and so much else

Contents

List of Figures

List of Tables

Chapter 1

Intergenerational social mobility in Hungary

Two historical transitions, two research questions, and three puzzles

1.1 Introduction

This book is a collection of studies of intergenerational social mobility in Hungary. Modern thinking is committed to the ideal of open societies, and a fundamental characteristic of open societies is that an individual's social position is based primarily upon that individual's own achievements instead of upon inherited social privileges. Sociology has a long-standing history of studying patterns of intergenerational social rigidity. The question of how societal, economic or political institutional forces might increase or decrease social openness caught the imagination of the forefathers of sociology (de Tocqueville, 2000 [1835], Simmel, 1990 [1907], Weber, 1978 [1922], Sorokin, 1959 [1927]), and through the pioneering work of David Glass and his associates (1954) and the persisting interest of subsequent generations of stratification sociologists, intergenerational social mobility has gained its current status as one of the most studied topics in quantitative stratification sociology (Ganzeboom et al., 1991; Hout & DiPrete, 2006).

My general aim throughout this book will be to understand how major

political, social and economic institutional transitions during modern history shaped social openness in Hungary. Hungary has experienced a number of major political and economic transitions during its modern history, which provides an opportunity to study the impact on social rigidities of the attendant institutional changes. Of all the transitions the country has seen, the period of state socialism between 1948 and 1989 has undoubtedly attracted the most attention from scholars studying intergenerational mobility in Hungary. The coercive policy pursued by the communist regime in order to eradicate inequalities of social class has led to a great amount of research into the extent to which the 'grand experiment of destratification' in Hungary succeeded in creating greater social equality (Andorka, 1980; Domański, 2000; Ganzeboom et al., 1990; Luijkx et al., 2002; Simkus & Andorka, 1982; Simkus, 1981, 1984; Szelényi et al., 1998; Wong & Hauser, 1992).

Two major historical transitions in modern Hungarian history which have received less attention from intergenerational mobility scholars are the economic and social modernization which occurred at the turn of the 19th and 20th centuries, and the rapid movement toward a market-based economic system in the 1990s following the collapse of state socialism. The present book focuses on those two transitions and how they affected the openness of Hungarian society.

Research into social mobility has been focused on two comparative research questions (Ganzeboom et al., 1991; Treiman & Ganzeboom, 2000). The first question is whether societies become more open or 'fluid' over time, and if so which periods are characterized by higher levels of social fluidity? The second question is how, or indeed if, variation in social fluidity can be explained by economic, political and societal changes. Those two main research questions in their dual contexts of transition within Hungary, and the answers to them obtained from previous mobility studies, have together led me to formulate three research puzzles, which this book is intended to solve.

According to social historical and sociological accounts, the social structure of Hungary was extremely rigid before communism, and social mobility was difficult (Andorka, 1982; Erdei, 1980 [1954]). The first research puzzle then, is the unexpected finding of previous mobility studies that social openness increased in Hungary before communism (Ganzeboom et al.,

1990; Luijkx et al., 2002; Simkus, 1981). In Chapter 3, co-authored by Ineke Maas and Marco H.D. van Leeuwen, this research puzzle is addressed using new data that reach back before the time of communism in Hungary, and we have tried to give a preliminary answer to why any change in social fluidity occurred, if there was any.

The second puzzle arises from attempts to explain why the degree of social fluidity varied over time and in differing social contexts. Social mobility research on industrialized countries has pointed out two main institutional processes which are related to temporal increase in social fluidity, namely the expansion of tertiary education (Breen & Jonsson, 2007; Breen, 2010; Hout, 1988; Müller & Pollak, 2004; Vallet, 2004) and the social policies of the welfare state (Beller & Hout, 2006; DiPrete & Grusky, 1990; Erikson et al., 1982). However, those processes took place long after the period of early modernization in Hungary and thus cannot explain the fluctuation in social mobility before communism. To solve the puzzle, in Chapter 4, again co-authored by Ineke Maas and Marco H.D. van Leeuwen, we have investigated the impact on temporal and municipal variation in social fluidity of the economic and societal development processes in Hungary's early industrialization period. In Chapter 5 two of those processes, the increasing urbanization and increasing geographic mobility of the population, are related to long-term temporal changes in social fluidity.

The third puzzle concerns social fluidity in the period of Hungary's economic and political transition from communism to capitalism. Mobility research often looks for common patterns characterizing mobility in industrialized societies, but the major institutional changes experienced in countries like Hungary during their transitions from communism to some version of a free-market economy present researchers with a new puzzle concerning intergenerational mobility. Has institutional change affected only the strength of intergenerational occupational association between parents and children, or have the general mechanisms governing intergenerational occupational mobility been re-shaped too? In Chapter 6, which was co-authored with Theodore P. Gerber, we have attempted to solve that new puzzle by investigating whether or not the transition between economic and political systems did indeed alter the mechanisms of intergenerational occupational mobility.

This book also contributes a new dataset to research into stratification

and mobility. Hungarian sociology has a long tradition of collecting mobility data. In its 1930 Census the Hungarian Bureau of Statistics published the world's first intergenerational mobility table based on the total male population, and Rudolf Andorka analyzed it in his book about social mobility in Hungary (Andorka, 1982). Unfortunately, the micro-data which contained detailed occupations have not been preserved, and the table has highly aggregated categories which are not comparable with modern occupational or class categorizations, nor does it distinguish birth cohorts that would make it suitable for studying changes over time. From the 1960s onwards, Zsuzsa Ferge, Rudolf Andorka, Rózsa Kulcsár, István Harcsa and others collected a number of survey datasets to study social structure and mobility (for a review of earlier stratification and mobility studies of Hungary see Kolosi, 1988). These large-scale datasets established Hungary as a frequently studied case in cross-country comparative and single country research projects.

To study the period of early modernization in Hungary, for which survey data did not exist, we collected a large-scale historical mobility dataset based on marriage records, the largest of its kind in Central-Eastern Europe. Our historical Hungarian mobility dataset covers the period from 1850 to 1950 and includes more than 80,000 individual cases from approximately 60 municipalities, including all the major regions of present-day Hungary. Chapter 2 of this book describes the dataset and the data collection project in detail.

Before proceeding to the detailed description of our three research puzzles as well as the research designs and contributions of the studies in this book, a few remarks are necessary about the historiographical facts used for our research. There is enormous knowledge of the political, economic, demographical and social history of Hungarian society, and I have made selections from that information to identify the historical aspects which I considered most relevant to this study of social mobility. My choices were based primarily on sociological theory, but I was guided by the rich literature of Hungary's history, too. While it has proved impossible to list every one of the authors and their works whom I consulted, I should like to identify my main sources. In describing the social context of the pre-World War II era I relied primarily on the textbook of Hungarian social history written by Gábor Gyáni and György Kövér (1998). On the economic his-

tory of the era I consulted the works of Iván T. Berend and György Ránki (Berend et al., 1982; Berend & Ránki, 1974; Berend, 1998, 2003). For an overview of the contours of political history I relied most heavily on the work of Ignác Romsics (1999). My description of the socialist and transitioning economies was aided by the works of János Kornai (1992) and Tamás Bauer (1978).

1.2 The first puzzle: early modernization and the unexpected increase of social openness in Hungary

Mobility studies in Hungary have focused primarily on intergenerational mobility under socialism. Those studies, while concluding that social openness increased during the transition to communism, found also that changes in the mobility regime took place before the communist restructuring of the 1950s (Ganzeboom et al., 1990; Luijkx et al., 2002; Simkus, 1981). In one study that included birth cohorts before the 1950s, the overall trend in increasing relative mobility was found not to have changed pace after the communist takeover (Ganzeboom et al., 1990). Luijkx, Róbert, De Graaf, & Ganzeboom (2002) found similar results and concluded that "the communist take-over cannot be considered as an important break in the developments of declining ascriptive criteria for social mobility in Hungary".

That finding is somewhat surprising, if not completely unexpected. Even at best, Hungary's political and social history prior to socialist reconstructing cannot be described as showing progression toward an equal and open society. Before World War I Hungary was a monarchy within the Habsburg Empire and—even though serfdom, noble privileges and feudal institutions were abolished between 1848 and the 1860s—the nobility was the dominant social class in Hungary (Berend, 1998, 2003). Under the governance of Admiral Miklós Horthy who apart from the short-lived democratic and Bolshevik revolutions in 1919 governed Hungary between 1919 and 1943, the old nobility managed to safeguard their powerful positions in the national economy and political bureaucracies (Berend, 1998). The increasing weight of the small-landowning peasantry in the Hungar-

ian party politics of the 1930s (Romsics, 1999) did not significantly alter the 'conservative-authoritarian' character of the Horthy-regime. In large areas of the country voting during the Horthy-regime was non-anonymous which, along with changes in the electoral system and tight bureaucratic control, ensured that the governing party was always elected right up until 1946 (Hubai, 2000, 2001) amidst an increase in the popularity of Fascist parties and the political radicalization of the lower classes.

Large proportion of the Hungarian population lived in poverty. To try to avoid the social unrest that was sparked off periodically before World War I due to poverty, the governments of the 1920s and 1930s took precautious and gradual social policy measures like entitling industrial workers to have social insurance in 1927. However more than 3 million workers in agriculture, roughly a third of the total population and the people living in greatest poverty, were excluded from those benefits (see Ferge, 1980; also the chapter on social policy in the interwar period in Kövér & Gyáni, 1998).

In that historical context, earlier accounts of stratification in Hungary emphasized social and institutional barriers to social mobility, most notably those by Ferenc Erdei (1980 [1954]) and the later historical work of Hanák et al. (1992). Income inequalities between classes were very large then in Hungary, and according to an estimate from the 1930s, 81 per cent of society, mostly small-landowning self-employed farmers or laborers both agrarian and non-agrarian, obtained 44 per cent of all income, while 18 per cent of society, the non-manual workers, merchants and artisans, obtained 36 per cent, but the landowners and capitalists who were less than 1 per cent of society obtained 20 per cent of its income (Matolcsy, 1938). The income distribution was more unequal than that of the United States and Germany at that time. Based on those facts we can only conclude that social class was a very strong determinant of life chances in Hungary.

So how can we explain the increase in social openness by class in Hungary given persisting inequalities in income and political representation? Could the economic modernization of Hungary, which begun in the latter half of the 19th century, possibly explain the decline in intergenerational occupational rigidities?

The period we are studying here starts with the Austro-Hungarian Compromise in 1868 which established the Austro-Hungarian Empire and

created a favorable institutional background for modernization in Hungary, mainly in agricultural production (Swain, 1992) and the social and economic developments in European societies facilitated the process. The population of Western Europe had grown tremendously and by the end of the 19th century domestic agriculture could no longer adequately feed a greatly increased population, and the growth of industrial production in Western Europe required increasing quantities of livestock and grain products (Berend et al., 1982). However, Hungary had large reserves of both and could therefore export agricultural products to Western Europe (Berend, 2003). In fact, the volume of production of crops and animal stock doubled, in some case even tripled, between 1867 and 1913 (see Berend & Ránki, 1974, pg. 46–48), which fostered industrial mechanization so that between 1863 and 1884 the use of steam power in Hungarian industry, as mentioned mostly in food processing and milling, jumped almost eightfold, from 8,100 to 63,900 horsepower, while the number of factories rose from 2,700 to 5,500 between 1898 and 1913, by when they were employing 563,000 workers, up from 302,000 (see Berend & Ránki, 1974, pg. 60–61). There were developments in iron ore and steel production as well: in 1867 production of iron was barely 294,000 tons, but that had increased to more than 2 million tons by 1913, and the newly developed steel industry raised its output from 350,000 tons in the 1890s to about 800,000 tons measured in 1913 (see Berend & Ránki, 1974, pg. 57–58).

Advances in the industrialization of the economy were fostered by, but also greatly affected the surge in rail construction across the Austro-Hungarian Empire at the turn of the century. In Hungary, the railroad system expanded rapidly from 2,285 kilometers in 1867 to 22,084 kilometers in 1913, and its density was especially advanced, approaching Western European standards (see Berend & Ránki, 1974, pg. 36–38). Increased economic activity required capital, which led to extensive development of banking and financial services. In 1867 the number of credit institutions was just 107 but rose to 5,993 by 1913, with share capital and reserve funds increased to 2.5 billion crowns, whereas in 1867 it had been about 29 million crowns (see Berend & Ránki, 1974, pg. 36–38). Those figures represent a staggering 90-fold increase in the capitalization of institutions. Hungary's economic development suffered a large setback following World War I due to destruction during the war, territorial losses, and the Great

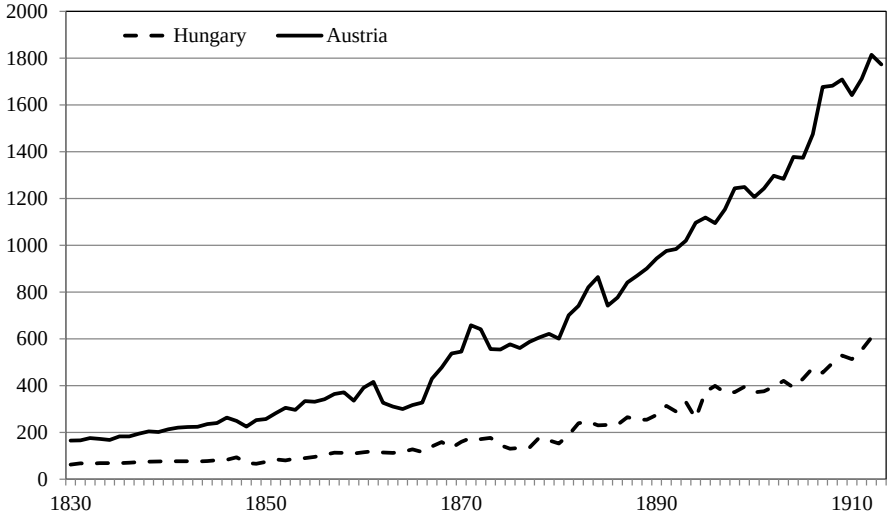
Depression which clearly halted the period of rapid economic development and after which Hungary's economy showed little improvement until the late 1930s (Berend, 1998; Romsics, 1999). Large-scale economic changes, most importantly coercive industrialization of the economy, took place only after World War II, under the communist regime which came to power in 1948.

Hungary's national institutions too underwent developments in the late 19th and early 20th centuries. Most importantly, the newly-founded Austro-Hungarian state had greatly increased the number and size of local and national bureaucracies (Kövér & Gyáni, 1998) which led to many more bureaucratic and professional jobs, requiring the modernization of educational institutions. The great majority of the Hungarian population in the 19th century was illiterate (Kövér & Gyáni, 1998). Educational reforms were introduced primarily in elementary education (the 1868 Education Act), which was first extended from four to six years and later, in 1940, to eight years. Efforts were made to eradicate urban-rural educational differences by establishing elementary schools in rural areas. This allowed the agricultural population to send their children to school, and as result, illiteracy rates dropped to 7 percent by the outbreak of World War II (Dányi, 1964).

Farmers could also increasingly afford one of several forms of secondary schools for their children (for a general overview of the Hungarian school system see Simkus & Andorka, 1982), and the representation in secondary education of children from agrarian backgrounds increased throughout the period (Kövér & Gyáni, 1998). Secondary schools were, however, still to a great extent available only in towns, and academic educational trajectories (humanities-oriented *Gymnasium* or science-oriented *Reálschool* and university) were a privilege of the few. The greater part of the population, about three quarters in the late 1920s, experienced only four or six years of elementary education. In the late 1920s, average levels of education in Hungary were still lower than in some of the countries neighboring it to the northwest, but higher than in the countries to the southeast (Simkus & Andorka, 1982).

The processes of modernization of industrialization, transport, bureaucratization and educational reforms increased the importance of cities for Hungary's governance and economy, and most notably that of the capital

Figure 1.1: Industrial production in Austria and Hungary, 1830–1913



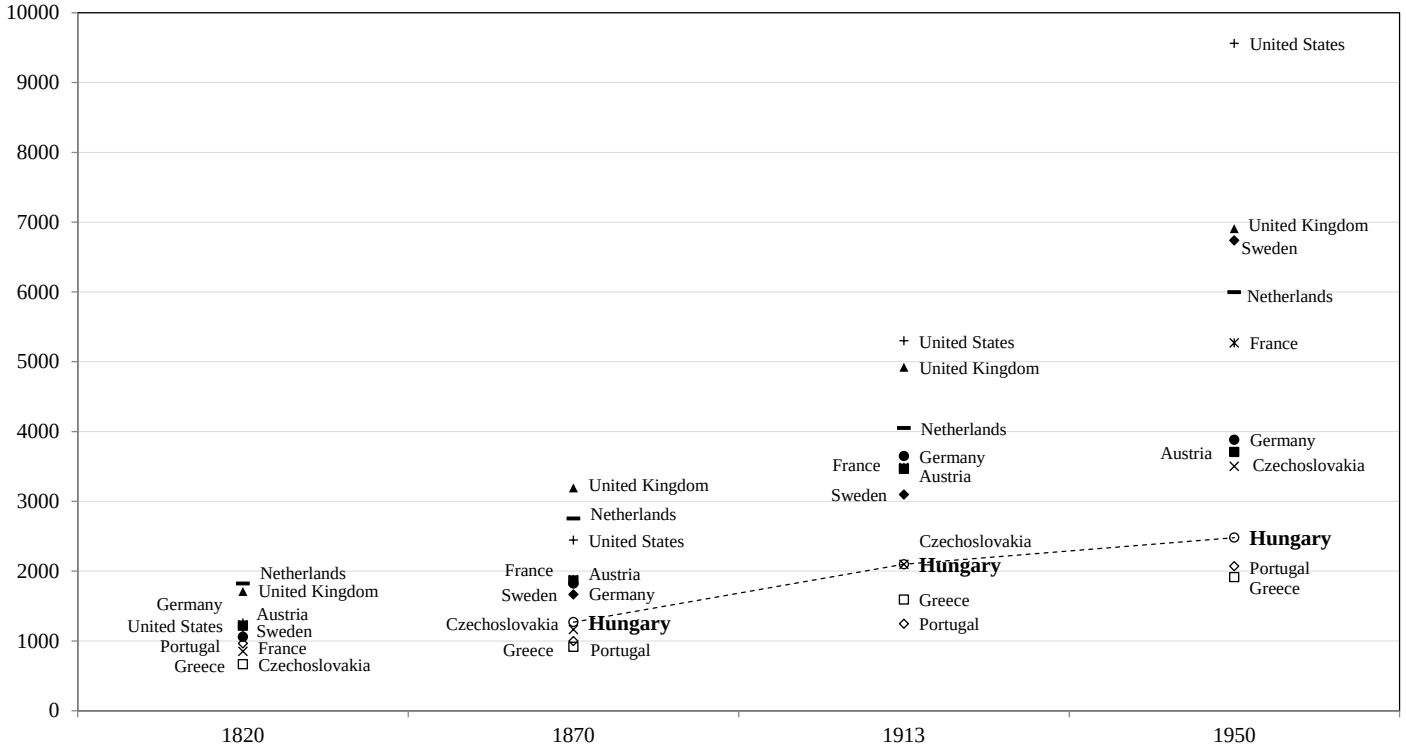
Note: estimates include manufacturing, mining and construction and are given in millions of crowns, 1913 prices.
Source: Good (1984, pg. 257–260).

Budapest (Beluszky & Győri, 2005; Beluszky, 2001). The large-scale rebuilding of Hungarian towns and cities at the turn of the 19th and 20th centuries, during which a plethora of new public buildings, such as libraries, museums, parks, and roads were built and established, illustrates the process (Berend, 2003).

As cities provided improved living conditions and new opportunities for education and work, and the development of transport increased the opportunities for geographic mobility, the sizes of populations living in cities increased rapidly in Hungary (Dányi, 1998).

Hungary's economic modernization was not unique in the world, and not even the most rapid. Even in the economically successful period of 1890–1914, changes there were on a smaller scale than in the already more industrialized Western parts of the Austro-Hungarian Empire (Good, 1984). Figure 1.1 shows changes in the amount of industrial production in the two parts of the Austro-Hungarian Empire between 1830 and 1914. Hungary's development lagged behind that of its Austrian partner but the increase in productivity indicates marked shifts in industrial development

Figure 1.2: GDP per capita in European countries and the U.S. between 1820 and 1950



Note: GDP per capita in 1990 international dollars.
Source: Maddison (2001, pg. 185).

(see Good, 1984, pg. 257–260).

In broader international comparison (see Figure 1.2) Hungary´s economic productivity in the late 19th and early 20th centuries resembled the trends in Western developed countries until World War I, although the economic gap between Hungary and most developed Western countries increased during the first part of the 20th century. Hungary's economic productivity was in fact somewhere between the less industrialized countries of the Balkans and South Europe and the more developed Western European countries.

Modernization in Hungary between 1860 and 1950 was substantial in many respects, but did early modernization bring with it changes in social openness? In social mobility research, temporal changes in social mobility during the early phase of modernization have been studied much less than during more recent periods (for reviews of this latter literature see Ganzeboom et al., 1991; Treiman & Ganzeboom, 2000; Breen & Jonsson, 2005; Hout & DiPrete, 2006. However, as some argue, the significant macro-social and economic changes that occurred during early modernization influenced the life chances of a broad swathe of the population, which makes that early period important for understanding long-term temporal changes in social mobility (Fukumoto & Grusky, 1993; Goldthorpe, 1985; Miles, 1994; Treiman, 1970). Modern-era mobility studies cover the post-World War II period and even the oldest birth cohorts in those data provide no information on the period before World War I. It is therefore difficult to draw conclusions about the period of early modernization, which in most countries predates this era, as Figure 1.2 shows. The lack of large-scale mobility data from historical periods is therefore a barrier to the study of developments during early modernization, and therefore also to finding the answer to the first of our three research puzzles about Hungary. Other data sources are required.

Social differentiation occurs in every society (Treiman, 1977) and all societal institutions throughout human history, or at least it has been in all those which have generated written memorials, kept records of occupations, or social status. A large amount of micro-level information has been left behind about members of historical societies and those sources are used by historical sociologists to study social mobility in historical periods (Aminzade & Hodson, 1982; Kaelble, 1983; Thernstrom, 1973). However, until

recently, due to the time-consuming nature of collecting and processing historical micro-data most studies had to rely on samples that were small or geographically or temporally limited. The recent 'digital revolution' has created new possibilities for historical sociology by making data collection and processing easier and quicker. Nowadays, with the aid of computers, geographically and temporally larger and wider historical datasets can be collected and made available to anyone wishing to study social mobility and stratification in past societies (for a review of data sources and the emerging literature on historical mobility see Van Leeuwen & Maas, 2010).

Between 2009 and 2011, Ineke Maas, Marco van Leeuwen and I collected data on Hungarian marriage records from parish registers dating from 1850 to 1950, as part of the Towards Open Societies project of the European Research Council. The *Hungarian Historical Social Mobility File* (HHSMF: Lippényi et al., 2013b) is a new contribution to the growing body of comparative historical micro-data, and forms the basis of the majority of the chapters in this book. It will be introduced and described in detail in Chapter 2. The period covered by the data includes the onset of modernization in Hungary. Chapter 3 of this book, again co-authored with Ineke Maas and Marco van Leeuwen, investigates temporal changes in patterns of social fluidity in Hungary between 1865 and 1950 to confirm its unexpected increase before the socialist era, and to investigate whether it occurred in the period of early modernization at the end of the 19th century.

1.3 The second puzzle: explaining social fluidity during early modernization

The increasing amount of mobility data from different social and economic contexts not only allows a more refined investigation of temporal variation in social fluidity, but also facilitates discovery of its driving forces (Breen & Jonsson, 2005; Van Leeuwen & Maas, 2010; Treiman & Ganzeboom, 2000). In the search for explanations for the temporal increase in social openness, studies of a number of industrial societies point to tertiary educational expansion (Breen & Jonsson, 2007; Breen, 2010; Hout, 1988; Müller & Pollak, 2004; Vallet, 2004) and welfare state policies (Beller & Hout, 2006; DiPrete

& Grusky, 1990; Erikson et al., 1982) as major driving mechanisms behind changes in intergenerational social mobility. However, tertiary educational expansion and the modern welfare state with its broad population coverage are both recent historical developments and do not help to explain changes in social openness during early modernization. Educational expansion in Western countries accelerated only after the 1960s, and before then only a small fraction of the population enjoyed education higher than secondary (Schofer & Meyer, 2005). Prior to the 1950s the majority of Hungarians received elementary schooling as their highest educational level and the shift toward increasing tertiary education started only in the 1990s (Bukodi & Goldthorpe, 2009). Most European countries had started to expand their welfare provision in the interwar period (Flora & Heidenheimer, 1981), but in Hungary that occurred after World War II (Ferge, 1980).

Finding out which societal factors contributed to increasing openness during early modernization is our second puzzle, and two chapters in this book are devoted to solving it. There were substantial differences in the levels of modernization between municipalities in the period of early modernization in Hungary which persisted into the whole period under study here (Beluszky & Győri, 2005; Beluszky, 2001). The great variation within Hungary means we can study variation in modernization and social fluidity there in social contexts below the national level. In Chapter 4 we focus on developments that occurred in Hungarian municipalities from 1870–1950 with regard to industrialization, educational opportunities, growth of the population, and possibilities for geographic mobility. We derive hypotheses from the theory of industrialization that specifies mechanisms through which modernization relates to social fluidity (for the theoretical hypotheses see Treiman, 1970; for empirical case studies see Grusky, 1983; Treiman & Yip, 1989; Grusky & Hauser, 1984; Zijdeman, 2009), and test whether those processes can explain variation in social fluidity.

In Chapter 5 I investigate how the temporal increase in social fluidity in the period relates to two important societal changes in Hungary, the growth of internal migration and the growth of the urban population. Geographic mobility and the growth of urban population are intrinsically associated with modernization (Hochstadt, 1999; Kaelble, 1983; Pooley & Turnbull, 1998; Ruggles, 2007) but mobility researchers in the past debated whether those processes decrease intergenerational occupational rigidity (Blau &

Duncan, 1967; Lipset & Zetterberg, 1959; Thernstrom, 1973; Treiman, 1970). Recent studies of long-term changes in intergenerational occupational mobility (Long & Ferrie, 2007; Long, 2008) suggest that periodical changes in the pace of urban growth and internal migration might explain some of the differences in social fluidity. However those claims have hardly been tested empirically.

Theoretical works argued that urbanization provide more equal opportunities for attaining higher social positions (Treiman, 1970) and migration is assumed to be selective and so would increase migrants' chances of escaping their social origins (Borjas et al., 1992; Chiswick, 1999; Sjaastad, 1962). Chapter 5 investigates whether social mobility patterns of internal migrants and urban residents show greater fluidity than those of non-migrants and rural residents. The answer to our second research puzzle will then be found by investigating the extent to which increasing internal migration and the growth of urban municipalities can explain the temporal variation in Hungarian social fluidity.

1.4 The third puzzle: market transition and the mechanisms of social fluidity

Following the Soviet-supported communist takeover of Hungary in the late 1940s, the state nationalized all economic activities and established central planning bureaus to exercise control over the distribution of resources, including production goods, labor and skills (Kornai, 1992). Despite moderate market reforms, Hungary's economy was dominated by large state enterprises and the suppression of the private sector prevented competition and the flow of resources, labor, and skill (Róna-Tas, 1994). After 40 years of single-party rule by the Hungarian Socialist Workers Party, the Velvet Revolutions of 1989 ushered in multi-party democracy, and successive governments implemented radical market reforms. Between 1990 and 1998 restrictions on private property were abolished, enterprises were privatized, central planning was eliminated, and state control over the economy evaporated, along with centralized wage controls. As a consequence of the privatization of the economy and withdrawal of state control, both income inequality and unemployment rose sharply (Atkinson &

Micklewright, 1992; Kolosi & Sági, 1998; Róbert & Bukodi, 2004b).

Excited by the prospect of gaining first-hand insights into the mechanisms through which economic and social institutions shape social inequality, stratification sociologists have been eager to study the consequences of Hungary's market transition, which some have even compared to a 'natural experiment' on how social inequalities emerge when a society adapts to the capitalist market economy (Nee, 1996). The primary expectation of market transition theorists was that political power resulting from communist party membership and connections to high party officials—both of which were paramount for attaining elite positions in the one-party communist system (Djilas, 1957)—would be less of a determinant for occupational attainment. Concomitantly, income inequalities were expected to rise under market conditions, while education and other labor market assets were expected to become stronger determinants of labor market outcomes (Cao & Nee, 2000; Nee, 1989, 1991, 1996; Róna-Tas, 1994; Walder et al., 2000; Walder, 1996, 2003).

The fundamental changes in the transition period in the political and economic institutions that govern stratification outcomes create a new puzzle for intergenerational mobility research, chiefly the question to what extent the institutional retreat from socialism re-shaped the mechanisms governing intergenerational occupational mobility. Some studies have already investigated intergenerational mobility in the transition period both in Hungary (Bukodi & Goldthorpe, 2009; Róbert & Bukodi, 2004a) and in other post-communist countries (Gerber & Hout, 2004; Saar, 2009) and have found that there was a decrease in social fluidity then. However, previous research did not investigate whether it was only the strength or also the mechanisms of intergenerational mobility that changed following the institutional transformations.

In Chapter 6 we propose a theoretical model of how occupational mobility operates differently under socialism from how it works under market regimes. Our model specifies four vertical dimensions of occupational resources—power, education, autonomy, and capital—plus a horizontal dimension consisting of linkages among occupations in the same economic branch. Given the nature of the political and economic institutions of state socialism we expect political power associated with different occupations to exhibit much stronger effects on intergenerational mobility in the socialist

mobility regime, while autonomy and capital should play greater stratifying roles after the transition to the market economy. Education should have stable effects while the strength of horizontal linkages should diminish (though not disappear) with market reforms. By testing these hypotheses, using Hungarian mobility surveys between 1983 and 2005, Chapter 6 therefore aims to solve the third and last research puzzle of this book, that of whether social mobility has distinct patterns in socialist and market institutional settings.

1.5 Macro and micro levels in social mobility research

Intergenerational class mobility research focuses on the openness of occupational structures and traditionally raises research questions at the level of countries or labor markets, for example if certain periods or types of societies are more 'open' than others in the opportunities they offer for social mobility. Questions how various resources of individuals and their parents, such as education or cultural capital, relate to their attainment of occupational positions have traditionally been addressed by the so-called status attainment approach (e.g., Blau & Duncan, 1967; Grusky, 1983).

The micro- and macro-level research traditions use different measures of occupational position and different methods (for reviews of the methods of status attainment and mobility literature see Breen & Jonsson, 2005; Ganzeboom et al., 1991; Hout & DiPrete, 2006; Treiman & Ganzeboom, 2000, although methodological advancements now allow combinations, such as class mobility analyses at the micro-level (Breen, 1994; DiPrete & Grusky, 1990; Hendrickx & Ganzeboom, 1998; Karlson et al., 2012; Karlson & Holm, 2011). However, research that gives empirical answers to both types of questions are still rare, which is largely due to the lack of appropriate data. The strength of historical mobility datasets lies in their capacity to allow the study of long-term trends in social openness, but they do not usually provide a great variety of comparable individual-level variables. Survey datasets on the other hand include measurements of income, education, or even social capital, but are unavailable for historical populations and are therefore less useful for studying extended periods of

time.

In this book my focus is on the macro–level question of how and why the openness of Hungary has changed. The focus on this macro-level question, however, does not mean that the analyses will provide no insights into micro-level mechanisms of mobility. Class mobility research can rely on the rich pattern of intergenerational mobility flows between classes in mobility tables, which is indirectly quite informative about how parents transmit their occupational positions to their offspring. Researchers commonly analyze separate parts of the association in the mobility table to compare the 'openness' of classes and learn about flows between classes that are known to have similar resources (Hout, 1983). The cells on the diagonal in the square mobility table are especially interesting because they represent those who are immobile from their class origins. The extent to which immobility is shown in the mobility table, above what is forced by structural changes in the marginal distributions, gives information about the strength of social rigidities in class reproduction (cf. Erikson & Goldthorpe, 1992).

Another approach we can use to make inferences about the individual- and occupational level mechanisms of occupational mobility is to model intergenerational mobility mechanisms with variables on the occupational aggregate level. An often-used method of doing that is to assign scale values to class origins and destinations (Haberman, 1974; Hout & Hauser, 1992; Hout, 1983), such as class-averages for income, education or self-employment. Incorporating those variables in the analysis of mobility tables reveals the lines along which class reproduction and mobility occurs. Examples of approaches to lean about the mechanisms of mobility are used throughout this book. Despite the many informative methods we can use to model different mobility processes at the macro level, the results we get from mobility table analysis are never more than indications of micro-level mechanisms, and the reader should bear that in mind while reading this book.

1.6 The concepts of absolute and relative mobility

Social mobility research distinguishes *absolute* rates of mobility from *relative* mobility, or social fluidity. The distinction is fundamental and will be maintained in the studies throughout this book. Absolute rates of social mobility between origin and destination classes are influenced by shifts in occupational distribution occurring in the lifetimes of generations. The historical decline of the agrarian sector and the later shifts from industrial to service sector-dominated economies that characterize present societies have had a major influence on the difference in the sizes of occupational classes, and the relevant class-size is what determines the chance of occupational mobility and occupational reproduction across generations.[1] Relative mobility, on the other hand, mirrors the underlying pattern of class inequalities and reflects the rigidity of the stratification system, tapping into the core sociological problem of social openness.

Early studies in mobility research did not distinguish absolute and relative mobility (e.g., Lipset & Zetterberg, 1959), but in recent decades academic attention has shifted predominantly to the question of relative mobility. Advances in the methodology of mobility research, most importantly the use of odds ratios and log-linear analyses, have enabled researchers to estimate relative mobility in isolation from the shifts in occupational distributions shown in mobility tables. That has in turn made it possible to describe variation in social fluidity across contexts (for general treatments on statistical methods of mobility table analysis see Hout, 1983; Rudas, 1997; Wong, 2010).

This book looks primarily at relative mobility, although rates of absolute mobility from the pre-communist period will be presented in Chapter 3. For a treatment of changes in absolute mobility rates in the late communist and market transition period I would refer the reader to a book chapter by Erzsébet Bukodi and Péter Róbert where they analyze mostly the same datasets as were used for Chapter 5 in this volume (Róbert &

[1] Furthermore, changes in demographic behavior—e.g., declining fertility in certain classes— and political institutional changes—e.g., coercive restructuring of industries—could also influence the size of occupational classes and thus absolute intergenerational flows between classes.

Bukodi, 2004a).

1.7 Contributions to methods to analyze social fluidity

This book aims also to contribute two analytical methods to social mobility research. In Chapter 4 we present an improved method for incorporating macro-level explanatory variables in the analyses of multiple mobility tables. There are two types of modeling approaches in explanatory analyses of social fluidity. The first approach, applied by Grusky & Hauser (1984), incorporates macro-level explanatory variables as covariates directly into log-linear analysis of mobility tables. The second approach, presented by Xie (1992), takes on the analyses in two steps: in the first step parameters are estimated by showing the strength of intergenerational association in each table, and in the second step, those measures of relative mobility are correlated with explanatory variables. In cases where the analysis includes a large number of tables, the first approach is highly computation-intensive and might result in convergence problems as the fitting of the model requires the simultaneous estimation of a large number of marginal effects.

In Chapter 4, we analyzed 638 mobility tables by using an improved version of the two-step approach. We applied a meta-analytic regression technique (Higgins et al., 2009; Jackson et al., 2010; White, 2011) to the second-step to test the effects of modernization processes on social fluidity, instead of using bivariate correlations.

The meta-analytical technique we introduce to mobility table analysis has several attractive attributes. It allows us to measure the 'true' variation across tables in intergenerational association by separating inter-table variance in estimates from sampling variance. The correlational approach does not separate the sources of variance, and therefore 'noise' from sampling error could conceivably confound the estimated effects of modernization processes on social fluidity. Meta-analysis of a single estimate can be straightforwardly extended for multivariate analyses, and this way we can include multiple parameter estimates in the analysis which correspond with distinctive immobility patterns of classes and mobility between them.

Alongside those improvements in estimation, meta-analysis provides a

new measure (I^2) which summarizes variation in estimates across tables. The I^2 shows the size of the 'true', inter-table variance in social fluidity relative to the total variance which also includes 'noise' coming from the first-stage estimation error. Similarly to intra-class correlation (Higgins & Thompson, 2002), the change in I^2 across regression models expresses how much of the inter-table variation in social fluidity could be explained by covariates. Since social fluidity has no natural scale to guide assessment of the strength of modernization effects, I^2 is a useful measurement because it shows the merit of each modernization process in explaining social fluidity.

To summarize then, the meta-analytical approach developed in Chapter 4 provides more accurate estimates than those given by bivariate correlations, a new measure to quantify variation in fluidity, and explained variance, and it is computationally more feasible than the one-step approach in the case of many mobility tables. As the number of historical and present-day comparative mobility datasets increases, the technique can be expected to become a useful tool for mobility researchers who wish to explain variation in social fluidity across contexts.

Occupational mobility researchers have proposed a range of models to study how occupational origins and destinations are related. The second contribution of this book will be a new mobility model to analyze mobility tables disaggregated to occupational micro-classes, and that is presented in Chapter 6.

Jonsson et al. (2009) were the first to propose a model for intergenerational 'micro-class' mobility. They modeled intergenerational reproduction within micro-classes using a unique effect for each diagonal cell in detailed 82×82 occupational mobility tables. Their model allows excess mobility between micro-classes that fall in the same larger ('big' or 'meso') class and scales occupations along a single socio-economic status dimension to capture vertical mobility between micro-classes. Because their model focuses on immobility and the extent to which apparent 'meso-class' immobility reflects micro-class mobility, their specification of vertical mobility between micro-classes is underdeveloped. Moreover, because it uses a large number of parameters to represent diagonal association the 'micro-class inheritance' model fails to provide a parsimonious and intuitive way to decipher which aspects of the various occupations induce variations in rates of immobility within them, nor does it tell us much about mobility between

other types of occupations.

The problem of large numbers of parameters pertains to association models also when applied to disaggregated tables. Association models optimize the scaling of occupational categories empirically and estimates odds-ratios as 'distances' in chances of mobility between each class (Goodman, 1979a,b). The disadvantage of association models for the analyses of disaggregated tables is that the high number of mobility distances makes interpretation of mobility patterns cumbersome. Jonsson et al. suggest that their model can be extended by scaling occupations according to the kinds of skills, cultural capital, or social networks that are distinctively associated with them, with the expectation that mobility is greater between occupations with more similar values on those scales (Jonsson et al., 2009, pg. 991).

We take up that suggestion by proposing a new model for micro-class mobility in socialist and post-socialist Hungary which derives from and expands upon Hout's (1984) 'status, autonomy, and training' (SAT) model. The SAT model conceives of occupational mobility (and immobility) in terms of movement—and persistence—across the three vertical dimensions in its title. We have supplemented and modified these dimensions to generate the 'power, education, autonomy, capital, and horizontal' (PEACH) model. Thus, in contrast to the micro-class model and empirically-scaled association models of Jonsson et al., we specified multiple dimensions of occupations across which parents' occupations influence those of their offspring.

The parameters from our model provide a more parsimonious representation of the association in micro-class mobility tables than did previous models. The new micro-class model can be widely applied as a way to model various theoretically derived dimensions of intergenerational occupational mobility, and to model changes in the strength of those dimensions for determining the patterns of social fluidity across institutional settings.

1.8 Occupational classifications and class schemes

During the course of this research I applied the appropriate standard international classifications of occupations and class schemes. In Chapters 3–5 occupations were coded using the Historical Intergenerational Stan-

dard Classification of Occupations (HISCO), an occupational classification system used for historical occupational titles. The HISCO has been developed using data originating from more than 15 countries (Van Leeuwen et al., 2002) and has been applied in many studies of mobility and stratification research in historical periods (Van Leeuwen & Maas, 2010). The HISCO occupational codes have subsequently been classified according to the Historical International Social Class Scheme (Van Leeuwen & Maas, 2011). The HISCLASS is a historical social class scheme which bears a close resemblance to the 'EGP' class scheme used in the CASMIN tradition of mobility research (Erikson et al., 1979; Erikson & Goldthorpe, 1992; Breen, 2004). The class scheme is elaborated in Chapter 3.

In Chapter 6 occupations were coded using ISCO88-codes and categorized in micro-classes. Micro-classes are formed around occupational groups smaller than the more aggregated class categories but which share common identities, practices, and institutionalized selection and rewards (Grusky & Weeden, 2001; Weeden & Grusky, 2012). The classification of Hungarian survey data was based on the 82-class scheme used by Jonsson et al. (2009) for intergenerational mobility analyses, but some micro-classes were too small and had to be merged with similar small classes.

1.9 Social mobility of men and women

The analyses in the chapters about early modernization are restricted to intergenerational mobility between the occupational classes of fathers and their sons. Female participation in the labor market in pre- World War II Hungary was low and as historical sources suggest, for most women paid work constituted a temporary phase of life between the ages of 15 and 25, before they were married and became homemakers (Gyáni, 2009). The scant participation of women in the labor market took place in a few usually gender-segregated occupations. For most uneducated women, the only real option was to become housemaids or domestic servants, and for partially- or better-educated women typical jobs were as secretaries, or primary school teachers (Gyáni, 2009; Kövér & Gyáni, 1998).

The Hungarian Historical Social Mobility File used here for our analyses mirrors those patterns of female labor: for only 9,200 of the women in about 90,000 marriages (around 10 percent) was there any information

about their occupation, and 40 percent of those with an indicated occupation were not actually in paid work but were homemakers or helped with their parents' household. Among non-agrarian women engaged in paid labor (approximately only 3,000 cases), 50 percent were occupied in the four occupations mentioned above. So, because of the low female participation in paid labor and the very strongly gendered pattern of female occupational attainment, I decided to limit the scope of this research to father-to-son mobility.

1.10 Ethnicity and religion in Hungary

Pre-World War I Hungary was multi-ethnic, but the vast majority of ethnic minorities lived outside the borders of present-day Hungary. According to the population census in 1880, 82 percent of the population living on present-day Hungarian territory were ethnic Hungarians, Germans being the second largest ethnic group with 11.3 percent. The ethnic composition of the country changed towards greater ethnic homogeneity, based on the 1930 census 92 percent of the population were Hungarians and only 5.5 percent German (Kocsis & Bottlik, 2009). From the religious point of view, the territory of present-day Hungary was home to varied Christian denominations (their size was above 90 percent), while around 5–6 percent of the population were Jewish. In this book, I have not considered potential differences in the social mobility patterns of different ethnic and religious groups in Hungary. The social and economic history of the Hungarian Jewish religious and ethnic group in the period under discussion here is for that matter treated in the excellent monograph by Don & Karády (1990). The Hungarian Historical Social Mobility File also includes Jewish marriage records which could of course be analyzed in future research.

1.11 Summary of contributions of this book

In this introductory chapter I have outlined two broad research questions and three unsolved puzzles. This book provides theoretical and empirical answers, in the Hungarian context, to the questions of how social fluidity changes over time and what are the sources of variation in social fluidity, both of which contribute to our overall knowledge of social mobility. By

solving research puzzles related to those questions, the book contributes to the tradition of social mobility studies on Hungary.

To study our three puzzles, we gathered new data on historical social mobility from a period in Hungarian history for which such data were previously unavailable, a contribution to the growing body of mobility datasets which also can be used in future research projects, whether Hungary-orientated or on comparative mobility generally. We contribute a method for conducting explanatory analyses of social fluidity, and a new mobility model for studying mobility in disaggregated intergenerational mobility tables, both of which methods can be used for a wide range of applications.

This book is devoted to the study of intergenerational mobility during two transitions, the period of early modernization and that of market transition from communism, neither of which is unique to Hungary, and both of which have received a great deal of attention from social mobility researchers working on other countries, but the findings of this book will add to the knowledge of how such transitions are related to long-term developments in social mobility.

Chapter 2

Creating the Hungarian Historical Social Mobility File

Historical social structure and mobility "beyond the Leitha"*

2.1 Introduction

At the beginning of 2010 I conducted preliminary fieldwork in Hungary to prepare for data collection, when I came across the family reconstruction files of Rudolf Andorka at the TÁRKI Institute. Even though I did not find sufficient occupational information, Andorka's work is a breathtaking if sadly unfinished enterprise of hand-written catalogue cards probably running into the thousands, other papers, notes and family trees written in pencil linking births, marriages, and deaths of the people of 11 Hungarian villages (Andorka & Balázs-Kovács, 1986; Andorka, 1994). Looking through this collection revealed how great an effort it must have been for social scientists in the past to collect all their information without the aid of present-day micro-computing facilities. Nowadays we can collect and organize data more quickly and efficiently, although gathering good-quality data about past societies remains an enormous challenge. To study the remote past, sociologists cannot create their sources by designing surveys to

*This chapter is co-authored by Ineke Maas and Marco H.D. van Leeuwen. A slightly different version of this chapter is published in *Historical Informatics* (2013, vol. 4(2), pp. 3–24). Web page of the HHSMF: `http://www.lippenyi.hu/research`

interview people; they have to collect information from historical sources that are sometimes accidental, often incomplete, and were almost never created with future sociological research in mind.

Owing perhaps to the challenges of assembling large-scale historical databases, research on historical mobility was limited to only a handful of Western European countries and the US, for the reason of lack of data elsewhere (Van Leeuwen & Maas, 2010). To gain new insights on the long-term trends and historical determinants of mobility and stratification, we need to collect data from historical contexts which were not studied before, such as European countries 'beyond the river Leitha' in the 19th century.

For the study of 19th century mobility patterns in Hungary, which was the main purpose of this research project, social mobility surveys are of little use. The first surveys in Hungary were carried out in the 1960s and 1970s, and even by analyzing the oldest surviving cohorts it is impossible to go further back than 1900. We therefore took up the task of collecting historical data and built a social mobility database on Hungary from marriage records that go back to the 19th century, which is the first Central-Eastern European historical mobility dataset with national coverage.

This chapter presents the process of collecting the Hungarian Historical Social Mobility File. First we present the goals of the data collection, then after introducing marriage records as a source for mobility study we shall explain the data collection and sampling methods. The chapter addresses potential pitfalls of using marriage records as a source for intergenerational social mobility, as well as briefly considers the future research possibilities with the Hungarian Historical Social Mobility File. Our purpose is to share our experience with mobility and stratification researchers, which will hopefully be a useful guidance for those who are willing to endeavor data collection from historical sources to study mobility and stratification of past societies.

2.2 Goals of data collection and sources

Our two main goals in designing the data collection were first, to find sources that included occupational information for fathers and sons for as long a period as possible for the time before such things as mobility surveys, and second, we wanted to represent as accurately as we could the

various social contexts in which past populations lived in 'our' period in Hungary.[1] Various sources of historical data contain preserved information on the social position of individuals, such as birth and baptism registers, enumeration of tax-payers, or conscription listings of army-aged men, but marriage registers are particularly useful for studying intergenerational mobility. Marriage is a social arrangement that exists almost everywhere in the world, and in most cultures has some form of legal, sacred, and communal significance, which is why institutions, such as the church or state, tend to record the event.

In Hungary, naturally enough churches and congregations maintained registers of marriages of their members in church books. The resulting documents are still available, usually well preserved in congregational archives in every municipality, and they contain information about the occupations of both bride and bridegroom, along with other basic facts like the date and place of birth, place of residence, existing marital status—, which information is often given for parents too, and in most cases, even for witnesses. This is where the main advantage of marriage registers lies: a single marriage record tells us the occupation of two generations, which is sufficient to study intergenerational social mobility. This spares the researcher the time-consuming labor of collating records from different sources. For instance there is no need to match birth and death registers, nor census records taken at different times.

Compulsory civil registration of marriages was introduced in 1895 in Hungary. Civil marriage records, however, do not contain the occupation of parents after 1 January 1907[2], so they are thus not suitable for studying intergenerational mobility after this date. We therefore used only church marriage records. The registration of marriages, which the churches kept doing after the 1895 introduction of civil registration, was performed by the local official of the church in the presence of the bridegroom, bride, and the witnesses.

[1] We targeted studying father-to-son social mobility because in this historical period only few women remained in the labor force after getting married. The occupation of daughters was nevertheless digitized when it was present on the marriage record.

[2] 1904:XXXVI. 10.§, the 80,000/1906. Ministry of Interior Affairs 55. and 57.§

2.3 The period of investigation

Occupational information is not available in marriage registers throughout all periods, and we had to take this into account when we selected the observation period. Preliminary investigation of Hungarian marriage registers indicated that two factors influenced the availability of information on occupations. One was the format of the actual book in the church where particular marriages were registered, the other was the language used for registration. 18th century marriage registers were not usually in a tabular form, and very often had no titles above columns of information, so that it was left to the church official who was performing the registration to decide what information was worth putting down in the book. That led to inevitably great variation in the accuracy of registration and the extent of information about key variables for intergenerational mobility research. Consequently, occupational information is particularly scarce before the 19th century, when church books were centrally printed and distributed to the churches and congregations of Hungary. These books adopted a uniform tabular form with pre-printed column headers which included as standard 'occupation' as required information. That naturally made it easier for whoever was filling in the register to record complete information with no omissions. Occupational information is much more often present in the uniform books of the 19th century than in the less-standardized church books of the 18th century.

The language of registration also affected the availability of information on occupations. In the case of the Catholic Church, the largest denomination in Hungary, we find alternating periods of registrations in Latin and Hungarian. Language of registration remained as Latin until the 1830s, when it switched to Hungarian, only to switch back to Latin again in 1849 after the defeat of the Revolution and War of Independence. All the same, by the 1860s Hungarian had been reintroduced again in most Catholic parishes. Meanwhile, the linguistic changes in the Lutheran Church's record books mirrored those of the Catholics, although the records of the second-largest Hungarian Reformed church remained in Hungarian throughout the whole period. Jewish marriage registers were in Hungarian in most places and throughout most periods, although in a few cases they were in German. In the records in Latin, church officials rarely recorded

occupations, usually noting only whether the bridegroom, the bride and their parents were of noble birth or commoners. The same is actually true for Hungarian-language records, where before 1848 registration of social status occurred more often than registration of occupations.

With an eye to the expected amount of occupational information in each historical period, we chose 1850 as the starting year for our data collection: the year of the end point was decided by Hungarian Law, for the Hungarian Archive Act forbids academic research of marriage records until 60 years have passed following a marriage, and as we filed for permission in 2010, the last year for which data collection was possible for us was therefore 1950.

2.4 Sampling and data collection

A further goal of our data collection was to represent accurately the various social contexts in which past populations in Hungary lived in that period. We therefore aimed for a representative sample of the married Hungarian population between 1850 and 1950, in the period of investigation. It is however unfortunate that we were unable to collect data for the entire territory of historical Hungary. Representing the whole historical territory of Hungary would have required data collection in modern-day Austria, Slovakia, Ukraine, Romania, and countries of the former Yugoslav Republic, which clearly would have exceeded the possibilities of this project. The dataset therefore contains information about marriages solemnized within the borders of present-day Hungary which was established in 1920.

We first sampled municipalities from which marriage records were to be digitized. We chose to stratify municipalities before sampling because a simple random sample of marriages would have led to little variation in occupations.[3]. The great majority of Hungarians then worked in agriculture (Andorka, 1982; Kövér & Gyáni, 1998) and there were major differences between municipalities in labor structure and modernization (Beluszky & Győri, 2005; Beluszky, 2001). So to ensure variation in social-economic contexts and occupation, we stratified Hungarian municipalities according to economic and social development. The strata represent the diversity

[3]For more information about the advantages of stratifying see a non-technical exposition by Lohr (2008).

of occupational class structures in Hungary, and hence we expect them to reflect possible differences in occupational class mobility as well. The list of names of municipalities in the 1930 Hungarian Census (MKKSH, 1935) was used as a sampling frame. That census was taken within the borders of the Hungarian Kingdom and includes all municipalities that existed in the year 1930 and the published tables from the 1930 census are the most reliable among pre-World War II census publications with respect to municipal names and statistical accuracy.[4] We distinguished seven municipal strata: rural villages, developing rural villages, urban-type villages, agrarian towns, industrializing towns, developed urban towns, and regional centers with municipal rights. Appendix A gives a description of our method of stratifying municipalities and describes the municipal strata in detail.

The present-day territory of Hungary is divided into seven large regions: Western Transdanubia, Southern Transdanubia, Central Transdanubia, Central Hungary, Northern Great Plain, Southern Great Plain, and Northern Hungary. In each of the seven regions we first randomly selected a maximum of two towns from each of the seven municipal strata. For three of the larger regions, also randomly selected, we sampled one regional center with municipal rights, and included two districts from the capital city of Budapest.[5] Budapest had a highly populous metropolitan agglomeration, and representing the different parts of Budapest and that of the agglomeration separately was not feasible given the resources available for the data collection. We chose to represent Budapest together with its agglomeration by sampling from those parts which were merged with the city in 1950. These districts were close to the inner city but also of large area and with a heterogeneous labor population, so they represent the population of Budapest and its agglomeration very well. In the original sampling plan we included Újpest, from 1950 a district of Budapest,

[4]From personal communication with Prof.dr. Tamás Faragó (Eötvös Loránd University, Budapest).

[5]For the South Hungarian town of Kalocsa, two surrounding villages and their outskirts, marriage records had already been digitized by the historical archives of the Kalocsa Archbishopric, and were put at our disposal. We would like to thank dr. Andor Lakatos for providing us access to these data. Our estimates for the data collection, e.g., the expected number of marriages per period, were based upon the inspection of these data.

as digitized marriage records were already available from parishes there. However, for a long period Roman Catholic marriage registers in Újpest neglected to include occupational information, so we randomly selected another town, Rákospalota, which likewise became a district of Budapest in 1950.

After taking samples from towns and cities we proceeded to take them from villages too. Hungary's territory is divided into 174 statistical micro-regions, each micro-region having a larger town or city as its centrum (HCSO, 2007). The micro-regions were used during sampling, and for each town, we selected one or two villages from the same micro-region of that town. We used the same procedure as we had used for selecting cities: per micro-region choosing one to three villages from each municipal stratum. The selection of the number of villages per stratum was based on the distribution of populations in different municipal types. In order to represent villages that are not in the vicinity of a larger town we selected three additional villages[6] from micro-regions that had a smaller town as regional center.

As small rural villages saw very small numbers of marriages, to optimize data collection we excluded municipalities with fewer than 1,000 inhabitants from the sampling frame (altogether approximately 11 per cent of the population in 1930). Inspection of municipal indicators (see Appendix A) indicated only minor differences in modernization and demographic indicators between such villages and those that had a slightly larger population (between 1,000 and 3,000), so we reasoned that their exclusion would not distort the sample.

We also wanted to ensure that the amount of digitized marriages did not differ greatly between sampled municipalities and was evenly distributed across time. Per village we targeted a sample size between 400 to 1,000 marriages, and this was 800 to 3,000 marriages in case of towns. As in some larger towns and periods there were too many marriages, further random sampling of marriages was necessary, so to do that, we calculated a sampling interval beforehand for each year, each denomination, and each municipality, taking into account the distribution of marriages across parishes if there were multiple parishes of the same denomination.

[6]These villages were Szulok, Tataháza, and Köveskál (the neighboring village, Szentbékkálla was also included as it had the same Roman Catholic parish as Köveskál).

The persons performing the digitalization were subsequently instructed to use those sampling intervals and digitize every second, third, etc. marriage record in the marriage register. Although the sample must be weighted to represent the country, our method allowed us to balance the number of observations in the sample across municipalities and periods.

2.4.1 Pre-selection of sampled municipalities

The recording of occupations was very common across Hungary, even if the frequency and quality of registration shows some variation. The Roman Catholic Archdiocese of Eger in Northern Hungary was the only Catholic Archdiocese where it was not the custom to register occupations at all. The territory of the Archdiocese of Eger does not quite cover the mostly Catholic region of Northern Hungary, so we were still able to sample municipalities from the region, although there is no information for marriages from the North-Eastern part.

As it happened that church officials in other regions too did not document occupations, we had to pre-select towns to make sure that we did not end up try to collect data from towns with hardly any occupational information in their marriage registers. We did that by first counting the number of marriage records for every five years and then looked at the number of marriages with no information on the occupation of the father's or bridegroom's occupation. Based on those counts, we decided to either proceed with data collection for the town or select another town. The decision rule was this: if valid observations, i.e. observations including both father´s and bridegroom´s occupation, for the most popular denomination were absent over a period of 30 years or the number of valid observations made up less than 30 percent of all marriages within that denomination, we dropped the town from the sample and sampled another town from the same region and municipal stratum. If we sampled a town, we repeated the same procedure for each of the sampled villages in the micro-region, dropping those whose marriage records had sparse information on occupations, and randomly selecting a replacement village from the same micro-region and municipal stratum. We did not see any systematic regional or municipal stratum-specific pattern in the availability of information on occupation, so recording occupation must have been a matter of local cus-

toms, and as such, it is unlikely to be related to the social structure or to mobility at the municipality.

2.4.2 Data collection

For each municipality selected we proceeded by digitizing the marriage acts in the marriage registers. The four largest religious denominations in Hungary, the Roman Catholic Church (64–65 percent[7] of the population), the Hungarian Reformed Church (21 percent), the Lutheran Church (6 percent), and Hungarian Israelite Church (5–6 percent) all kindly provided access to their marriage registers. The registers of two smaller denominations, the Greek Catholic (2 percent) and Greek Orthodox (.5 percent) were available also, but those churches did not collect information about occupations. Marriages of the populations living on the periphery of municipalities (*puszta*, *határ*, or *szél* in Hungarian) were in most cases registered in the church books of one of the municipal parishes and we digitized those too. Where two or more larger municipalities merged or separated during the investigation period (most important mergers are listed in Appendix B), we digitized the parish records from both, and we included marriages in municipal parishes that were actually founded within the sampled municipalities during the period under investigation.

Only those marriage records were digitized which told us both bridegroom´s and father´s occupation, although the number of marriages with missing occupations as well as which occupation was missing (father´s occupation, bridegroom´s occupation, or both) was recorded during coding and that data can be obtained from the principal investigator on request. The amount and pattern of missing information showed no systematic variation across municipal strata.

For digitizing marriage records up to 1895 we used the microfilm collection of parish registers in the Hungarian National Archives, while for later periods records were obtained from copies of parish registers held in large congregational archives or we looked in original parish books in individual parishes. Again, a complete list of locations and sources can be obtained from the principal investigator on request. The data collection took place,

[7] 1920–1930 figures for the present-day territory of Hungary (Kövér & Gyáni, 1998, pg. 216).

after we had obtained permission from the relevant religious authorities, between December 2010 and November 2011.[8].

2.5 Short description of the dataset: variables, number of cases, weighting, and restrictions

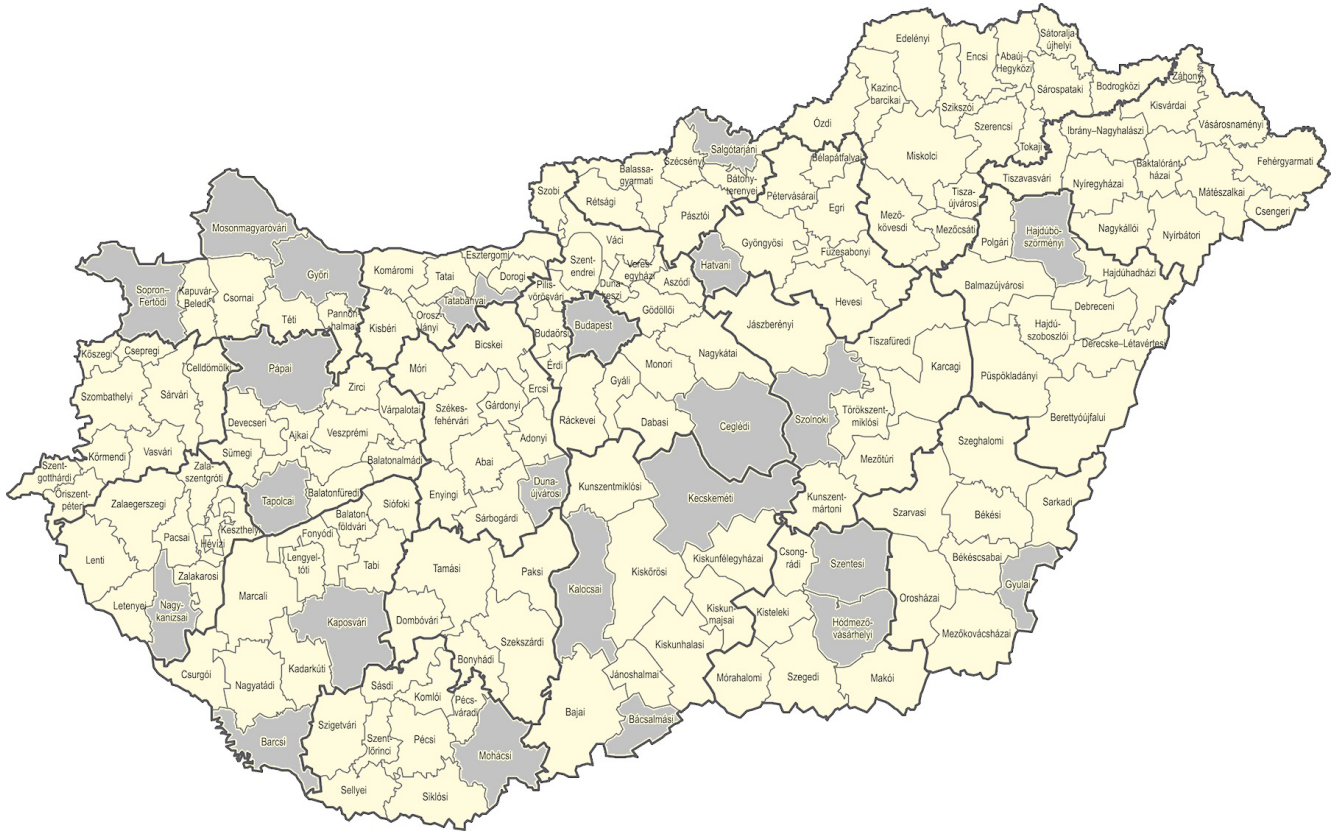
The dataset includes the following variables: date of marriage, municipality of marriage, denomination of parish, name of parish, age of the bridegroom and the bride, marital status of the bridegroom and the bride, birthplace and municipal residence of bridegroom and bride, occupation of the bridegroom, bride, father and mother of the bridegroom, father and mother of the bride, and the occupation of the witnesses. Residences of parents and witnesses were also digitized, although were not often recorded. The names of the people involved in the marriage were not digitized, but a unique identifier was created for each marriage record using the registered number of the marriage record in the marriage register page, the date of the marriage, and the name of the parish name. It is therefore entirely possible to complement these data with names.

During digitizing, research assistants were provided with an extensive list of occupational titles in Latin and their translation to Hungarian. Based on this they could identify those marriage records that had occupational information for digitizing. The amount of German-language Jewish marriages was small; these marriages were also digitized and translated to Hungarian.

In total, 88,970 marriage records were collected from 62 present-day municipalities and 207 parish books. Figure 2.1 shows the geographical distribution of the sample on the map of micro-regions of Hungary. Figure 2.2 shows the number of marriages per year in the sample. The number increases, reflecting the growth of the Hungarian population. The rapid falls in 1915–1918 and 1943–1945, and peaks immediately afterwards are due to delaying marriages during wartime. Finally, Appendix B lists the municipalities, their macro- regions, the municipal center of their micro-region, the number of marriages digitized per religious denomination, and

[8]The full list of collaborating archives, parishes, names of research assistants, and experts we consulted about designing the data collection can be found on the web page of the Hungarian Historical Social Mobility File: `http://www.lippenyi.hu/research`.

Figure 2.1: The HHSMF on the micro-region map of Hungary



the population sizes as taken from the Hungarian contemporary censuses.

A detailed description of the occupational structure, upward mobility, and downward mobility is reserved for Chapter 3.

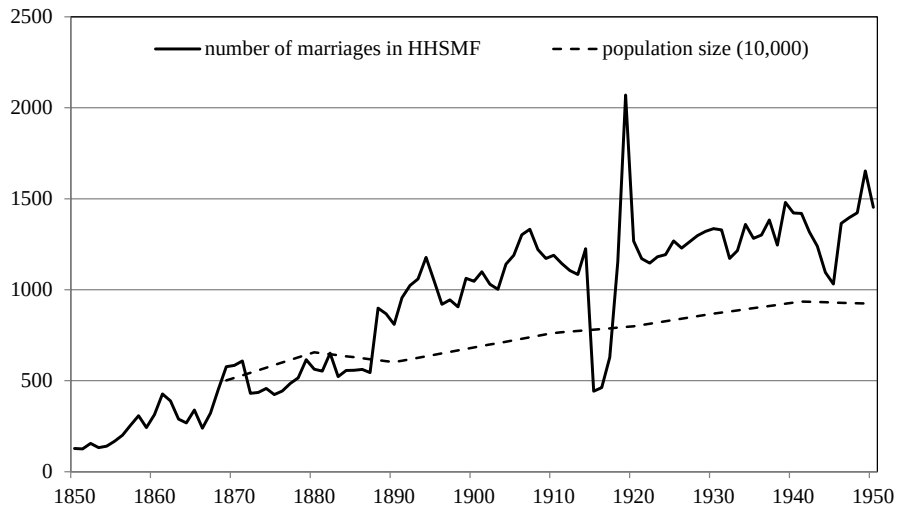
2.5.1 Weighting

In our stratified sample design we overrepresented certain types of municipalities, therefore weighting was needed to match the sample distributions to the overall distribution of the population in different regions and in types of municipalities. We computed weights that fit the data to the population sizes of the 7 macro-regions and 7 municipal strata for every ten year period, using iterative proportional weighting for the purpose. The algorithm we used computes weights for each case by first weighting the sample against the population proportion in each macro-region, then to the proportion of population in each of the municipal strata, then again to macro-regions, iterating the process until a stationary weight is obtained that satisfies both population proportional distributions. The population sizes per macro-region and municipal-strata were obtained using municipal-level aggregate data on population size from the Hungarian Census, held once every ten years between 1869 and 1949 (Klinger & Kepecs, 1990).

2.5.2 Sample restrictions

Despite our efforts to collect good-quality data, we had to exclude some cases from the dataset to improve the reliability of our analyses. We were unable to weight the data we found for the 1850s because we had no information about sizes of the municipalities before 1869 that was of comparable quality to what was in the censuses. We therefore excluded data from before 1860 from all analyses in this book, giving us a total sample size of 87,322. Furthermore, for a small percentage of the digitized marriages we could not match recorded occupations with any of the occupational codes, either because the information was no help in identifying an occupational title (e.g., only the name of a company where someone worked), or because the given occupation was too vaguely defined. As we had no information about those occupations, we excluded those cases. The dataset, restricted to marriages between 1860 and 1950 and cases with complete information on the occupation of fathers and bridegrooms, includes therefore 78,889

Figure 2.2: Population size and the number of marriages in the HHSMF



Note: population size estimated for present-day territory of Hungary from Hungarian censuses.

observations.

2.6 Data quality

As with every historical data source, marriage records have their potential pitfalls. Delger & Kok (1998) list three main problems in marriage records data that might bias results in mobility studies: unobserved groups because of non-marriage, missing data about fathers' occupations, and measurement of occupations at different points in the careers of fathers and sons. We shall address those biases in the concluding section, and in addition we assessed whether the quality of occupational measurement is consistent across periods.

2.6.1 Unobserved groups in the population

A potential source of bias is that certain social groups might not be observed in mobility data taken from marriage registers. Most importantly, the permanently single are omitted altogether from the analyses, and they

were likely to differ from married individuals in their chances for occupational mobility. According to John Hajnal's estimates, in Northern- and Western-European societies individuals who remained single made up a significant part of the population, but in Eastern Europe the proportion who never married was significantly lower and indeed Hungary's marriage pattern more closely resembled the Eastern pattern (Hajnal, 1953, 1965). Table 2.1 shows John Hajnal's estimates on the proportion of single males at different ages in international comparison: the number of males who were single at the ages of 45–49 were approximately 5–6 percent in Hungary whereas the percentage was from 10–17 in Western European countries. The marriage records dataset in Hungary therefore covers around 94–95 percent of the total male population. Even though we cannot assess to what extent those who never married differed from their married counterparts, because the overwhelming majority of the population did marry at some point the missing data on the never-married is very unlikely to lead to distortions. We concluded therefore that the marriage record dataset is highly likely to provide an adequate picture of the social mobility of the Hungarian population.

2.6.2 Missing occupations of fathers

A second potential pitfall of marriage registers is that they usually provide occupational information only about fathers who were still living when their sons married. A father's early death might have been more likely among the lower social classes, potentially leading to the underrepresentation in the dataset of men of lower-class origin. In addition, a father's early death might have reduced the occupational possibilities available to some, while to others it might have offered greater opportunity, for instance by the inheritance of a farm, a workshop, or simply of money. The incidence and timing of the death of a man's father might well therefore be related to occupational mobility, in spite of the fact that previous research (Van Poppel & Van Gaalen, 2008) has shown that the occupational status of fathers who died relatively young tended to be no lower than that of fathers who died older, and that the occupational status of the sons of fathers who had died before their sons' marriage was no different from that of those whose fathers were living when their sons married (Maas et al., 2011).

Table 2.1: Proportion of single males at specified ages in the 1900s and in the 1930–1940s

	Year	20–24	25–29	45–49
Hungary	*1941*	*0.88*	*0.46*	*0.06*
Hungary	*1900*	*0.81*	*0.31*	*0.05*
Austria	1939	0.85	0.60	0.10
Austria	1900	0.03	0.51	0.11
France	1949	0.81	0.39	0.12[a]
France	1900	0.90	0.48	0.11
Germany	1939	0.91	0.51	0.07
Germany	1900	0.91	0.48	0.09
Great Britain	1931	0.86	0.48	0.12
Great Britain	1900	0.83	0.47	0.12
Holland	1930	0.90	0.49	0.11
Holland	1900	0.89	0.53	0.13
Sweden	1945	0.87	0.52	0.17
Sweden	1900	0.92	0.61	0.13
United States	1940	0.72	0.36	0.11[b]

Note: [a] Age group 40–49 [b] Age group 45–54
Sources: Hajnal (1953, pg. 81–83), and (1965, pg. 102–103).

We could assess whether those findings hold true for the Hungarian case too. For the town of Kalocsa from 1930–1950 occupational information and father's death were registered regardless of whether a father was alive at the time of his son's marriage. We can then assess if a father's death affected this son's social mobility. Table 2.2 shows intergenerational occupational mobility, split according to whether the father of a bridegroom was alive at the time of the bridegroom's marriage. The incidence of a father's early death, similarly to what was found in other studies based on marriage records (Maas et al., 2011), was quite high a quarter of recorded marriages. However, again as found in earlier studied, there is no indication that a father who had died before the marriage of any of his sons was from a lower class background than a father who was still alive at his son's marriage. The distributions of class origins (final columns to the right in Table 2.2a and 2.2b) are identical in the two mobility tables (χ^2 independence test, p=.477). Furthermore, the fact of a father's death was unrelated to the

class destination of his son, whether higher or lower, since the distributions of class destinations (final rows in Table 2.2a and 2.2b) are also identical (χ^2 independence test, p=.157). Finally, additional analyses indicated neither more nor less social fluidity in reference to a father's death.[9] Based on those results which pertain to a smaller subset of the Hungarian data, unobserved cases by father's death are unlikely to cause bias in our derived rates of total and relative mobility.

2.6.3 Timing of measurement in the life course

The marriage certificates give a father's details at a moment when the first part of his son's career was already finished and his father's career was likely approaching its end. Preferably however, one would look at a father's occupation and his son's occupation at similar points in their respective careers; indeed to not do so might lead to biased estimates of the association between class origins and destinations. Measuring occupations of fathers and their sons at different points in their careers would not necessary lead to bias in changes in the origin-destination association over time. However, if bridegrooms observed in later periods were older (or younger), career mobility patterns would be seen to confound the estimates of temporal change in social fluidity. Similarly, if temporal trends in marital age existed only for specific class origins, that might cause bias in period comparisons of social fluidity. However, if the timing of marriage does not change over time (and over time within class origins), any bias originating from measuring fathers and sons at different periods of their lives is constant and so cannot confound estimates of temporal change in social fluidity. We assessed whether that is true for our Hungarian data. Figure 2.3 shows that average age at marriage and the variation in age (measured by standard deviation) did not change across periods. Further-

[9] Quasi-RCII models (Goodman, 1979b) were used for the analyses of social fluidity, performed on Table 2.2. Social fluidity is measured with the off-diagonal (equal-) scaled association, and two additional parameters that represent relative immobility (general immobility and agrarian class immobility). The indicator of father's death entered the model as uniform difference parameter (Xie, 1992), specified both on the off-diagonal and diagonal association parameters, measuring the difference in social fluidity between sons whose fathers were alive at the time of their marriages and those whose fathers were deceased. The uniform difference parameters were not significant, indicating that the social fluidity of the two groups did not differ from each other.

Table 2.2: Mobility tables of bridegrooms by father deceased, Kalocsa, 1930–1950

a) Father deceased

		son					
		Higher non-manual	*Lower non-manual*	*Non-agrarian manual*	*Farming*	*T*	*T%*
father	*Higher non-manual*	20	9	0	0	*29*	*18%*
	Lower non-manual	10	24	1	3	*38*	*23%*
	Non-agrarian manual	6	16	21	10	*53*	*32%*
	Farming	1	14	2	28	*45*	*27%*
	Total	*37*	*63*	*24*	*41*	*165*	
	Total percentage	*22%*	*38%*	*15%*	*25%*		

b) Father alive

		son					
		Higher non-manual	*Lower non-manual*	*Non-agrarian manual*	*Farming*	*T*	*T%*
father	*Higher non-manual*	20	9	0	0	*29*	*18%*
	Lower non-manual	10	24	1	3	*38*	*23%*
	Non-agrarian manual	6	16	21	10	*53*	*32%*
	Farming	1	14	2	28	*45*	*27%*
	Total	*37*	*63*	*24*	*41*	*165*	
	Total percentage	*22%*	*38%*	*15%*	*25%*		

Note: 4-category HISCLASS is used to avoid empty cells.
Source: HHSMF.

Table 2.3: Class destinations and intergenerational mobility by age (%)

	16–25	**26–30**	**31–35**	**36–45**	**46–80**
Higher managers/prof.	.6	2.5	5.3	4.7	3.2
Lower managers/prof.	5.9	11.2	16.2	14.7	11.7
Highly-skilled workers	11.1	15.5	15.2	14.9	13.3
Farmers	46.2	38.8	31.7	36.3	41.6
Low-skilled workers	21.5	20.3	18.8	15.6	13.4
Farm workers	14.6	11.6	12.8	13.8	16.9
% mobility from class origin	30.8	39.5	44.3	42.1	36.7

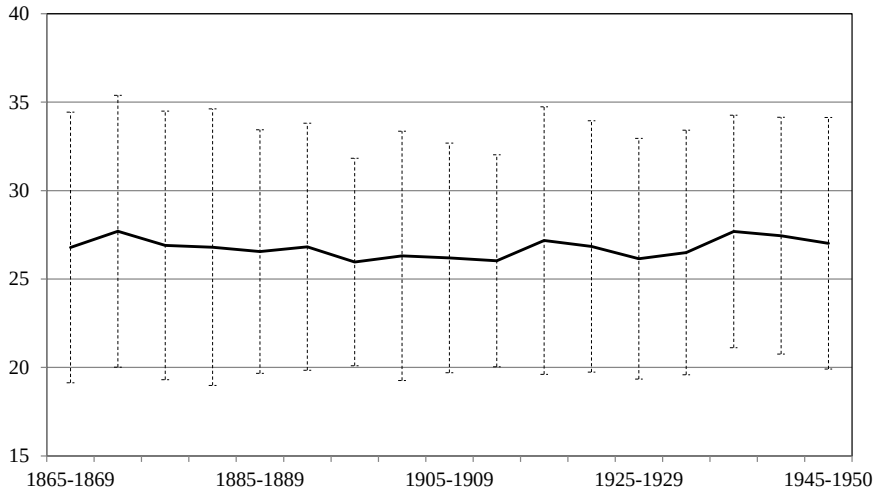
Notes: based on complete observations of age, origin, and destination class. Data weighted by size of region and municipal strata. Occupational classes: 6-category HISCLASS (see Chapter 3).
Source: HHSMF 1865–1950.

more, Figures 2.4a-f reveal that the average age at marriage of different classes of origin was largely similar, and apart from small fluctuations—especially in the first few periods when observations in some classes were few—average age at marriage did not vary across time. If age at marriage is stable across periods, it is not likely to influence temporal comparisons.[10]

The pattern of occupational careers could also change in historical perspective (Mitch et al., 2004; Schulz, 2013). If men's occupational career development changes over time, i.e. bridegrooms' occupational careers go up more steeply as the relevant period becomes more modern, that could induce changes in the intergenerational association between fathers' and sons' occupational class, even in the absence of temporal changes in the processes driving intergenerational reproduction and mobility. As we do not have repeated measures of individuals' occupations in the HHSMF we could not directly assess whether career patterns in Hungary changed over time. However, by using age at marriage as a proxy for certain stages in occupational careers, we were able to compare the association between class origin and destination at different ages. If intergenerational association at different age levels is shown not to have changed over time, then we have evidence that whatever changes in fluidity do take place over time

[10]In Chapter 5, Table 5.1 shows grooms' average age at marriage by migrant status and residence over time, and reveals no differences in the pattern of marriage age between migrants and non-migrants and between urban and rural residents.

Figure 2.3: Bridegrooms' average age at marriage across time in the HHSMF



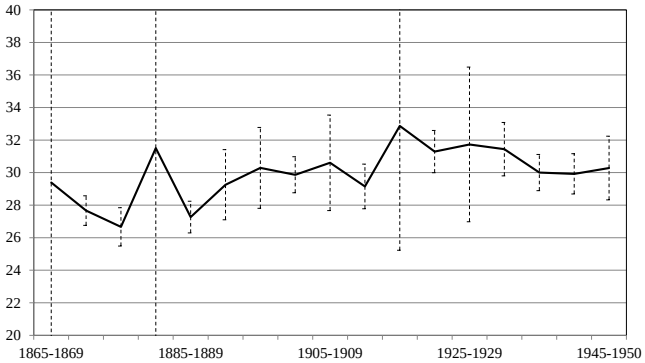
Notes: based on complete observations on origin-destination occupation. Dashed line shows ∓ 1 standard deviation of age at marriage for each 5-year period. Data weighted by size of region and municipal strata.

are driven primarily by intergenerational processes, not by changing career patterns. Table 2.3 shows the occupational class-career patterns for Hungary, approximated by using age groups.

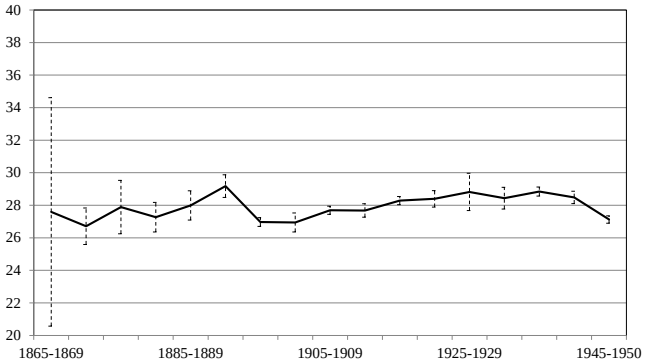
Middle-aged bridegrooms (between 30 and 45) have the highest percentage of high-status class destinations, higher than in the two youngest or the oldest age groups. Middle-aged bridegrooms show the highest percentage of mobility form class origins also. Figure 2.5 indicates that, laying aside some fluctuation, total mobility increased in a similar fashion over time in all age groups. To assess whether the pattern of change in relative mobility also was similar across age groups, we estimated log-linear models. We specified mobility tables based on the cross-classification of occupational origin, destination, 5-year time periods and five age groups. Five models were estimated: (1) no change, (2) only temporal change in relative mobility, (3) only age group differences in relative mobility, (4) both temporal and age group differences in relative mobility but no interaction between age and temporal change, (5) and age-group specific temporal change. Table 2.4 shows the results. The interactive change model (5) fits

Figure 2.4: Bridegrooms' average age at marriage across time and class origins

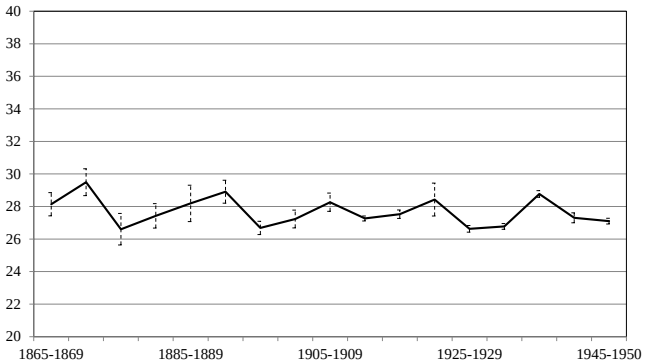
a) higher managers & professionals



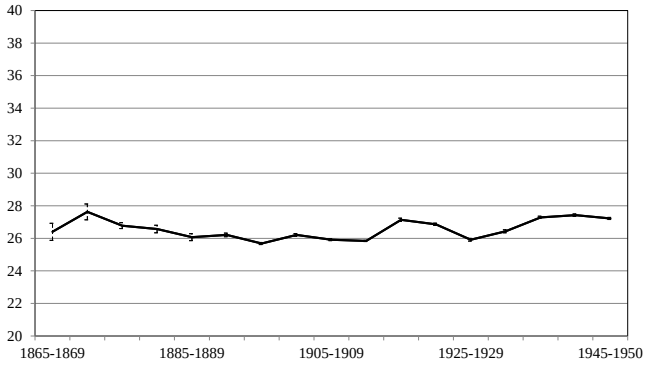
b) lower managers, professionals, clerical and sales personnel



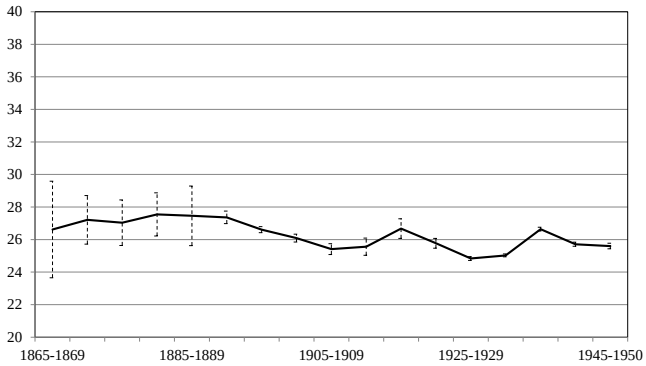
c) highly-skilled workers



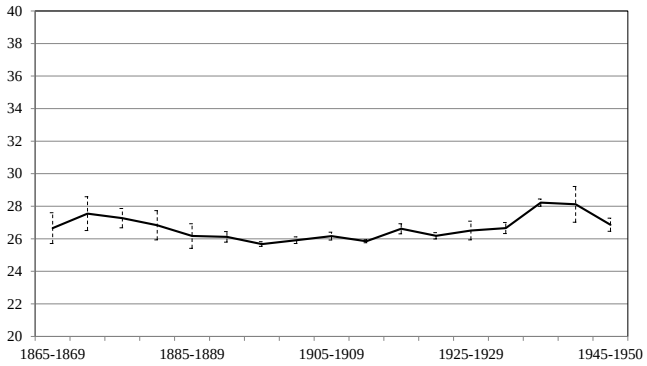
d) farmers



e) low-skilled workers



f) farm workers



Notes: based on complete observations of age, origin, and destination class. Data weighted by size of region and municipal strata. Dashed line shows 2 weighted confidence intervals (weighting method: Cochran, 1977). Source: HHSMF.

Table 2.4: Models of temporal change and age effects in social fluidity

		L^2	**df**	**BIC**	**p**	**D**
1	No change	5299	2100	-18304	0	13.9
2	Only temporal change	4715	2084	-18708	0	11.9
3	Only age effects	5207	2096	-18351	0	13.7
4	Temporal change + age effects	4654	2080	-18725	0	11.9
5	Temporal change x age effects	4438	2016	-18221	0	11.3

Notes: based on complete observations of age, origin, and destination class. Data weighted by size of region and municipal strata. Models include age group x 5-year period x origin x destination marginals effects. Temporal and age differences in origin-destination association are log-multiplicative uniform difference parameters (Xie, 1992).
Source: HHSMF 1865–1950.

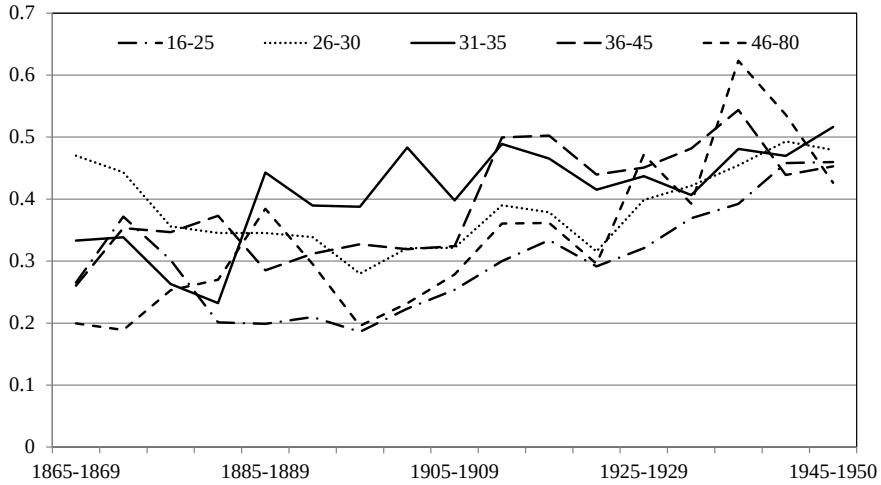
worst in terms of the model fit measure BIC (Raftery, 1995) indicating that changes in social fluidity in age groups, which reflect possible changes in intra-generational career patterns, are unlikely to have influenced temporal changes in social fluidity. As the best-fitting model (4) shows, age groups might differ in their relative mobility, but those differences neither grow nor shrink over time.

2.6.4 Measurement quality of occupational titles

Finally, we assess the quality of occupational measurement. In historical mobility data, occupational information can be rather unspecific sometimes. For instance, someone who was registered to be a 'worker' could in reality have been a laborer in a factory or a farm worker. When we code occupations to standard occupational coding schemes, these 'vague' occupations are troublesome because they might fit in more than one occupational category. The standard practice to address occupations with less detail is to code them with fewer digits. To code occupations in the HHSMF we used the HISCO scheme (Van Leeuwen et al., 2002) and we assigned 2-or 3-digit HISCO codes to occupations that were not specific enough to pair with one of the detailed 5-digit HISCO codes.

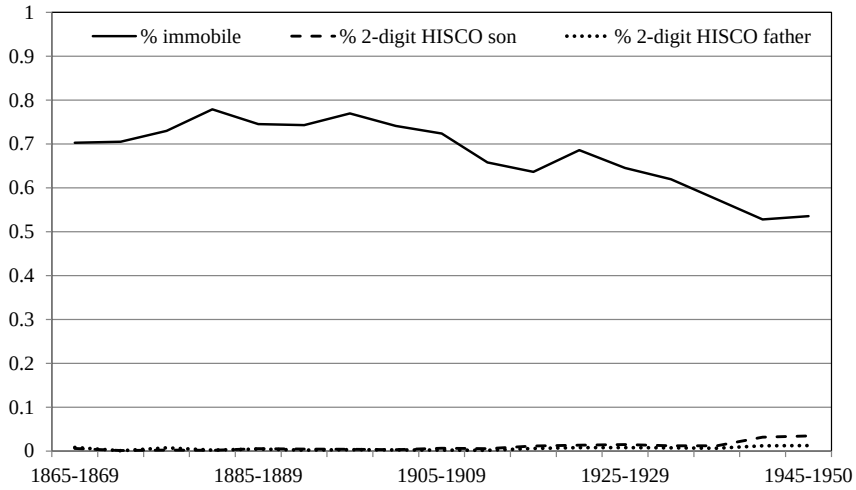
Less specific occupation codes may cause a problem in mobility analyses if it is ambiguous to which occupational class they belong. As our example

Figure 2.5: Percentage mobility from class origin across age groups and over time



Notes: based on complete observations of age, origin, and destination class. Data weighted by size of region and municipal strata.
Source: HHSMF.

Figure 2.6: Percentage immobile and 2-digit HISCO codes in the HHSMF



Notes: based on complete observations of age, origin, and destination class (N=76049). Data weighted by size of region and municipal strata.

illustrates, someone with the occupation 'worker' could be classified either as highly-skilled, or low-skilled worker, or as farm laborer even. In those cases one could choose the class which was more populous in the period and place of investigation (Van Leeuwen & Maas, 2011). Even though this procedure somewhat reduces measurement error, the trends of mobility could still be biased if measurement quality changes over time. To assess how severe the problem is in our Hungarian data, we plotted the over-time change of the percentage of 2-digit HISCO-codes. Figure 2.6 shows that the percentage was very low for the whole period and increased only slightly—likely as a result of the growing number of non-specific industrial occupations. However, the decreasing trend of class immobility—which we estimated based on assigning HISCO codes to HISCLASS classes (Van Leeuwen & Maas, 2011)—is unlikely to be driven by changing precision of occupational measurement.

2.7 Major strengths and future prospects of the HHSMF

The Hungarian Historical Mobility File is the largest micro-level dataset describing historical stratification and mobility in Central and Eastern Europe. Its main strength is that the dataset represents the historical population of present-day Hungary in a great variety of social contexts for approximately a hundred years. Although the main aim of collecting the HHSMF was to study intergenerational occupational mobility, the dataset can be used to investigate various other stratification processes in Hungary during the 19th and 20th centuries. Occupational information about fathers-in-law can be used to study homogamy, and information about the occupation of witnesses is useful for addressing homophily. For broader use in social science history, the dataset facilitates the study of long-term temporal developments in age at marriage, migration from birthplace, and their inter-relations with occupational status positions and class. The Hungarian Historical Mobility File is not suitable for studying intra-generational processes, such as social mobility or migration during the life course of individuals. We hope that these research questions will be addressed in historical perspective in Hungary, although that requires

future data collection of birth and death registers, and linking with marriage records. Until then, we are confident that the social mobility research community can make good use of the Hungarian Historical Social Mobility File and it will provide empirical material for many research projects in the years to come.

Rudolf Andorka's (1931–1997) lasting work on historical social mobility in Hungary and other significant contributions to Hungarian and international sociology were a great source of inspiration as we worked. We dedicate the Hungarian Historical Social Mobility File to his memory.

Chapter 3

Intergenerational class mobility in Hungary between 1865 and 1950: Testing models of change in "social openness"*

3.1 Introduction

In this chapter, we analyze intergenerational social mobility in Hungary between 1865 and 1950 with a large-scale dataset of marriage records from the territory of present-day Hungary. The results of this study contribute to the tradition of research on intergenerational mobility in at least two ways.

First, previous research on intergenerational mobility in Hungary suggests that interesting changes took place in Hungary from 1865 to 1950, but no study has thoroughly investigated this claim. Studies on intergenerational mobility in Hungary have so far focused on two important economic-political transitions in Hungarian history: the socialist restructuring of the 1950s (Andorka, 1982; Ganzeboom et al., 1990; Luijkx et al., 2002; Simkus, 1981, 1984; Szelényi et al., 1998) and the transition to a market economy (Bukodi & Goldthorpe, 2009; Róbert & Bukodi, 2004b).

*A slightly different version of this chapter is published in Lippényi, Zoltán, Ineke Maas, and Marco H. D. van Leeuwen. 2013. "Intergenerational Class Mobility in Hungary Between 1865 and 1950: Testing Models of Change in Social Openness." Research in Social Stratification and Mobility 33(September):40–55.

These studies conclude that relative intergenerational mobility increased during the socialist restructuring, but they also find evidence that changes in the mobility regime might have taken place before the 1950s (Ganzeboom et al., 1990; Luijkx et al., 2002; Simkus, 1981). In one study that included birth cohorts before the 1950s, the overall trend in increasing relative mobility did not change its pace after the communist takeover (Ganzeboom et al., 1990). Luijkx et al. (2002) found similar results and concluded that "the communist take-over cannot be considered as an important break in the developments of declining ascriptive criteria for social mobility in Hungary." These studies, however, cover only a short period before 1950 that includes World War II, making it difficult to draw firm conclusions about long-term changes.

Our study covers almost a century, allowing us to analyze long-term trends in intergenerational mobility and the effects of historical events, such as World Wars I and II and the Great Depression. This long time span makes it possible to test the claim that a long-term increase in relative mobility occurred in Hungary before the communist takeover.

Secondly, this study provides empirical tests of hypotheses about long-term changes in relative mobility. In the theoretical literature, there are contrasting views about how the social mobility regimes of industrialized societies have changed over time. According to the modernization thesis, modernization processes gradually break down the barriers of traditional society and lead to increasing social mobility over time (Blau & Duncan, 1967; Treiman, 1970). Others cast doubt on the proposition that social class rigidities gradually decline over time. Building on Featherman et al. (1975) hypothesis of constant relative mobility, Grusky & Hauser (1984) argue that there might have been a one-time increase in relative mobility rates during the early industrialization period, but relative mobility rates do not change or vary between countries once a certain level of industrialization is reached. Conflict theorists doubt that there has been any increase in relative mobility over time. In their view, social elites react to developments threatening their positions by adopting strategies of status reproduction to maintain high status for themselves and their children (Bourdieu & Passeron, 1990; Collins, 1979). The period covered by our data includes both the onset and development of industrialization in Hungary, providing an excellent opportunity to test these competing

hypotheses.

More than 60 years of stratification and mobility research have not been able to solve the theoretical debate surrounding changes in mobility. Using large-scale mobility surveys, stratification and mobility researchers have mainly investigated if industrial societies since the 1950s have had similar levels of absolute and relative social mobility and if social mobility changes over time (Breen, 1994, 2004; Erikson & Goldthorpe, 1992; Featherman et al., 1975; Ganzeboom et al., 1989; Hauser & Grusky, 1988; Lipset & Zetterberg, 1959; Ringdal, 1994). A recent comparative project on intergenerational social mobility shows considerable cross-country differences in the extent of social mobility and no evidence that the mobility regimes of industrial societies have converged toward a common pattern of mobility since the 1970s (Breen, 2004). These findings call for a closer examination of mobility patterns over longer periods of time to understand the driving factors behind present day differences in social mobility.

Sociologists increasingly rely on historical micro-data to analyze long-term changes in social mobility (Van Leeuwen & Maas, 2010). Until recently, only a handful of countries have been studied, including Great Britain (Lambert et al., 2007; Miles, 1994), the U.S. (Grusky & Fukumoto, 1989; Guest et al., 1989; Guest, 2005), France (Bourdieu et al., 2009; Fukumoto & Grusky, 1993), the Netherlands (Van Leeuwen & Maas, 1997) and Sweden (Maas & Van Leeuwen, 2002). There have also been a few comparative studies between these countries (Long & Ferrie, 2005, 2007). One challenge presented by studies of long-term mobility is to obtain micro-data that are representative across a given time period for a specific geographic area and reliable enough to make generalizable conclusions and comparisons with other periods or countries (Goldthorpe, 2007; Grusky & Fukumoto, 1989). With some exceptions, such as the Dutch Historical Sample of the Netherlands (Mandemakers, 2000), historical datasets are not collected using random sampling techniques and often only represent the working population of smaller geographic entities, such as towns, cities, or a single region (Fukumoto & Grusky, 1993; Hardy, 1989; Kaelble, 1983; Van Leeuwen & Maas, 1997; Thernstrom, 1973). As a result, conclusions based on these data are susceptible to sample selection bias because of geographic mobility or the geographic distribution of occupations.

In this study, we utilize a large, recently collected, occupation-based

mobility dataset based on marriage records from Hungary that was collected using probability sampling techniques and includes all regions and municipalities of present-day Hungary between 1865 and 1950. Our research question is: How did Hungary's social structure and social mobility patterns change between 1865 and 1950?

3.2 Theories of long-term changes in social mobility

Sorokin was one of the first sociologists to empirically address changes in social mobility (Sorokin, 1959 [1927]). Sorokin considered the amount of intergenerational flow between 'classes' to be an indicator of the openness of a given society. As noted by later generations of sociologists, absolute mobility flows between classes are not genuine measures of openness because changes in class sizes between generations (due to differential fertility rates across classes or structural shifts in the economy) influence the amount of observed mobility. The extent to which people from different occupational class backgrounds have equal chances of accessing other occupational classes is a better operationalization of social openness that is captured by the concept and measurement of relative mobility. We begin by reviewing different hypotheses about long-term changes in relative social mobility, including hypotheses that predict a gradual increase, no trend, and convergence or a sudden increase followed by constant fluctuations in social mobility.

Modernization theory argues that, following industrialization, there was a permanent increase in relative mobility in industrialized societies. In pre-industrialized economies, labor was distributed based on familial or kinship ties; however, in industrial labor markets, labor was allocated according to formal hiring practices. Economic rationality drove the shift towards universalism. New occupations in industrial production were complex or involved a great amount of responsibility (e.g., supervisors in factory production or engine operators) that made it necessary for employers to select workers based on skills, experience, and acquired knowledge. On the supply side, labor became more highly educated, increasingly mobile due to better and cheaper means of transportation, and better in-

formed about job opportunities because of the spread of printed media and electronic mass communication. Because people could acquire skills, experience, and knowledge, lower social classes were able to attain higher occupational positions (Landes, 1969; Treiman, 1970).

An important concept in the modernization thesis is gradualism: once the principles of competition and economic efficiency pervade the labor market, unless the economic system changes, the rigidities of the class system will gradually break down, leading to an increase in relative mobility over time (H1).

An important revision of the modernization thesis originated from the work of Sorokin, who argued that there is no trend in mobility; just a 'trendless fluctuation' between periods of greater and less mobility (Sorokin, 1959 [1927]). Status reproduction theory developed mechanisms that could produce such fluctuations in relative mobility. Bourdieu and Collins, proponents of status reproduction theory, argued that parents adopt strategies to successfully reproduce their status when their status positions are threatened by increasing competition from other classes. For example, parents may invest more in the human and cultural capital of their children so that they are more successful in school examinations (Bourdieu & Passeron, 1990; Collins, 1971, 1979). Because lower status parents cannot afford to invest in their children's human and cultural capital as much as higher status parents, children from higher status backgrounds enjoy a comparative advantage in the competition for valued resources, such as prestigious occupations.

The theory of occupational closure describes a somewhat similar mechanism to that proposed by status reproduction theorists. Occupational closure theory postulates that occupational groups rationalize and optimize selection processes through bureaucratic practices (e.g., licensing, educational credentialing, certification, unionization) that provide a gate-keeping function (Weeden, 2002). Acquiring additional certificates, credentials, or associational memberships usually requires money or other forms of investment that job candidates with higher socio-economic resources find it easier to make. Consequently, jobs with higher occupational closure may be more difficult to attain for job candidates from lower socio-economic backgrounds. Occupational closure theory highlights the two sides to meritocratic selection. On the one hand, meritocratic selection provides

greater opportunities for talented candidates from lower socio-economic backgrounds. On the other hand, more formalized selection criteria that require more credentials place an additional burden on job candidates, whose level of socio-economic resources may determine if they can clear these hurdles (Grusky & Weeden, 2001). Based on the mechanisms described by status reproduction theory and occupational closure theory, we expect that there is no continuous trend towards increasing or decreasing relative social mobility over time (H2).

Another important revision of the modernization thesis argues that relative mobility is not gradually increasing but remains constant in industrialized societies (Featherman et al., 1975). The theoretical reasoning is that the amount of social inequality is determined by the opportunities in a given political and economic system and, provided that there is stability or little change in these conditions, relative mobility is not expected to deviate much (Parkin, 1971). This hypothesis was tested using cross-sectional data to compare social-democratic and liberal welfare states (Beller & Hout, 2006; Erikson et al., 1979, 1982) and by investigating the peculiarities of social mobility in socialist planned economies (Szelényi et al., 1998; Wong & Hauser, 1992; Wong, 1990, 1995b). To study long-term trends, Fukumoto & Grusky (1993) reformulated the hypothesis, arguing that during periods of dramatic economic change, such as early industrial expansion, we can expect larger changes in social mobility than in periods with little economic change.

To apply this theory to the Hungarian case, we must identify Hungary's period of industrial expansion. Historical research dates the start of industrialization in Hungary around the 1860s. In the second half of the 19th century, Western European agricultural production could not adequately supply its large population. Hungary, as well as other late industrializing nations, had large agricultural reserves and exported agrarian products and other raw materials to Western Europe (Berend et al., 1982). The establishment of the Austro-Hungarian Empire in 1867 created a larger market and unified economic policies, providing a favorable economic background to modernization (Swain, 1992). Increases in the production of agrarian goods had incidental effects on industrial development; most importantly for the food processing industry (Eddie, 1989). and there were important developments in the mining and steel industries (Berend & Ránki, 1974).

The scale of industrial expansion was large: the value of industrial output increased by 600 percent between the 1830s and until 1914 (Good, 1984). The increase in industrial output came to an end after World War I. In the peace treaties Hungary lost two-thirds of its territory, including important cities, transport connections, and more than half of its previous population, leading to industrial and commercial decline. Hungary also sheltered many refugees who had fled to Hungary from its former territories after the war.

Based on theoretical arguments and Hungarian economic history, we expect there to be a steeper increase in relative mobility in the period before World War I than after World War I (H3).

Sorokin originally argued that changes in social mobility are temporal because they occur around important historical events, such as wars, revolutions, and political regime changes. War may lead to increased social mobility. For instance, war economies increase industrial production that may lead to a temporary or permanent increase in the size of lower, non-manual classes because of an increased number of military professions and an increase in the size of the non-agrarian, manual classes. Damage to industry or the land and increased mortality may also forcibly change people's mobility (Cantrell & Clark, 1982; Keyfitz, 1973). These changes concern total mobility, but relative mobility might also be affected during or after war. One reason relative mobility may be affected by war is that the types of occupations that increase during war, such as military ranks, are more meritocratic and provide more opportunities for vertical mobility for people from lower class backgrounds. Another reason is that during and after war, a large number of occupational positions must be rapidly filled or redistributed due to casualties and damage, which may temporarily shock social reproduction and labor market selection processes and could lead to an increase in relative mobility. Revolutions or political regime changes could also 'shock' the mobility regime, by opening previously barred positions to some, while at the same time removing wealth and positions from those previously in power.

Hungary suffered significant property damage and casualties during World War I and II. The post-war periods in Hungary also brought political turmoil (Berend, 1998). After World War I, the empire was abolished and the First Hungarian Republic was established in 1918, followed by the

short-lived Hungarian Soviet Republic in 1919 and, finally, the restoration of the empire at the end of 1919 under the regency of Admiral Miklós Horthy. After World War II, the Second Hungarian Republic was established in 1946 only to be abolished in the communist takeover at the end of the 1940s.

We expect relative mobility in Hungary to be greater during and after World War I (cohort 1915–1919) and World War II (cohorts 1940–1944 and 1945–1950)(H4).

3.3 Data

The Hungarian Historical Social Mobility File is collected to study long-term changes in social inequalities in Hungary (Lippényi et al., 2013b). The sampling frame comes from municipal parish marriage registers that contain information on the occupations of bridegrooms and their fathers. We were unable to collect data for the entire historical territory of Hungary. Therefore, our results are generalizable only to present-day Hungary, whose borders were established in 1920. Drawing a random sample from all marriage registers in this territory would not only be difficult, but it would also lead to little variation with respect to occupational class because Hungarian society was still largely agrarian. We therefore drew marriage records from a stratified sample of municipalities, including municipalities with different economic structures.

An important concern we addressed with the design of the sample was that the legal status of a settlement (e.g., village or town) does not necessarily reflect the level of their development. In his study on Hungarian settlement structures in 1910, Beluszky (2001) showed that approximately 300 settlements had some urban functions (more than twice the number of the officially acknowledged towns), but some official municipalities lacked any urban character (Beluszky, 2001). We therefore stratified Hungarian municipalities both by the legal status of the settlement (villages, towns, and regional centers) and by the level of its development. To obtain the latter, we used demographic and development indicators from the 1930 Hungarian Census and performed latent profile analyses (for further details see Appendix A). The latent profile analyses identified the following municipal strata: rural villages, developing rural villages, urban-type vil-

lages, agrarian towns, industrializing towns, developed urban towns, and regional centers with municipal rights.

The second concern with the design of the sample was that Hungarian settlements were overwhelmingly agrarian. Non-agrarian municipalities, where less than half of the population works in agriculture, composed only 5.4 percent of all settlements. The distribution of the population was, however, more even across agrarian and non-agrarian settlements: 37 percent of the Hungarian population lived in non-agrarian settlements, whereas 63 percent lived in agrarian-type municipalities. We used a two-stage stratified sample design to have sufficient sample sizes from all types of municipalities. In the first stage sampling within the seven larger regions of Hungary was performed by first randomly selecting a maximum of two towns from each municipal stratum with municipalities present in the region. For three regions we also sampled one regional center with municipal rights and included two districts from the capital city of Budapest. In the second stage, for each town or regional center, we randomly selected one or two villages in the micro-region of the town, again, one or two from each developmental cluster. Although the sample must be weighted to represent the present-day territory of Hungary, this stratified sampling allowed us to include each region and type of municipal development in the sample. Our municipal sampling frame was the 1930 Census.

Church books' marriage records were registered by church officials who in some cases did not document the occupation of the father, bridegroom, or both because of different customs. To circumvent towns with very few marriages or little occupational information documented in their church books we filtered sampled towns before digitizing. We first counted the number of church-marriage records every five years and the number of marriages that did not contain occupational information for the father, the bridegroom, or both. Based on these counts, we decided to either proceed with data collection for the town or select another town. The decision rule was that if valid observations for the most popular denomination were absent over a period of 30 years or the number of valid observations made up less than 30 percent of all marriages within that denomination, we dropped the town from the sample and sampled another town from the same region and developmental type. If a town was eligible, we repeated the same procedure as below for each of the sampled villages in the micro-

Table 3.1: Number of cases in the total sample

Period	Unweighted N	Weighted N
1865–1869	1447	613
1870–1874	1719	468
1875–1879	1856	415
1880–1884	2290	1108
1885–1889	2887	2354
1890–1894	4208	2390
1895–1899	4138	2636
1900–1904	4707	4707
1905–1909	5617	5618
1910–1914	5167	5168
1915–1919	4115	3130
1920–1924	5450	5450
1925–1929	5795	5560
1930–1934	5835	5726
1935–1939	5967	5426
1940–1944	5464	3613
1945–1950	7231	7203
Total	**73893**	**61585**

region, dropping those with sparse marriage records and randomly selecting a replacement village from the micro-region with a similar developmental profile.

For each sampled municipality which fulfilled these criteria, we proceeded by digitizing the marriage acts from the church books of all local religious congregations, including Roman Catholic, Hungarian Reformed, Lutheran, and Jewish. For larger cities, we performed further sampling of marriages because there were too many marriages. To control the sample size we assigned a sampling interval to each year, denomination, and municipality and chose the starting point for a given page of a church book randomly.

The data used for our analyses contain 73,893 marriage records with occupational information. We collapsed the data into 17 five-year periods beginning in 1865. To adequately describe the social structure and total mobility, we weighted the data to the population distribution across macro-

regions and developmental clusters. The population sizes for weighting were obtained using municipal-level aggregate data on population size from the Hungarian Census, held once every ten years between 1869 and 1949 (Klinger & Kepecs, 1990). Table 3.1 shows the number of observations for each five-year period. The number of weighted observations in some periods is somewhat lower than the number of unweighted observations because we rescaled the weights to avoid extremely high or low weights.

According to historical demographic estimates marriage was almost universal in Hungary during the study period (Hajnal, 1953, 1965). It is therefore unlikely that non-marriage would distort our picture of social mobility in Hungary. The results over time may have been affected by changes in the marriage age of bridegrooms, but further evaluation of this issue does not suggest any bias (see more detail in Chapter 2).

3.4 Occupations and occupational classes

We coded occupations in the digitized marriage registers using the Historical Intergenerational Standard Classification of Occupations (HISCO). The HISCO is an occupational classification system developed to standardize historical occupational titles and it has been used to code data from more than 15 countries (Van Leeuwen et al., 2002). We classified occupations according to the Historical International Social Class Scheme (HISCLASS, Van Leeuwen & Maas, 2011).

The HISCLASS distinguishes between 12 occupational classes, but we could not use all distinctions in the analyses because some classes were too small in our data. We combined classes such that they represent the manual/non-manual, the sectorial, and, though to a lesser extent, the skill-level dimensions of the labor market. We omitted the supervision dimension because historical marriage records usually do not contain information about the position of a person in the production hierarchy.

Our HISCLASS-based class scheme has 6 categories: managers and professionals; lower-level managers and professionals and clerical and sales personnel; highly skilled workers; farmers; low-skilled workers; and farm workers. With respect to the 12 original categories for the HISCLASS, we merged the classes for higher-level managers and higher-level professionals to form the highest occupational class, which also includes large proprietors

and estate owners in keeping with the original HISCLASS scheme. We placed the other non-manual workers, including lower-level managers and professionals and clerical and sales personnel and lower-level clerical and sales personnel, in the second class. The two higher-skilled, non-agrarian manual classes, foremen and medium-skilled workers were placed in the same class as highly-skilled workers. This class also includes non-factory skilled manual workers, such as artisans. The farmers in our classification scheme represent primary sector workers who are likely to be owners of their land, or perform highly skilled farm labor, and are identical to the class of farmers and fisherman in the original class scheme. Low-skilled workers and unskilled workers not employed in the primary sector were merged into a single class, and low-skilled farm workers and unskilled farm workers were merged into a single class as well. We excluded non-ranked soldiers from the analyses because a vast majority of them were unlikely to have actual occupations in the military due to mandatory conscription.

3.5 Changes in the occupational structure and total mobility

Although our focus is on relative mobility, it is also interesting to look at the extent to which the occupational structure changed in terms of the *relative* size of occupational destinations and the extent of mobility between generations. Figure 3.1 shows changes in the occupational structure of Hungary between 1865 and 1950 based on Hungarian Historical Social Mobility File.

The largest class throughout the entire historical period is the class of farmers, but its dominance in the class structure, diminishes over time. There is an initial decrease in the size of the farming class that may be attributed to the fact that the sons of liberated serfs, who received land in 1848, were forced to leave the agricultural sector because they could not maintain their property, or because the land was too small to make harvesting economically worthwhile (Kövér & Gyáni, 1998). Between the 1870s and 1895, there was an increase in the relative size of the farming class, mostly at the expense of highly-skilled workers and farm workers and, to a lesser extent, low-skilled workers. In this period, there was a

high demand for agricultural products in Europe (Berend et al., 1982). Those favorable conditions partly explain why sons of farm workers and highly-skilled workers tried to engage in farming.

After the turn of the century, the relative size of the farming class diminishes gradually until the period between 1945 and 1950. The decrease in the size of farming class parallels an increase in the size of farm workers until World War I. Two interrelated processes may drive these structural changes in agriculture: the 'downward' mobility of farm owners' sons who could not make a living during a period of difficult economic conditions for farmers, and the 'upward' mobility of sons of well-to-do farmers into non-manual or industrial classes, which increases the demand for farm labor among families that owned farms. We also see abrupt changes in the relative size of the agrarian classes. Just before and during World War I, the relative size of the farming class decreases abruptly. Between 1945 and 1950, the sudden increase in the relative size of the farming class and sudden drop in the farm workers class is most likely caused by agricultural reform in 1946, which redistributed land among agricultural workers (Romsics, 1999).

The relative size of the class of low-skilled workers increases steadily across the period, mirroring the decrease in the farming class to a great extent, although the relative size of the class of highly skilled workers remains fairly stable until the turn of the century.

The proportion of lower-level managers and professionals and clerical and sales personnel decreases until 1910, after which there is sudden increase likely due to the war. Thereafter, there is an almost uninterrupted increase in the size of this class until 1950. Although on a smaller scale, the development of the class of professionals and managers mirrors that of the class of lower-level managers and professionals and clerical and sales personnel. An interesting finding is the sudden increase in the 1860s and 1870s in the number of lower-level managers and professionals and clerical and sales personnel. This increase may be attributable to the establishment of the Austro-Hungarian Empire in 1867, during which time a large number of clerical and other positions in governmental institutions were created (Berend, 2003).

The most important structural findings are as follows. First, the relative size of the farming class diminishes, but not in a linear fashion. In

Figure 3.1: Changes in class structure in Hungary, 1865–1950

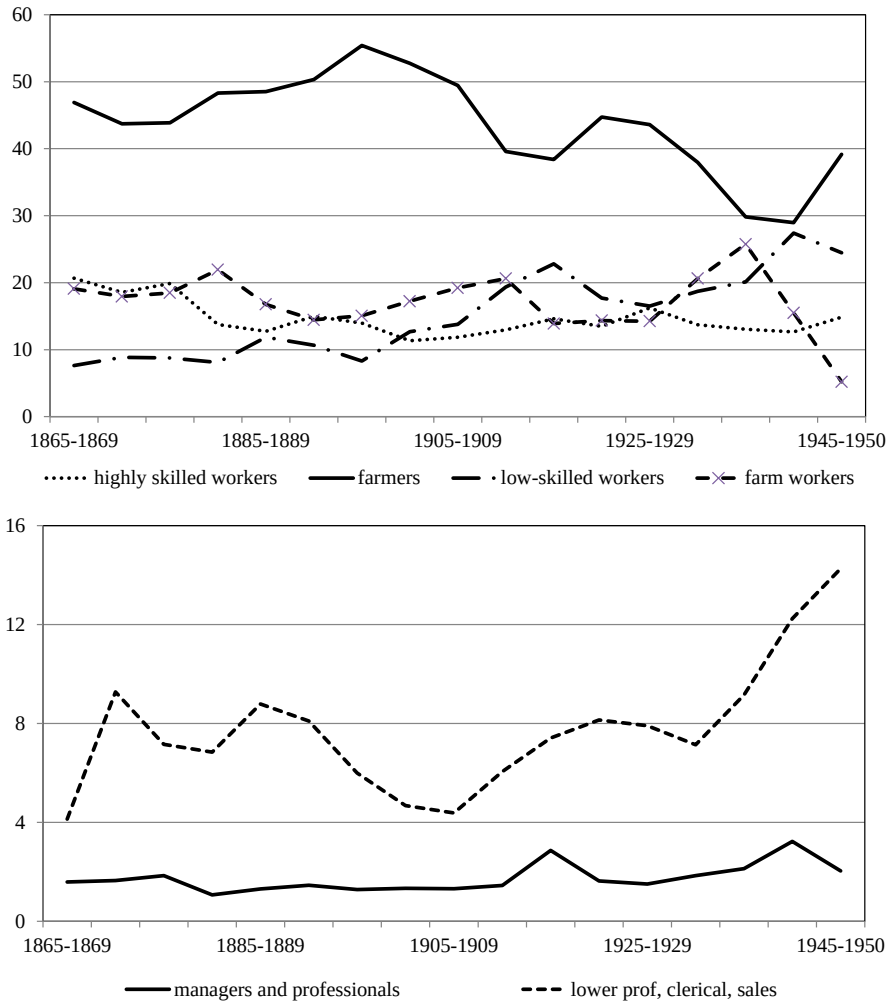
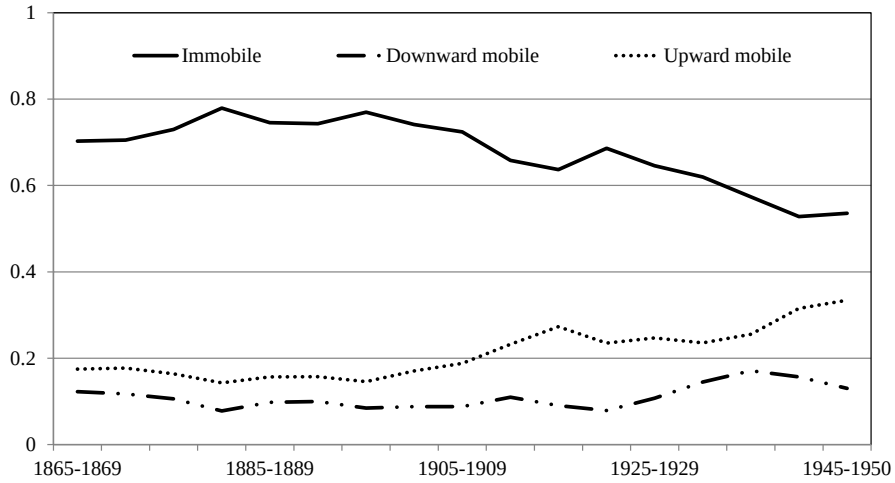


Figure 3.2: Total immobility, downward and upward mobility in Hungary, 1865–1950



some periods the farming class even increases, possibly reflecting changes in the price of and markets for agrarian products. Second, developments in the relative class size of low-skilled workers and farm workers and, in the early period, highly-skilled workers, mirrors the development of the relative class size of farmers, forestalling a great amount of exchange between manual classes, and across sectors as well. Third, the class size of non-manual workers increases over time, indicating occupational structural changes that are likely related to the modernization and urbanization processes took place during this period in Hungary.

To investigate the direction of exchange between classes and the extent of immobility, we calculated the percentage of bridegrooms who were upwardly mobile, downwardly mobile, and immobile for each period. Industrial to non-manual transitions, agrarian to non-manual transitions, and agrarian to industrial transitions were treated as upward mobility. Within sectors, non-skilled to skilled transitions were treated as upward mobility. The reverse of these transitions were treated as downward mobility. Overall, we see a pattern of declining immobility and an small upward shift in the occupational distribution (Figure 3.2) which align with the prediction of the modernization thesis. There is, however, a slight increase in down-

ward mobility as well, which might be caused by the economic recession in the 1920s.

3.6 Modeling relative mobility

Absolute mobility flows are partly driven by changing class sizes across generations. Several possible demographic and economic factors can potentially influence shifts in the occupational distribution, which may confound with changes in class inequalities in mobility chances. To obtain a clean measure of inequality in mobility chances, i.e. relative mobility, we used log-linear techniques, and estimated the association between class origins and class destinations in the squared mobility table by fixing the marginal distributions, so changes in the marginals cannot confound with the measure of relative mobility.

We specified a quasi-row and column association (RCII) model as a baseline model of mobility (Goodman, 1979b). The off-diagonal association is modeled as a multiplicative interaction term, consisting of a single, scaled association parameter and occupational origin and destination class scores which are simultaneously estimated from the model. The class origin scores reflect the relative amount of latent resources for mobility that each individual, on average, can draw from his class origin (Breen, 1994; DiPrete & Grusky, 1990). Classes are assumed to have a hierarchical order in terms of their general resources, and the distances between these classes indicate the extent to which they are similar in resources. Destination scores reflect the desirability that people, on average, attribute to each class destination, regardless of social origin. Thus, destination scores indicate the strength of competition for positions in a specific class destination. Again, a hierarchical order is assumed. The difference in mobility flows (above structural changes in the margins) from origin classes A and A', respectively, to a destination class B, indicates the resource differential between classes A and A'. Similarly, the difference in mobility flows to destination classes B and B' from origin A expresses the desirability differential between destination classes B and B'. The single association parameter expresses the intensity with which class inequality, in terms of available general resources (inequality of origins), affects class inequality in terms of mobility chances (inequality of destinations).

The diagonal cells in squared mobility tables hold specific importance because they show intergenerational class immobility. Mobility models usually include diagonal parameters to capture the propensity of certain classes for self-recruitment. These parameters estimate the extent to which classes are 'relatively' more immobile than one would predict based on the origin and destination marginal distributions. In substantive terms, the diagonal effects express the joint impact of two mechanisms. First, the diagonal effects represent the extent to which class origins command specific resources (or confront class-specific barriers) that lead to the reproduction of occupational class positions but not an advantage in access to other occupational classes. Land is a good example of a class-specific resource that provides direct advantages to sons of farmers who inherit it from their fathers but less directly convertible to occupational advantages outside agriculture. Second, the diagonal effects represent 'tastes' or the norms of members in a specific class that are associated with staying in the same class as one's father.

3.7 Modeling change across tables

We extended the basic model for a mobility table to incorporate more tables and additional parameters which model the strength of origin-destination association in each table. We estimated log-multiplicative layer-effect or 'uniform difference' models (Erikson & Goldthorpe, 1992; Xie, 1992) that include parameters that describe the common level of association, and table-specific comparison parameters, referred to as 'unidiff' multipliers. The table-specific multipliers show the extent to which the association multiplicatively differs in the specific table from the common level of association. Because the diagonal association is expressed by more than one parameter, we estimated 'uniform difference' models and also models in which the parameters could change heterogeneously.

To test the hypothesis that mobility fluctuates over time but does not exhibit a particular trend (H2), we specified a model with separate multipliers for each period. The modernization thesis (H1) is tested by imposing a linear time trend on the multiplier. We also estimated a more flexible change model by specifying a quadratic trend for the multipliers. The 'industrial jump' hypothesis (H3) is tested by specifying a linear trend for

the period before World War I and a different linear trend thereafter.

To test whether historical events deliver temporal shocks that cause changes in social mobility (H4), we also estimated 'shock' variants of all the change models and a shock version of the models predicting no change in social mobility. In addition to periods of war, we also control for the period of the Great Depression. The shock models include the following temporal shocks: World War I (1915–1919), World War II and its aftermath (1940–1944 and 1945–1950), the Great Depression (1930–1934), both war periods, and all periods (1915–1919, 1930–1934, 1940–1944, and 1945–1950).

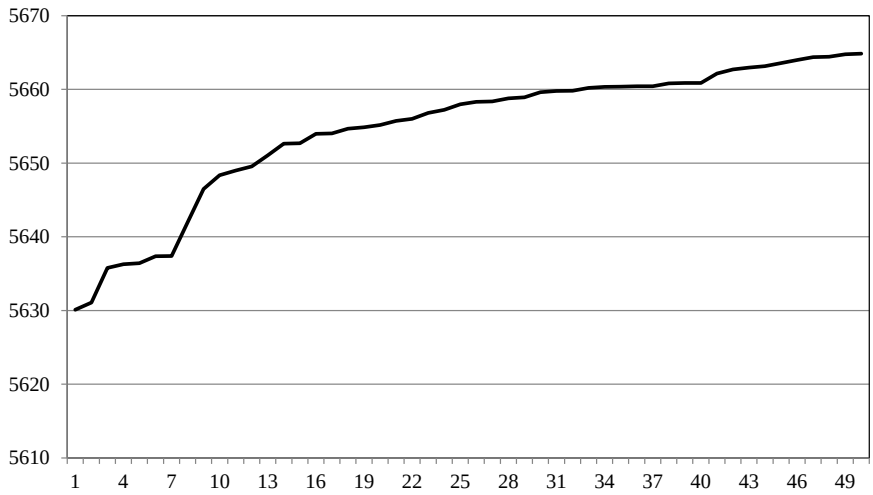
The levels of diagonal and off-diagonal association do not necessarily change in uniform fashion from one period to another. It could be that a class's propensity to be immobile decreases from one period to another, but the relative mobility chances across classes remains the same. In other words, the general resources and desirability of the occupational classes maintain the distribution of the previous period(s), but class-specific resources, that drive immobility, decline or cannot be effectively used to reproduce status. If, however, only off-diagonal associations decrease, the distribution of general resources may be more equal across origins or the desirability of destinations may be more equal but class-specific resources for social reproduction and 'tastes' for staying in one's class origin remain the same.

We estimated all possible combinations of the aforementioned shock and change models, both for the off-diagonal association parameters and the diagonal association parameters. Changes in the diagonal association parameters are also estimated for two different types of change, including uniform or heterogeneous changes across classes. In total, we estimated 1,225 models.

All models were specified and estimated using the GNM-macro in R (Firth & Turner, 2005). We used the un-weighted dataset for the analysis.[1]

[1]The starting values for the maximum likelihood estimation were provided by the null-association model. In all models, the row and column marginal effects were fitted for each cohort separately. As convergence of increasingly complex models could be problematic, models were re-estimated at maximum 50 times if the initial estimation did not converge. Even after 50 trials, 138 models did not converge. Of these, 136 included a homogeneous change of the diagonal parameter which is a misspecification given the data, and the 2 other models that included heterogeneous change on the diagonal were models with only shock, for which the lack of trend caused the misspecification.

Figure 3.3: BIC values from the best-fitting 50 estimated models



We estimated a large number of non-nested models and investigated the set of models similar to the best fitting model in terms of model fit. We used the Bayesian Information Criterion (BIC) to compare models.[2] First, we ordered the models in terms of their BIC to review the change in fit for the best-fitting 50 models (Figure 3.3). The figure shows a clear 'jump' from the 8th best-fitting model. The eight best-fitting models are clearly the ones in contention for being the preferred one, while the others produce a substantially worse fit in terms of BIC. We also applied a more formal selection criterion: according to Raftery (1995) a difference of 10 in BIC values between two models indicates strong evidence in favor of the model with the lower BIC value. The first seven models were within the 10-point range of the best-fitting model. Table 3.2 presents these models. As an indication of the overall fit, we estimated the percentage of cases erroneously predicted by the model.[3]

[2]Simulation studies showed that the BIC selects the true model from a set of candidate models, including the true model, with a higher probability as the sample size increases. The other frequently-used comparative fit measure, Aikake's Information Criterion (AIC), does not have this property (Kuha, 2004). As we rely on large-scale data and test a large set of theoretically plausible models to find the true model, we expect the BIC to perform better as selection criterion than AIC.

[3]Global measures of fit, such as χ^2 are relatively misleading due to the large sample size and because of the extremely uneven distribution of data between the diagonal

Table 3.2: Best-fitting quasi-RCII models

No	Diag. trend	Diag. change	Off-diag. trend	Diag. shock	Off-diag. shock	df	BIC	D
1	linear	heterogeneous	quadratic	no shock	no shock	406	5630	5.91%
2	*linear*	*heterogeneous*	*quadratic*	*WW1*	*no shock*	*400*	*5631*	*5.72%*
3	linear	heterogeneous	quadratic	no shock	WW2	405	5636	5.91%
4	linear	heterogeneous	quadratic	no shock	WW1	405	5636	5.90%
5	linear	heterogeneous	quadratic	no shock	Great Depression	405	5636	5.91%
6	linear	heterogeneous	quadratic	WW1	Great Depression	399	5637	5.73%
7	linear	heterogeneous	quadratic	WW1	WW1	399	5637	5.72%

Notes: Only the models for which the BIC difference with the best-fitting model was smaller than 10 are included. The preferred model is presented in italics.

In all of the best-fitting models, change on the diagonal is heterogeneous across classes; the trend is linear in the diagonal parameter and quadratic in the off-diagonal parameter. The first conclusion is that there is a clear trend in relative mobility in this period; however, closer inspection of the parameters is necessary to investigate the direction and magnitude of the change.

With respect to the diagonal shocks, some models show no evidence of shocks and others show evidence of a shock during World War I. The two best-fitting models with almost identical BIC values differ with regard to if there is a shock during World War I. As the BIC is inconclusive, we have to look for other criteria to select the best fitting model. The percentage of erroneously categorized cases is lower in the shock model. Likelihood-ratio tests show that there is shock in the diagonal association: the deviance between the model with and without a shock is 37.5 with 6 degrees of freedom (heterogeneous for each class) and is statistically significant ($p \leq .001$), indicating that the World War I shock model fits the data better.

For the off-diagonal shock, the two best-fitting models indicate no shock and the difference in the proportion of erroneously categorized cases between the model with no off-diagonal shock (model 2 in Table 3.2) and the models with an off-diagonal shock (models 6 and 7) is virtually zero. We conclude that the most preferred model is the model with linear change in the diagonal association, quadratic change in the off-diagonal association, and a shock during World War I in the diagonal association (model 2 in Table 3.2).

3.8 Results from the best-fitting model

Table 3.3 shows the estimated parameters from the best-fitting model. The hierarchy of classes can be seen from the origin-destination scale values at the bottom of the table.[4] The scale values of all classes differ significantly

and off-diagonal cells. The proportion of erroneously categorized cases gives a better indication of the magnitude of the misfit in the data, although it is by no means a formal test of model fit.

[4]We tested whether scale values are equal for the same origins and destinations. Equality does not hold as the model with unequal origin and destination scores fits the data better in a likelihood-ratio test. Inspection of the identified scale parameters and

from each other. Managers and professionals are the furthest away from the other classes. Managers and professionals' distance from the other non-manual class (lower-level professional, clerical, and sales personnel) is even larger than their distance from the manual classes, indicating a largely exclusive, elite class at the top of the class hierarchy. The two industrial classes are the closest two classes in the class hierarchy (highly skilled and low-skilled workers). The farming class is closer to the industrial classes than to the class of farm workers, indicating that farm workers were the most deprived class in the class hierarchy in terms of mobility resources and desirability.

The diagonal intercepts presented in Table 3.3 show the estimated diagonal association by class in the mobility table from 1865–1869. In this period, the farming class has the highest diagonal association compared to other classes; the odds of immobility compared to mobility are 43 ($e^{3.77}$). The classes of lower-level managers and professionals and clerical and sales personnel, highly-skilled workers, low-skilled workers, and farm workers also have higher odds of immobility than mobility in the first period, although the odds that farm workers are immobile are smaller than the immobility odds of the other three classes. The odds that managers and professionals are immobile are not significantly different from 1, which may be because there are too few observations for this class in the earlier period.

Figures 3.4a-f show the heterogeneous linear trends and the shocks that occur in the diagonal associations by class (see Table 3.3 for the parameter estimates). The diagonal association decreased for all classes, except for managers and professionals and farm workers. The greatest decrease in the odds of immobility (approximately 60 percent) occurred for the classes of farmers, highly skilled workers, and lower-level managers and professionals and clerical and sales personnel. The decrease in immobility for low-skilled workers is approximately 50 percent. For highly skilled workers and lower-level managers and professionals and clerical and sales personnel the estimated odds of immobility do not differ significantly from 1 during the last three periods. Farmers still have very high odds (18) of

their standard errors, however, reveal that none of the differences between origin and destination scores for the same occupations are statistically significant. We can conclude that the latent resources of class origins and the latent desirability of class destinations do not differ from each other.

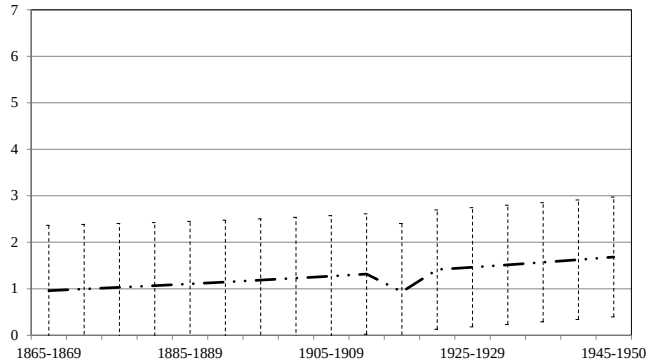
Table 3.3: Parameter estimates from selected RCII model

	Estimate	s.e.
Diagonal intercept 1865–1869		
Managers and professionals	−.04	.34
Lower-level managers, etc.	1.55***	.10
Highly skilled workers	1.69***	.06
Farmers	3.77***	.08
Low-skilled workers	1.42***	.08
Farm workers	.78***	.16
Diagonal linear slope		
Managers and professionals	.04	.02
Lower-level managers, etc.	−.06***	.01
Highly skilled workers	−.07***	.01
Farmers	−.06***	.01
Low-skilled workers	−.04***	.01
Farm workers	−.01	.01
Diagonal shock WW1		
Managers and professionals	−.38	.29
Lower-level managers, etc.	−.37**	.14
Highly skilled workers	−.11	.11
Farmers	−.52***	.11
Low-skilled workers	.01	.11
Farm workers	.25*	.13
Off-diagonal scaled association		
linear period slope	.07***	.01
quadratic period slope	−.005***	.001
intercept	3.13***	.28
Scale parameters		
Managers and professionals	1	
Lower-level managers, etc.	.67	.02
Highly skilled workers	.48	.01
Farmers	.26	.01
Low-skilled workers	.38	.01
Farm workers	0	

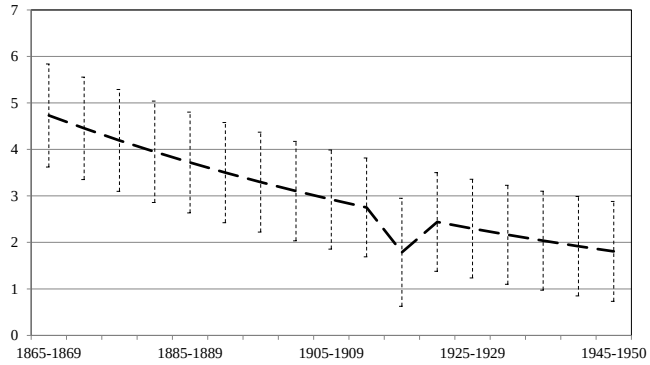
Notes: L^2 = 1057; *df* = 400; the off-diagonal linear and quadratic slope parameters are multiplicative and show the deviations from 1. In period 1, the multiplier is $1+0\times.07^0\times.005 = 1$; in period 3, the multiplier of the scaled association parameter is $1+2\times.07^4\times.005 = 1.116$. The origin-destination score of managers and professionals is constrained to 1 and farm workers is constrained to 0 for the purpose of identification.

Figure 3.4: Diagonal association: odds ratios per class and period, 1865–1950

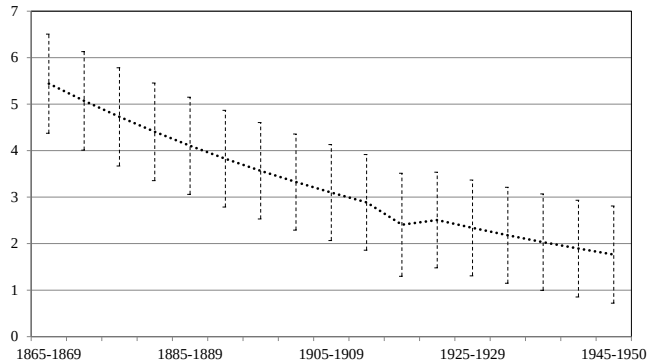
a) Managers and professionals



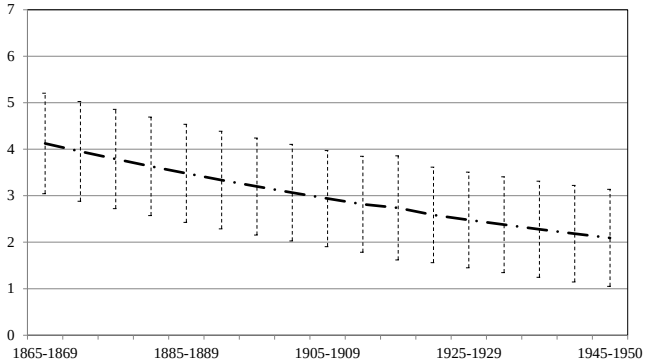
b) Lower-level managers and professionals and clerical and sales personnel



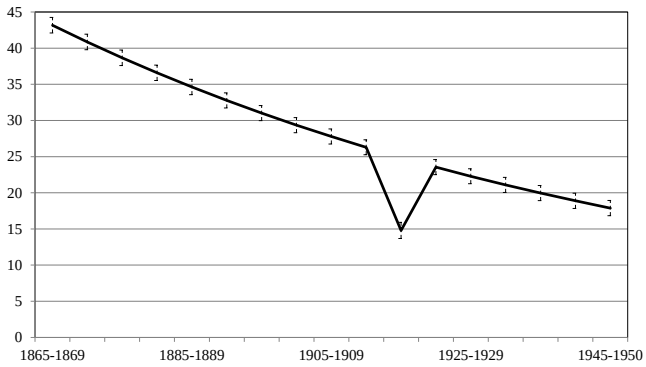
c) Highly skilled workers



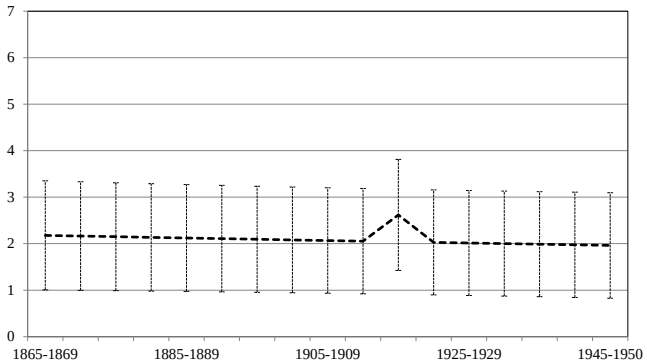
d) Low-skilled workers



e) Farmers

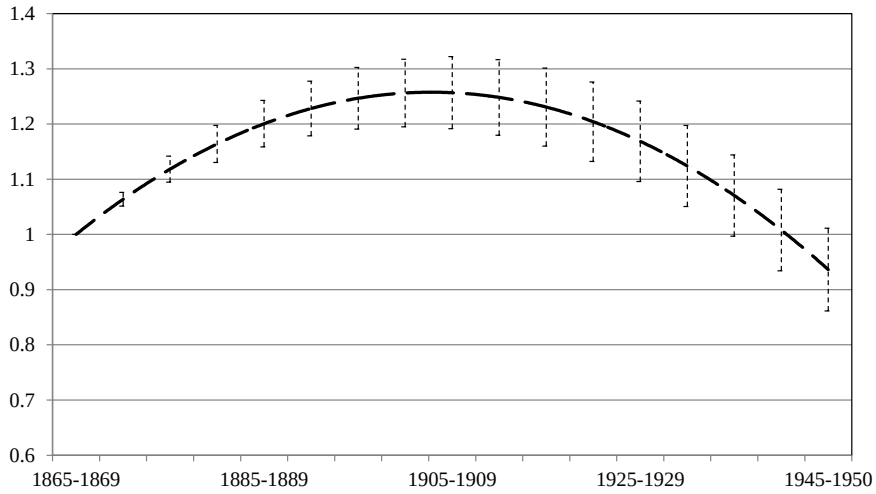


f) Farm workers



Note: 95 % confidence intervals

Figure 3.5: Change in the multiplier of the scaled association parameter, 1865–1950



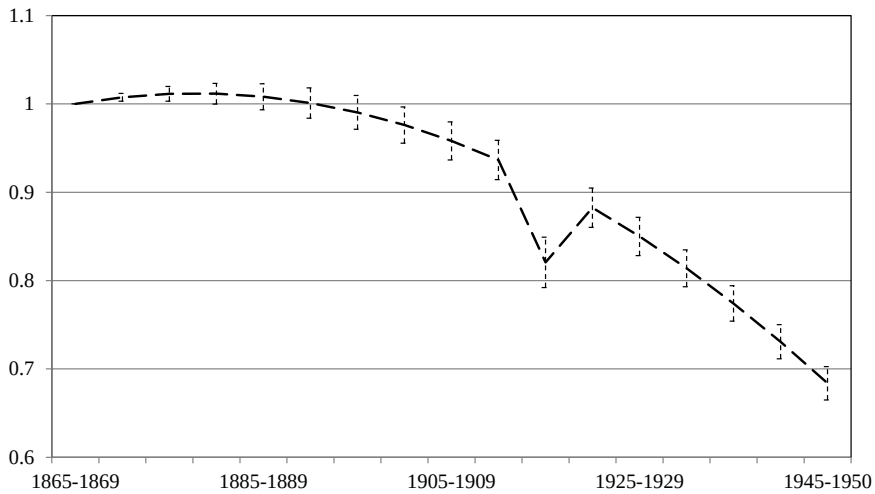
Notes: 95 % confidence intervals.

reproducing their class position in the last period. The gradual decline in the diagonal association for most classes supports the modernization thesis that predicts a gradual decrease in relative mobility over time (H1), and fails to support hypotheses predicting trendless fluctuations in mobility (H2) or a sudden increase in mobility due to industrialization (H3).

During World War I, the odds of immobility significantly decreases for farmers and lower-level managers and professionals and clerical and sales personnel, and significantly increase for farm workers. This finding, however, provides only weak support for H4. First, the shocks are not the only changes that occur in the mobility regime, we also observe a linear trend. Second, the period during World War II does not seem to change the diagonal association at all. Finally, changes in this period are not uniformly towards more mobility for all classes.

The change in the scaled association parameter is quadratic. The linear component of the change is positive, and the quadratic component is negative (Table 3.3). The off-diagonal association increases at a decreasing rate until the period from 1905–1909, after which the association decreases (see Figure 3.5). The results for the off-diagonal association do not support any

Figure 3.6: Change in the multiplier of the full origin-destination association, 1865–1950



Notes: 95 % confidence intervals. BIC= 5328, D= 5.2 (lowest BIC among the estimated models). Model includes a quadratic change and a World War I shock.

of the hypotheses we have formulated. During the first industrialization period, there is an increase in the off-diagonal origin-destination association in Hungary, but the association decreases after this period. From 1935 onwards, the off-diagonal association is not significantly higher than it was in the first period from 1865–1869.

So far, we see different trends for the diagonal and the off-diagonal associations. To assess how the total origin-destination association changed, we estimated uniform difference models on the full association, without constraining the origin and destination association structure[5], and using the different change and shock specifications we introduced in previous models. The best model included a quadratic change with a World War I shock. The estimated change in the unidiff-multipliers is shown in Figure 3.6. The total origin-destination association does not change much between 1865 and 1900, but decreases significantly thereafter. From 1945–1950, the association is 70 percent of that in the first period. If we look

[5]The unconstrained association has $(6-1)\times(6-1) = 25$ identifiable parameters, obviously less parsimonious than the previous models in which the association was modeled with 10 parameters (6 diagonal and 4 off-diagonal).

at the total association between origins and destinations, we can conclude that social mobility increased in Hungary in a fairly stable fashion from the turn of the century, interrupted only by a sharp increase in mobility during World War I.

3.9 Conclusions and discussion

In this chapter, we have analyzed changes in social mobility in Hungary between 1865 and 1950. The occupational structure of Hungary remained predominantly agrarian with a large class of farmers and a smaller class of farm workers, but over time there was an upward shift in the class distribution driven by an increase in the percentage of lower, non-manual workers and low-skilled industrial sector workers. Total mobility increased during this period.

Origin-destination scales estimated from the scaled association models revealed the polarization of the Hungarian class hierarchy. These findings mirror, to the extent that our macro-classes allow, historical descriptions of the Hungarian class structure during this period that highlight the existence of a bourgeois, professional, estate-owner elite and an agrarian underclass (Berend, 2003; Erdei, 1980 [1954]; Kövér & Gyáni, 1998).

One of the goals of this study was to test existing hypotheses about long-term changes in social mobility during and after industrialization. We distinguished four hypotheses that predict the following changes in social mobility: a gradual increase in mobility; trendless fluctuations in mobility; a sudden increase in mobility during industrialization; and no trends but shocks to mobility regimes caused by wars and political changes. Modernization theory, which predicts a gradual increase in social mobility, received the most support in this analysis. From 1900 onward, Hungarian society became more open as relative mobility increased. Note that these increases in mobility occurred later than expected because industrialization in Hungary started in approximately 1860–1870. The mobility regime was temporarily shocked in the period during and shortly after World War I, although only for the odds of immobility, not for all classes, and not in a uniform direction. We did not find such effects for World War II. As the evidence for the shock-hypothesis is not yet conclusive, a closer look at the war involvement of the labor force is necessary. A promising

way for future research is to consider how differences across social classes in participation in warfare and war-related mortality could distort social reproduction mechanisms during war periods.

Our second goal was to empirically investigate the claim that a long-term increase in relative mobility occurred in Hungary before the Communist takeover in the 1950s (Luijkx et al., 2002). Our findings support this claim. We observe a steady increase in relative mobility between 1900 and 1950. Our data do not enable us to test whether this trend continued unchanged in the decades after 1950. However, Communist restructuring definitely did not induce the first increase for Hungary's mobility regime.

During the period before the turn of the century, we found that stable relative mobility concealed two opposite trends. On the one hand, we observed an increase in relative mobility caused by diminishing relative class inheritance. On the other hand, the off-diagonal association increased until the turn-of-the-century. The downward trend in the diagonal association indicates that class-specific resources or barriers and norms that cause class reproduction became less important in determining mobility in Hungary over time. The initial increase in the off-diagonal association, however, shows that class-based inequalities in mobility chances intensified until the turn-of-the-century.

The slightly increasing rigidity in class inequalities between 1865 and 1905 is most likely explained by reproduction theory because inheritance among most classes diminished during this time. It could be that during this period of early industrialization, classes with resource advantages did not only use their resources to keep their children in their class, but also to help their children enter new, prestigious occupations. This would imply that resourceful classes were the most successful at adapting to the new challenges and opportunities presented by a developing economy.

The number of studies in the mobility literature studies on late-industrializing countries is increasing (e.g., Ishida, 2001; Torche, 2005), and further investigations of the impact of economic and institutional changes on the mobility regime during industrial development could be fruitful for the field.

There is an ongoing debate in mobility research whether intergenerational inequalities are better captured at the occupational or micro-class level instead of at the level of big classes (Erikson et al., 2012; Jonsson

et al., 2009). However, over-time changes in micro-class versus macro-class mobility have not yet been investigated (with the exception of Jonsson et al., 2008) and future research could benefit from the long time frame of historical datasets to study changes in the composition of macro-classes and how these relate to social mobility. Some of our results indicate that such changes in occupational composition of classes might play a role. The high proportion of immobile men among highly skilled workers and lower-level managers and professionals and clerical and sales personnel during earlier periods may be explained by the pervasiveness of occupations with high self-employment (artisanship and small proprietorship) in these classes compared to industrial blue-collar and non-manual, white-collar occupations. It is an interesting question to what extent the rates of total mobility and patterns of relative mobility are driven by compositional changes in the larger classes, which we leave for future research. Looking at occupations and occupational classes simultaneously could also provide insights into the economic-historical aspects of social class formation (Goldthorpe & McKnight, 2006) and further our knowledge on the location of intergenerational inequalities.

In this chapter, we focused on national-level trends in mobility in Hungary. Historically, industrialization and modernization occurred at different rates in regions across Hungary (Beluszky, 2001). Comparing regional and municipal levels of social mobility with the presented data could add interesting insights into how the processes of industrialization and modernization affect social stratification. A further step in this research agenda, already begun by researchers of historical patterns in status attainment (Zijdeman, 2010), is a more direct test of the modernization thesis that measures how regional or municipal differences in the presence of industries or schools is related to social mobility.

Chapter 4

Early modernization and social fluidity: Testing the "theory of industrialization"*

4.1 Introduction

Modernization has shaped societies in many important ways, but the contribution of modernization to equality of opportunity is subject to a large debate. The question at the heart of the debate is whether modernization processes break down the traditional social barriers, leading to greater social 'fluidity'. Much research has been conducted around this problem (Blau & Duncan, 1967; Breen, 2004; Erikson & Goldthorpe, 1992; Featherman et al., 1975; Ganzeboom et al., 1989; Goldthorpe, 1985; Kerr, 1983; Landes, 1969; Parsons, 1967), yet the literature has not reached a consensus as to whether modernization does indeed lead to more open societies. This study aims at contributing to this effort by investigating how various modernization processes have influenced social fluidity in Hungary.

Most mobility studies compare social fluidity across countries, time periods and cohorts to study social change (Erikson & Goldthorpe, 1992; Hauser & Grusky, 1988; Ishida et al., 1991; Ringdal, 1994). While some findings suggest meaningful cross-sectional and temporal variation in so-

*This chapter is submitted for publication in an international journal. An earlier version (Lippényi, Zoltán, Ineke Maas, Marco H. D.van Leeuwen. 2013. Modernization and social fluidity: A test of the thesis of industrialization) was presented at the RC28 Spring meeting, Trento, 18 May, 2013.

cial fluidity (Beller & Hout, 2006; Breen & Jonsson, 2007; Breen, 2004), results in recently modernizing countries show no increase in fluidity (Ishida et al., 1991; Ringdal, 1994; Yaish, 2004). These findings have led reviewers to conclude that 'modernization theory is wrong' and modernization processes are not related to social fluidity (Hout & DiPrete, 2006). However, modernization literature suggests that the most profound economic and institutional changes in industrial societies took place around the times when pre-industrial societies became industrialized (Davis, 1962; Landes, 1969; Lipset & Zetterberg, 1959).

Indeed, a growing body of research on social mobility during historical modernization finds greater variation in fluidity than what is observed in contemporary studies. These studies involve a number of countries already, such as Great Britain (Miles, 1994), the U.S. (Guest et al., 1989; Guest, 2005), France (Bourdieu et al., 2009; Fukumoto & Grusky, 1993), the Netherlands (Van Leeuwen & Maas, 1997), and Sweden (Maas & Van Leeuwen, 2002) and Hungary (Lippényi et al., 2013a).

A general drawback of mobility literature is the lack of studies that aim at explaining variation in social fluidity by reference to macro-level processes (Treiman & Ganzeboom, 2000). The large majority of mobility studies indeed infer on modernization effects indirectly, from descriptive analyses of time trends or country differences. Our study takes a different approach by directly testing the effect of modernization processes on fluidity during the early period of modernization. We build on the 'theory of industrialization' by Treiman (1970) in which he outlined mechanisms that link educational expansion, urban population growth, and industrialization to greater social mobility (Treiman, 1970). Some studies have tested Treiman´s hypotheses to explain variation in status transmission (Grusky, 1983; Treiman & Yip, 1989; Zijdeman, 2009), relative mobility (Grusky & Hauser, 1984), or in upward/downward mobility rates or indexes (Hazelrigg & Garnier, 1976; Tyree et al., 1979). Results from these studies are mixed, which can be due to the fact that most analyses do not distinguish 'structural mobility' attributable partly to shifts in the occupational distribution from 'relative mobility' which reflects underlying class inequalities. Modernization processes could influence both the shape of the occupational distribution and the extent of inequality of opportunities (Treiman, 1970) and in our study we provide a clearer picture of how

modernization influences inequality of opportunities by studying relative mobility.

The historical context of our investigation is the early modernization period in Hungary between 1870 and 1950. One of the later-industrializing nations, Hungary saw a steep increase in industrial production in the decades before World War I, although it remained a predominantly agrarian society until the 1950s (Berend, 1998, 2003). Earlier sociological accounts of Hungarian social structure (Andorka, 1982; Erdei, 1980 [1954]) emphasized the simultaneous existence of more 'traditional' agrarian social elements like a large-estate-holding elite and a large body of subsistence farmers, and 'modern' classes like the industrial working class and the lack of social mobility. Mobility and status attainment studies however show that the intergenerational association had begun to decrease even before the 1950s (Ganzeboom et al., 1990; Lippényi et al., 2013a; Simkus, 1981). The changes in social fluidity in Hungary have not yet been explicitly related to modernization processes, and the present study undertakes this task by investigating how modernization processes during early, pre-communist, industrialization influenced relative social mobility in Hungary.

In this study we build on variation in social fluidity both over time and between municipalities. We compare developmental variation and fluidity in 638 mobility tables, constructed by cross-classifying the occupational classes of fathers and sons for 5-year marriage cohorts within 62 municipalities. The advantage of our study design is that we exploit variation across social and economic contexts in which individuals lived, and by using data from a single country we can exclude country-level stable and unmeasured cultural, historical, or political factors from the explanations. Our focus on municipal and time variation aligns with that of Grusky (1983) who argued that local labor markets differ in their processes of reward allocation. Those differences imply that the strength of intergenerational association between occupational origins and destinations might differ between locations. Local differences in social mobility are probably even more profound in less technologically advanced societies, such as Hungary was during its early industrialization. Municipalities in Hungary were less interconnected by transportation and labor force mobility than today, and geographical inequalities in access to schooling and to industrial jobs were

large (Beluszky & Győri, 2005; Beluszky, 2001).

There are different methods of incorporating explanatory variables in analyses of occupational mobility tables (Grusky & Hauser, 1984; Xie, 1992). In this study we improve the two-step approach of Xie (1992) by applying meta-analytical techniques to the mobility table analysis. In the first step of our analysis, we estimated relative mobility for each mobility table, and in the second step we used the estimates as dependent variables in regressions to test the effects of modernization on social fluidity. To take into account any errors arising from the estimates made for the first step, we conducted multivariate heteroscedastic random effects regression analyses, a frequently-used method in meta-analyses of multiple studies (Higgins et al., 2009; Jackson et al., 2010; White, 2011), but which has not been used for mobility analyses.

Our empirical analyses are based on the recently-collected Hungarian Historical Social Mobility File, a large mobility dataset constructed from marriage records. We assembled our dataset using probability sampling techniques and it contains mobility data from between 1870[1] and 1950 for every region of present-day Hungary. Altogether it contains details of approximately 73,000 marriages from 62 municipalities.

4.2 Social fluidity and modernization processes

In traditional societies, literacy, knowledge, or social norms are largely transmitted through kinship and family, because formal education is not institutionalized. In modern societies, formal education reaches almost every member of a society and is the main socializing and acculturating agent, able to broaden acquaintance with different cultures or social settings, and can be expected to provide opportunities to acquire different occupational skills from those of the parental generation (Treiman, 1970). Schools as institutions transmit meritocratic norms also, through the evaluation of their pupils based on academic (or other) performance, public examinations and universal norms in scientific subjects (Parsons, 1967). In short, education disseminates various assets (knowledge, skills and norms) to a

[1] While we gathered data from earlier than 1870, we restricted our analytical sample to the period after 1870 because before the Hungarian census in 1869 we did not have reliable population size statistics to use as an explanatory variable.

broad populace, some of whose parents do not possess them to transmit to their children, which can be an important equalizing force in occupational class outcomes. As literacy rises with the expansion of elementary education, more people are able to gather information from books or newspapers, which contributes to the development of a common culture and the diminution of class differences in attitudes and behavior. The expectation is that the expansion of education at primary and higher levels will reduce the extent to which parental resources, such as income, are associated with inequality in skills, norms, and attitudes in their children's generation and subsequently will decrease relative differences in mobility chances across classes (Breen & Jonsson, 2007). Based on these arguments we expect greater social fluidity in places with more educational opportunities (H1).

The increasing size of communities and growing possibilities for geographic mobility by the diffusion of mass transportation provide opportunities for meeting others outside the limits of kinship and smaller communities. Such 'others' are more likely to have adopted norms and values and gained knowledge somewhat different from those of an individual's close kin, which could likely contribute to a decrease in the influence of parental class-based norms and values on occupational choices (Treiman, 1970). In large cities it is more difficult for employers to select on the basis of parental social class, as candidates can be from different places and there is less information available about their social backgrounds. Furthermore, ambitious people from disadvantaged social origins might choose to migrate to these places where they have better prospects (Sjaastad, 1962). Lastly, due to vicinity, it is easier in large urban communities to access information that can be valuable for attaining class positions, for example via public institutions, local newspapers, and libraries. Therefore inequality of access to such assets between those with high or low parental resources will be less. We hypothesize that social fluidity will be greater in places with larger population size (H2a) and will be greater in places with more opportunities for geographic mobility (H2b).

In pre-industrialized economies there is strong association between assets such as land, property and craftsmanship, and social class. Labor is usually small-scale and usually organized along familial or kinship lines. With industrialization, that association between inherited occupational resources and social class is likely to decrease as the production of goods

becomes increasingly mechanized and divided into a discrete set of operations which could not be carried out by the same person (Treiman, 1970). As a consequence, demand decreases for the traditional craft and farming skills and their associated tools which previously provided entry to manual occupations. Moreover, industrialization implies the creation of new occupations concerned with supervising factory production or maintaining industrial machinery, as well as administrative and clerical work (Lipset & Zetterberg, 1959). Selection for such jobs is likely to be based on skills, experience, and acquired knowledge, for they are complex and demand more responsibility due to the larger scale of production. Formal training is required, which cannot be acquired via family or kinship. All these processes lead to a reduction of the effect of parental class resources such as occupational practice, tools and craftsmanship on inequality in class outcomes. Our hypothesis then is that social fluidity will be higher with greater industrialization of the labor market (H3).[2]

4.3 Data and measures

The Hungarian Historical Social Mobility File is an intergenerational mobility dataset which contains information about the occupations of bridegrooms and their fathers gathered from parish marriage registers in present-day Hungary (Lippényi et al., 2013b). During the historical period of our study, marriage was almost universal in Hungary (Hajnal, 1953, 1965), so we expect that the data represent the whole population of Hungary at their ages of marrying. The average age of bridegrooms in the sample was 26–27, and it did not change over time.

To represent Hungarian municipalities by region, legal status—these are village, town, and regional center—and by level of development (see Appendix A for details), we drew a stratified sample from Hungarian municipalities. For each municipality, marriage acts of all the local religious congregations—Roman Catholic, Hungarian Reformed, Lutheran, and Jewish—, and all parishes were digitalized.

Occupational titles were coded into the Historical Intergenerational

[2]There is an expected increase in the association between educational assets and social class with greater levels of industrialization, but –as Treiman (1970) argues– we can still expect the total impact of industrialization on relative mobility to be positive.

Standard Classification of Occupations (HISCO, Van Leeuwen et al., 2002) and recoded in the Historical International Social Class Scheme (HISCLASS, Van Leeuwen & Maas, 2011). The HISCLASS distinguished 12 occupational classes, but not all classes were well represented in our data. We condensed the HISCLASS into a 6-class version, distinguishing between higher managers and professionals (including large proprietors and estate owners), lower managers and professionals and clerical and sales personnel, highly-skilled workers (including artisans), farmers, low-skilled workers, and farm workers. Enlisted men were excluded from the analyses, and in any case the vast majority of them were only temporarily occupied in the military due to mandatory conscription. Mobility tables were constructed per municipality and for 5-year marriage cohorts.

Population size is defined as the number of inhabitants of a municipality, linearly interpolated to the year when the cohort married by using the two nearest censuses. Censuses were taken in 1869, 1880, 1890, 1900, 1910, 1920, 1930, 1941, and 1949 (Klinger & Kepecs, 1990).

Educational opportunities were measured as a dummy variable, indicating whether there were teachers in primary/secondary/higher education—occupations from the HISCO minor group 1–3—present in the municipality in the period when the average-aged member of the marriage cohort was between 6 and 16. The measurement period was chosen to correspond with the ages at which the members of the marriage cohort might have received schooling. We assumed that teachers were teaching for 30 years: after their appearance in the database at their own marriage, each teacher was counted for 6 more mobility tables to cover the 30-year period.

Geographical mobility opportunities were measured as a dummy, indicating whether any individuals who worked in transportation, such as conductors or locomotive engineers[3], who married in the municipality during the period when the average-aged member of the marriage cohort was between 15 and 25. The measurement period was chosen to correspond with the ages at which cohort members entered the labor market.

Industrialization was measured from the number of workers in non-agricultural occupations who married in the municipality when the average-aged member of the marriage cohort was between 15 and 25. As

[3]The full list of the HISCO codes of transport related occupations can be obtained from the authors upon request.

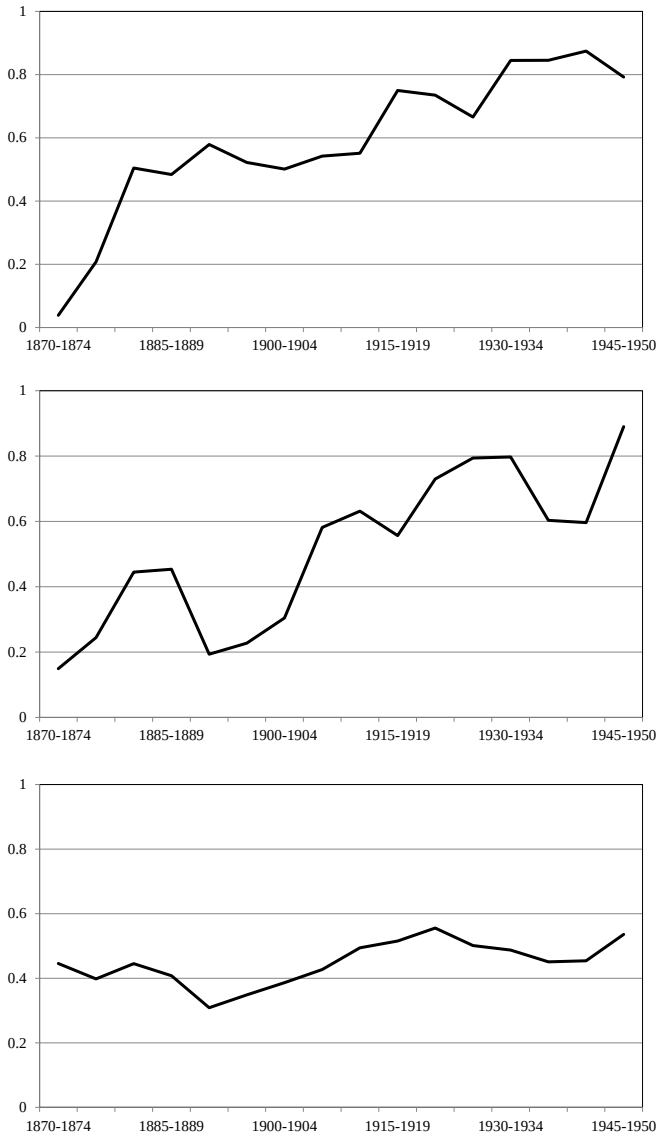
the overwhelming majority of the Hungarian agrarian labor force used traditional technologies in farming and farm labor (Swain, 1992), that indicator aligns well with the extent of mechanization of production in municipal economies. The measurement is relative to the total number of marriages in the period.[4]

We controlled for the period of World War I and its aftermath (cohorts 1915-1919 and 1920-1924) and for World War II and its aftermath (cohorts 1940-1944 and 1945-1950) with dummy variables. We excluded tables that had hardly any observations (fewer than 20 marriages), which caused a small decrease in sample size (156 tables, in total 1189 observations). We further had to exclude some tables because all observations were in the same cell of the mobility table and we could not estimate a model (9 tables, in total 587 observations). The total number of observations in our analyses is 73,115 across 638 mobility tables. The descriptive statistics for the independent variables are shown in Table 4.1.

Figure 4.1 plots changes in modernization processes over time. The substantial increase in the proportion of the population enjoying educational opportunities between 1870 and 1885 can be attributed to the 1868 Education Act, a major educational reform which introduced compulsory education for children under 12 (Kövér & Gyáni, 1998). With the establishment of a large number of primary schools, the illiteracy rate dropped from around 70 percent to 33 percent by 1913 and to 6 percent by 1949 (Dányi, 1964). Opportunities for geographic mobility increased in the decades before World War I as capital investments from the more developed part of the monarchy brought with them the impetus for the development of

[4]Educational opportunities, geographic mobility opportunities and non-agrarian labor markets were estimated from the marriage record data. In some municipality-cohort pairs, however, marriage records were not available and we therefore could not count the number of teachers, transport workers or the proportion of non-agrarian labor force. We imputed missing data conditioning on cohort and population size and added random variation to incorporate uncertainty. For each case with missing values on educational opportunities, we drew a random value from a binomial distribution with probability p, which was equal to the proportion of observations that had a value 1 within the same marriage cohort and population size category. We followed a similar strategy for the variable geographic mobility opportunities. To impute missing proportion of non-agricultural labor force, we drew from a normal distribution with mean equal to the mean proportion in the same cohort and population size category, and variance equal to the estimated variance in the sample.

Figure 4.1: Cohort differences in educational and geographic mobility opportunities, and non-agrarian labor population



Notes: data weighted by municipal types and regions. Measuresare in percentages.
Source: HHSMF.

Table 4.1: Descriptive statistics: modernization indicators and controls

	Mean	S.d.	Min	Max
Urban growth				
Population size (10,000)	3.06	13.79	.07	168.28
Educational opportunities				
Teacher present during formative period	.73		0	1
Geographic mobility opportunities				
Transport worker present when entering the labor market	.59		0	1
Industrialization				
Non-agrarian labor force in cohort	.50	.27	0	1
WWI cohort	.15		0	1
WWII cohort	.15		0	1
Table size	114.60	82.66	20.00	564.00

Note: N=638.

the railway system (Berend & Ránki, 1974). Although the population of Hungary was predominantly agrarian throughout our period, non-agrarian labor nevertheless increased, and did so most steadily during the economically prosperous decades before World War I.

4.4 Methods

We used the linear-by-linear interaction model (Haberman, 1974) to model the origin-destination association as an interaction term between scaled row and column categories. The model for the table of two-dimensional mobility is parameterized the following way:

$$\ln(F_{ij}) = \alpha_i + \beta_j + d_{ij,i=j} + \phi x_i y_j, \tag{4.1}$$

where the natural logarithms of the cell frequencies $\ln(F_{ij})$ are modeled by the fixed origin-destination marginal effects α_i and β_j. The $d_{ij,i=j}$ are class-specific diagonal association parameters, modeling the propensity of social classes for class inheritance.

The x_i are scale values for the ith occupational origin, and y_j are scale values of the jth destination. We assigned fixed scaled values to origin and destination classes, and our scale values were obtained from a log-multiplicative quasi-RCII model (Goodman, 1979b), estimated on a table with cell frequencies pooled across municipalities and time points. The origin and destination scales were constrained to be equal, and normalized to have zero mean and unit variance (see scores in Table 4.3). The ϕ is the scaled association parameter which shows the strength of the off-diagonal association in the table.

There are two types of modeling approach in explanatory analyses of social fluidity. The first one, applied by Grusky & Hauser (1984) to 16 intergenerational mobility tables, directly incorporates macro-level explanatory variables as covariates into log-linear analysis of mobility tables. The second, presented by Xie (1992) on the same data and explanatory variables, takes on the analyses in two steps: first the parameters are estimated to show the strength of intergenerational association in each table, and in the second step those measurements of relative mobility are correlated with explanatory variables. If, as in our case, the analysis includes a large number of tables, the first approach is highly computation-intensive and may result in convergence problems as the fitting of the model requires simultaneous estimation of a very large number of marginal effects.

To estimate the effect of modernization processes on social fluidity obtained from the linear-by-linear model, we took a two-stage approach and improved upon the existing method. Instead of bivariate correlations we employed multivariate heteroscedastic random effects regression analyses (Higgins et al., 2009; Jackson et al., 2010; White, 2011). We distinguish between the 'noise' coming from sampling variance in our social fluidity estimates, and between-table variance, i.e. the 'true' variance, in the magnitude of association which we sought to explain using our covariates to accommodate the fact that the parameters representing association structure were estimated on the same sample, and therefore correlated.

In addition to obtaining better estimates, we calculate a useful meta-analytical measure, I^2, which is the ratio of between-table and total variance in the association parameters. This measure can be used to quantify variation in social fluidity across tables as it shows the amount of 'true' variance in social fluidity between cohorts, relative to the total variance

which also includes sampling variance. The I^2 has similar interpretation and statistical properties to those of the intra-class correlation in hierarchical models (Higgins & Thompson, 2002). As social fluidity lacks a natural scale to guide assessment of the strength of effects, I^2 is useful in demonstrating the merit of each modernization process for explaining social fluidity.

Zero cell counts are a common practical problem in mobility table analyses. We adopted the standard solution in log-linear analyses by adding a small constant (.01) to each cell. That adjustment creates a slight bias towards null association in the estimated parameters (Clogg & Eliason, 1987). Sparseness occurs more often in tables with small sample sizes, and since neither table size nor population size was balanced in our research design, sparse tables come mostly from municipalities where there were not many marriages.[5] All the same, the effect of adding that small constant does potentially confound the effect of population size in our regression analyses, so we solved that difficulty by applying the heteroscedastic regression method. That technique allowed us to weight down association parameters which had larger estimated sampling variance.[6] To assess whether that regression adjustment could cancel out the effect of table size, we estimated the model with table size as a covariate. As the inclusion of that control had a slight influence on the effects of the independent variables, we chose to control for table sample size throughout the analyses, in order to reduce bias.

4.5 Results

Turning to the results, we see in Table 4.2 the mean estimate for each association parameter from the first estimation stage, their estimated between-table standard deviations, the estimated proportions and 95 percent confidence intervals of the ´true´ variance (I^2). The mean scaled association parameter is positive, showing that those who were mobile from higher class origins could gain access to higher class destinations more easily that

[5]Taking larger time intervals (e.g., 10 years) results in fewer empty cells in the mobility table. However, that decreases the precision of the measurement of macro-level covariates.

[6]To diminish this bias even further we deleted rows and columns, in cases when both were empty for the same class in a given table.

Table 4.2: Descriptive statistics: intergenerational association parameters

	Mean	**S.d.**	$\mathbf{I^2}$	**95%**	**C.I.**
Scaled association	4.38	.70	.06	.02	.12
Diagonal Association					
Higher managers and prof.	.64	.39	.04	.01	.10
Lower managers and prof.	.73	.33	.11	.05	.18
Highly-skilled workers	1.01	.31	.16	.09	.24
Farmers	2.58	.53	.28	.20	.35
Low-skilled workers	.77	.49	.30	.22	.38
Farm workers	.93	.47	.15	.09	.21

Note: N=638.

those from lower class origins. We find a small between-table variance (I^2) in the off-diagonal association parameter: just 6 percent of the variance can be attributed to between-table variation, the remaining 94 percent being sampling or estimation error. The small size of the variation indicates that the inequalities in attainment of class positions among those who were mobile were rather persistent across cohorts and municipalities.

All diagonal association parameters are positive so all classes have a greater propensity for immobility than we should have expected if sons had been randomly allocated across destination classes. Among the diagonal parameters, the farmers show the highest propensity of immobility (the log-odds ratio is 2.58), followed by the highly-skilled workers. The classes including both farmers and highly-skilled workers contain substantial numbers of proprietors, which might explain their higher relative immobility. Farm workers, the most disadvantaged class in the Hungarian class structure according to the origin-destination scale, show relative mobility similar to that of highly-skilled workers. Their propensity to immobility was more likely a result of their comparative disadvantage than of their resources which other classes did not possess.

The smallest between-table variance is estimated for the diagonal parameter of the higher managers and professionals (only 4 percent of the total variance), indicating small cohort and municipal variation in the class's propensity for immobility. The largest between-table variation is in the immobility parameters of low-skilled workers and farmers, with respectively

between-table variances are 30 percent and 28 percent of the total.

Table 4.3 shows results from heteroscedastic multivariate random effects regression analyses. Educational opportunities are negatively associated with the relative immobility of the highly-skilled workers (-.39). Thus, in cohorts with opportunities for better schooling we can see a lesser propensity for social reproduction among skilled working class members, confirming our first hypothesis. Translated to odds ratios, the odds for highly-skilled workers of their being immobile were 32 percent lower ($e^{-.39}$ = .68) in better-educated cohorts than in cohorts which had fewer opportunities for education. Educational opportunities are not related to the lower levels of relative immobility seen in the other classes, nor to the off-diagonal association. Against our hypothesis, the association between origins and destinations among those who are mobile is no lower in contexts with more schooling opportunities.

The hypothesis concerning urban population growth found no support. Population size is not negatively associated with relative immobility nor with the off-diagonal association. On the other hand, the hypothesis about the association between opportunities for geographic mobility and greater social fluidity is supported. The association between the presence of transport workers and relative immobility is negative and significant in the cases of lower managers and professionals and clerical and sales personnel, farmers, and low-skilled workers classes. That means that in cohorts with better opportunities for geographic mobility the propensity of those classes for social reproduction is less. For the other three classes there is no statistically significant relation between opportunities for geographic mobility and lower levels of relative immobility. For the off-diagonal association, better opportunities for geographic mobility are not related to greater equality in chances for class attainment.

There is convincing evidence in support of our hypothesis about the relation between industrialization and social fluidity. All diagonal parameters apart from that for higher managers and professionals are negatively associated with a greater proportion of non-agricultural labor. Thus, almost uniformly across all classes, cohorts employed in more industrialized economies show lower propensity for social reproduction. Some of those effects are quite substantial: the odds of being immobile for low-skilled workers and farm workers decrease by almost 10 percent with a 10 percent

Table 4.3: Regression of intergenerational association parameters on modernization indicators

	Diag. association						ϕ
	I	**II**	**III**	**IV**	**V**	**VI**	
Educational opportunities	−.30	.06	−.39***	.02	−.20	.13	.64
	(.46)	(.16)	(.10)	(.11)	(.11)	(.14)	(.38)
Population size (10000)	−.01	.00	.00	.01	.00	.00	.01
	(.00)	(.00)	(.00)	(.01)	(.00)	(.00)	(.01)
Geographic mobility opportunities	−.16	−.28*	−.08	−.26**	−.37***	−.15	.57
	(.31)	(.12)	(.08)	(.10)	(.10)	(.12)	(.31)
Industrialization	.00	−.50*	−.55***	−.49*	−1.11***	−1.01***	.13
	(.54)	(.21)	(.15)	(.19)	(.19)	(.22)	(.54)
WWI cohort	−.53	−.16	−.01	−.21	−.04	−.08	.19
	(.29)	(.13)	(.09)	(.12)	(.11)	(.15)	(.34)
WWII cohort	−.02	−.27**	−.23**	−.29**	−.29**	−.11	−.54
	(.23)	(.10)	(.08)	(.11)	(.09)	(.14)	(.28)
Table size	−.08	−.01	.00	.28***	.03	.07	.37**
	(.10)	(.04)	(.03)	(.05)	(.04)	(.05)	(.12)
Intercept	1.30*	1.32***	1.78***	2.61***	1.96***	1.42***	2.67***
	(.60)	(.20)	(.12)	(.13)	(.15)	(.16)	(.45)
Scale values (RCII)	.70	.30	−.01	−.26	−.15	−.57	
I^2	.04	.07	.09	.23	.19	.13	.04
95% C.I.	[.01;.09]	[.02;.13]	[.02;.17]	[.16;.30]	[.11;.27]	[.07;.19]	[.01;.10]
I^2 (controls)	.04	.08	.14	.24	.28	.15	.05
% change I^2	0	13	36	4	32	13	20

Notes: I=higher managers & professionals; II=lower managers, professionals, clerical and sales personnel, III=highly-skilled workers, IV=farmers, V=low-skilled workers, VI=farm workers, ϕ = scaled association parameter. Restricted ML estimates and standard errors (in parentheses) from multivariate heteroscedastic random effects regressions. Restricted log likelihood: -8650.29, N=638; * =p < .05, ** = p < .01, *** = p < .001 (2-sided).

increase in the non-agrarian population. However, as with the previous hypotheses we found nothing to confirm the hypothesis for the off-diagonal association.

Considering the effect of our war period controls in the model, we find that relative immobility was consistently lower in most classes during World War II and its aftermath. Contrasting the result of our earlier study (see Chapter 3) we find no World War I influence on relative mobility. However, when we re-estimate the model with controls only, we do find a negative effect of World War I on the relative immobility of farmers and higher managers and professionals. One of the likely reasons for the disappearance of World War I effect is thus an increase in modernization during this war. We find a similar pattern when we control only for the World War I period, and not for its aftermath.

To evaluate how well our model explains the variance in social fluidity, we estimated the proportion of change in I^2 between the model with only controls included and the model with all variables (Table 4.3). Our model does not explain any variation in the relative immobility of higher managers and professionals. However, that parameter has very small between-table variance to be explained. The model performs considerably better for the other relative immobility parameters. In the cases of both higher-and low-skilled workers the variables capture more than 30 percent of the true variation in relative immobility. The model fails to offer such explanatory capability in the case of farmers, for whom we could account for only 4 percent of the total variance. The variation in the immobility parameters of farm workers and lower managers and professionals and clerical and sales personnel are somewhat better accounted for, with 13 percent of the variance explained, while the unexplained variance in the off-diagonal association parameter is reduced by 20 percent. However, in these three cases, there was little between-table variance to explain.

4.6 Conclusions and discussion

In this chapter we studied the relation between modernization processes and social openness or relative mobility between 1870 and 1950 in Hungary. A large-scale historical dataset served as the basis for mobility tables which we put together based on marriage cohorts within 62 municipalities.

We specified parsimonious association models to estimate relative mobility from the mobility tables and then tested our hypotheses using multivariate regression analyses.

Against the backdrop of several decades of Hungarian history, we learned that modernization did not point toward uniformly increasing openness. The influence of different processes of modernization on social openness in Hungary produced a more complex pattern of persisting and diminishing social rigidities than the 'theory of industrialization' (Treiman, 1970) suggests. Supporting the theory, we found a negative effect of industrial population on 'relative' immobility for almost all classes. The implication of this finding is that in more industrialized contexts parental class-specific assets like land, a workshop, occupational knowledge, and not forgetting social norms and attitudes contributed less to the inequality of class attainment in the son's generation. We saw that industrialization had no influence on the relative immobility of higher managers and professionals, just as an earlier study by Grusky & Hauser (1984) had shown. The persistence of rigidity in that class is likely related to the ability of elites to invest more in the assets of their children, maintaining their advantage and compensating for potential competition from other classes (Bourdieu & Passeron, 1990).

Confirming our expectations, educational opportunities are associated with lower relative immobility, but only for highly-skilled workers, meaning that entrance to and exit from their occupational class became easier to the highly-skilled workers class as result of increased educational opportunities. However, educational opportunities are not associated with relative immobility of non-manual classes and did not influence the relative immobility of the agrarian classes. Those findings are in general not supportive of the 'theory of industrialization', but they could be related to educational sorting on parental background. Hungary had a highly unequal education system because of the general scarcity of educational opportunities, and high selectivity at certain secondary and higher levels of educational tracks (Simkus & Andorka, 1982). Sons from higher and lower non-manual class backgrounds could fill education trajectories leading to middle and higher non-manual occupations which provided entry to class destinations similar to those of their parents. Sons from skilled working class background had better relative chances for the remaining positions

in those educational trajectories than those from agrarian classes—skilled workers are the closest manual class in 'mobility distance' to non-manual classes which reflects resource advantage over other manual classes—, and therefore relatively greater number of skilled worker' sons could leave their class of origin. In turn, opportunities for children from low-skilled manual and agrarian background open up to enter vocational tracks. That would explain greater 'social fluidity' of the highly-skilled manual class in contexts with more educational opportunities, in comparison with other classes.

We saw no evidence for the hypothesis that social fluidity is greater in more populous communities. A possible explanation for that is that people living in cities might have tended to restrict their search for work to within the smaller social circles they found themselves in, and therefore they were not exposed to significantly more, nor more varied, information about job opportunities than were people living in less populous communities. Employers too might have been readier to select new employees from within that same closed social network. We found a certain amount of support for the idea that geographical mobility influenced opportunities for social fluidity, in that the relative immobility of lower managers and professionals and clerical and sales workers, farmers, and low-skilled workers is less in cohorts with more opportunities for geographical mobility. On the other hand, we did not find that opportunities for geographical mobility were related to lower relative immobility for highly-skilled workers nor for farm workers.

None of the modernization processes which have been considered in this study is associated with greater fluidity among those who were mobile, and the off-diagonal association shows very little variation across tables. Our conclusion therefore is that the overall level of inequality in class attainment for those who were mobile remained more or less constant and in any case, unaffected by the modernization processes we studied.

The strongest and most consistent negative association turned out to be between modernization and social rigidities among the 'middle ranks' of late 19th and early 20th century Hungarian society. That is, the degree of intergenerational inheritance in the non-agrarian working classes, and to a lesser extent in the lower non-manual class, was clearly smaller in cohorts with greater exposure to modernization processes. Our model also

explains the greater proportions for variations in relative immobility in those classes.

At the 'top' of the class hierarchy and in the agrarian sector class inheritance withstood modernization. Higher managers and professionals were indeed almost completely immune to it. Inheritance among the agrarian classes also persisted, although patterns differ between the two agrarian classes. Modernization hardly affected the social reproduction of the agricultural working class, and our model captures a small part of the variation in relative immobility for them. In the case of farmers, opportunities for geographical mobility and industrialized labor markets were clearly associated with declining relative immobility, but those effects captured a very small part of the variation in their relative immobility. Forces other than modernization were governing the social reproduction of farmers which our theoretical model is unable to explain.

Our findings also point up an important aspect of Hungarian society of the period which has not yet been stated, and that is that with modernization the working class became more open while rigidities in the non-manual elite and agrarian classes persisted. Moreover, for those who were socially mobile there was no decline in equality of access to different class positions. Our results nicely complement our picture of the mobility regime in pre-World War II Hungary, a society characterized not only by the coexistence, suggested by earlier research, of 'traditional' and 'modern' segments, but also by a more profound influence of modernization processes on the social fluidity of the non-agrarian manual segments, and within the traditional, mostly agrarian segments of society, a resistance to those processes.

Chapter 5

Pathways to "social openness": The role of migration and urbanization in long-term changes to intergenerational class mobility

5.1 Introduction

Modernizing countries experience increasing internal migration and urban population growth (Hochstadt, 1999; Pooley & Turnbull, 1998; Ruggles, 2007), but the relation of these population processes to class inequalities in mobility chances is subject to scholarly controversy. According to an 'optimistic' view, urbanization and migration are related to greater social fluidity, because urban labor markets act as the breeding ground of modern, 'meritocratic' forms of labor selection which rewards talented individuals more than those with favorable parental origins (Kerr, 1983; Landes, 1969). Migration to cities would facilitate intergenerational mobility through providing the more able and more productive opportunities to rise from disadvantaged social origins. However, 'pessimists' argue that urban growth only amplifies existing intergenerational inequalities, strengthening the economic positions of people from elite family backgrounds and leading to greater social disadvantage of migrants and urban lower classes (Kaelble, 1983; Thernstrom, 1973).

In this chapter I contribute to this debate by addressing how urban-

ization and migration relate to intergenerational social mobility, and to what extent migration and urbanization contribute to long-term change in inequality of mobility chances during the early modernization period in Hungary. From the 1960s onwards 'new urban historians' investigated the relation between migration, urbanization and social mobility in historical populations (Griffen, 1978; Hardy, 1989; Kaelble, 1983; Thernstrom, 1973). A number of them and others using contemporary data have found that migration is related to upward career and intergenerational mobility (Chiswick et al., 2003, 2005; Fielding, 1992; Long & Ferrie, 2005; Mulder & van Ham, 2005), but there are also studies that find greater upward and downward mobility in relation with migration (Blau & Duncan, 1967; Hardy, 1989). Investigations of the relation between urban opportunities and intergenerational mobility gave mixed results as to whether cities provide better opportunities than rural areas for improving one's inherited parental status or class (Blau & Duncan, 1967; Dribe & Svensson, 2008; Grusky, 1983; Guest, 2005; Zijdeman, 2010). Most research is focused on finding urban and migrant differentials in social mobility, and less is known how migration and urbanization relate to over time variation in social fluidity, and therefore the debate whether these processes contribute to more 'open societies' is undecided.

The social mobility literature has extensively investigated the temporal and cross-national variation in 'social openness' (for comprehensive reviews see Breen & Jonsson, 2005; Hout & DiPrete, 2006; Van Leeuwen & Maas, 2010), but still very few studies search the source of variation in social fluidity to population processes to settle the debate (but see Dribe et al., 2012). Recent studies of long-term changes in intergenerational occupational mobility (Long & Ferrie, 2007; Long, 2008) suggest that periodical changes in the pace of urban growth and internal migration might explain some of the differences in social fluidity, but these claims were not tested empirically. The present study therefore aims to contribute to the understanding why social fluidity varies over time, and whether population processes contribute to long-term changes in the 'inequality of opportunity'.

In the context of our investigation, during the late 19th and earlier 20th century in Hungary urban populations grew rapidly and people became increasingly geographically mobile (Dányi, 1998; Kövér & Gyáni, 1998).

Historical analysis relates urbanization and migration in Hungary to the emerging inequality between urban and rural regions not only in wages but in living conditions, educational opportunities, and labor market chances (Beluszky & Győri, 2005; Beluszky, 2001; Berend et al., 1982). An earlier study found that social fluidity increased in this period in Hungary (Lippényi et al., 2013a), which raises the question to what extent urban population growth and internal mobility are related to 'social openness' and able to explain its sustained increase in Hungary. To answer these questions I integrate theoretical insights from the migration and mobility literature and argue that migrants and urban residents had relatively greater chances of being able to 'move away' from their social class origins, and formulate and test the hypotheses that urban populations and migrants show greater fluidity than rural population and non-migrants.

I use a micro-dataset gathered from historical marriage registers which includes more than 50,000 observations of fathers' and sons' occupations, covering a period of 90 years between 1860 and 1940. Data were collected with stratified random sampling, which ensured that all regions and different municipal types of present-day Hungary are represented. In the empirical analyses I compared intergenerational occupational mobility tables which were constructed by cross-classifying occupational class origins, occupational class destinations, migration, urban residence, birthplace, and time periods. I tested the hypotheses by estimating log-linear models (Hout, 1983; Wong, 2010).

5.2 Historical background: urbanization, migration, and social mobility in Hungary from the 1860s to the 1950s

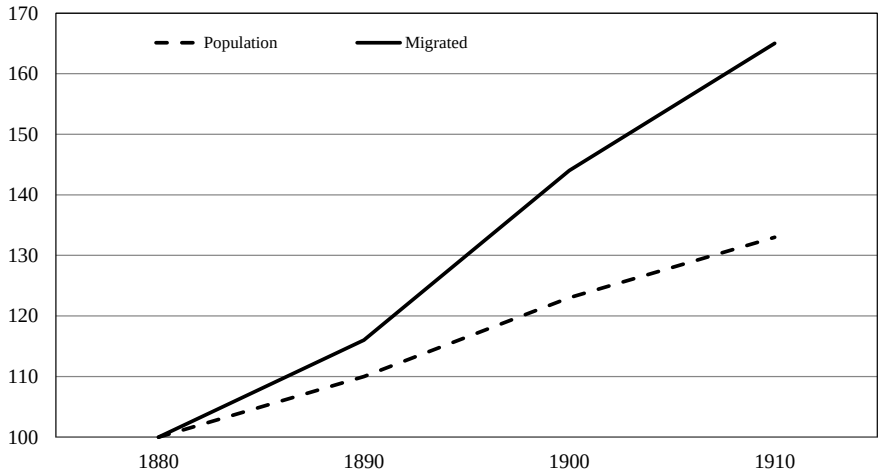
In the period under investigation here the Hungarian population was predominantly rural (Berend & Ránki, 1974; Berend, 1998, 2003) although in cities people had better access to industrial jobs and social facilities like education; and enjoyed higher wages (Beluszky & Győri, 2005; Beluszky, 2001; Kövér & Gyáni, 1998; Simkus & Andorka, 1982). As was the case in other industrializing countries (e.g., Hochstadt, 1999), these structural inequalities most likely acted as a major incentive for migration in Hun-

gary too. Internal migration increased dramatically before World War I (Kövér & Gyáni, 1998; Dányi, 1998, see Figure 5.1), and the primary beneficiaries of migration flows were the larger cities. As Figure 5.2 shows, towns and cities with more than 40,000 inhabitants received the largest migration inflow: in the 1930 census, the migration gains of those cities amounted to more than 5 percent of their 1920 populations. The capital Budapest was by far the most attractive migration destination due to its rapid economic development and good rail connections to other parts of the country (Berend & Ránki, 1974), but as the figures reveal, smaller towns benefitted also from migration. The little villages, on the other hand, lost a substantial portion of their populations due to this outflow of migrants. As a result, population distribution in Hungary changed as the proportion of her people living in urban locations increased from 25 percent in 1870s to about 40 percent in the 1940s (see Figure 5.3).

Social historical accounts of Hungary prior to the 1950s depict the country's social structure as 'traditional': the majority of the population are subsistence farmers and farm laborers, co-existing with a large-estate holding elite and a small 'modern' urban industrial class consisting mainly of factory workers and related professionals (Andorka, 1982; Berend, 1998; Erdei, 1980 [1954]). However, a number of studies unearthed evidence that changes in social mobility did take place before the 1950s (Ganzeboom et al., 1990; Luijkx et al., 2002; Simkus, 1981, 1984), and a recent study has shown that social openness increased from the turn of the 19th century (Lippényi et al., 2013a).

Hungary is a late-industrializing nation whose earliest economic development dates back to the last decades of the 19th century (Berend & Ránki, 1974, Berend, 1998, pg. 3–22, Berend, 2003, pg. 134–180, Eddie, 1989, Kövér & Gyáni, 1998, pg. 77–84). Whereas some aspects of the country's history are obviously distinctive to Hungary, the social and economic processes of increasing urbanization, migration and transformation of the social structure were normal experiences in other developing countries (Berend et al., 1982). The value of analyzing a single country is that the relation between urbanization, migration and social fluidity can be studied in detail, because potential confounding factors such as national culture or prior historical pathways are controlled precisely by that narrow focus on a single country. An additional advantage of single-country studies

Figure 5.1: Dynamics of population growth and migration in Hungary 1880–1910



Notes: Figure pertains to pre-World War I territory of Hungary. Population size and migration levels of 1880 are taken as 100.
Source: Dányi (1998).

is greater historical stability in some of the potential confounding factors. In Hungary's case, political changes are unlikely to have confounded the results, because during Hungary's two most significant political periods in the late 19th and early 20th centuries, the time of the Austro-Hungarian Monarchy and the regime of Admiral Miklós Horthy, were of quite stable 'conservative-authoritarian' character and each showed institutional continuity (Berend, 1998; Romsics, 1999).[1]

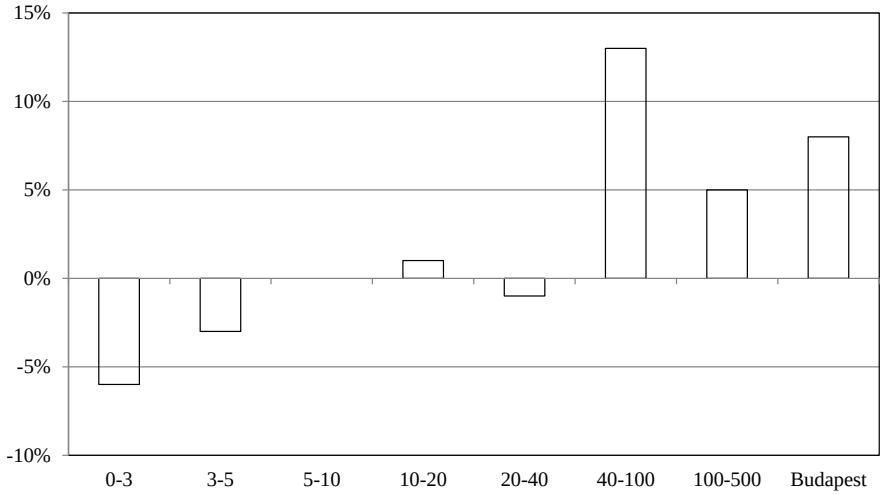
5.3 Theory: migration, urbanization and social fluidity

5.3.1 Migration and social fluidity

Parental class resources influence the occupational class attainment of offspring (Blau & Duncan, 1967; Breen & Jonsson, 2007). Certain forms of

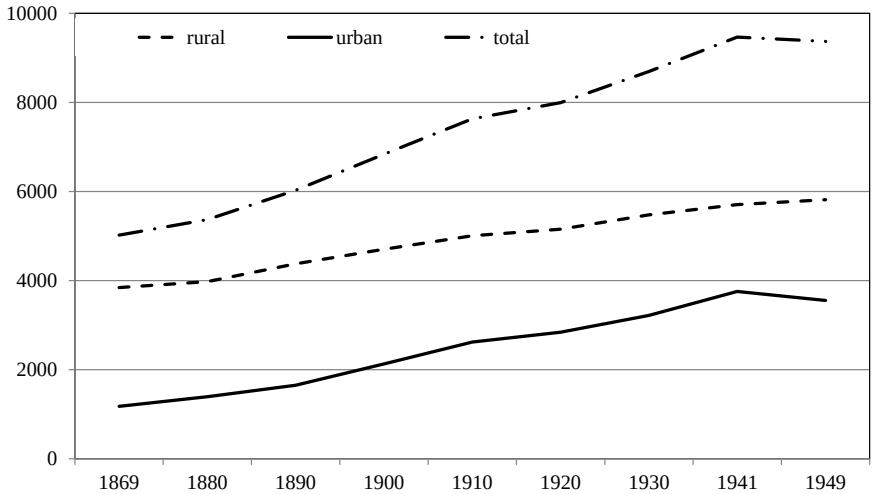
[1]Apart of the short-lived Bolshevik revolution which lasted a few months in 1919 (Romsics, 1999).

Figure 5.2: Migration gain by municipal population size in Hungary 1920–1930



Notes: Migration gain: migration surplus or deficit between 1920 and 1930 given as percentage of 1920 population. Population size in 1000 inhabitants.
Source: 1930 Hungarian Census (Author's own calculations).

Figure 5.3: Rural, urban and total population growth in Hungary 1869–1949



Notes: Rural and urban municipalities categorized based on the HHSMF stratification. Population size in 1000 inhabitants.
Source: Hungarian Censuses (Author's own calculations). Calculations pertain to post-World War I territory of Hungary.

parental resources, most importantly a workshop, land or other property, are naturally difficult to move and certain portion of an individual´s social capital, such as social connections, especially within the community of origin (Coleman, 1988, 1990) are locally fixed and are less likely to influence occupational outcomes in labor markets elsewhere. Those who migrate therefore usually benefit less from such resources than those who stay at home. Non-transferability however does reduce inequalities between migrants whose parents possess primarily the types of resources mentioned and those without them, which leads to a decrease in the strength of parental influence on occupational attainment (Hout & Rosen, 2000). Because of the distances involved, occupational ascription is likely to be weaker among migrants. Parents influence the life course of their children through expectations, norms and shared community context (Elder Jr, 1994, 1999) and expectations and norms favoring the reproduction of parental social position drive the occupational decisions of offspring (Kohn et al., 1986). Those influences are likely to be less upon those who move to a whole different location. Therefore, the occupational decisions of migrants are less likely to be influenced by their families than will be those of individuals who remain in their community of origin, leading to greater social fluidity among migrants.

A different perspective comes from theories of migration based on human capital models (Borjas, 1992; Chiswick, 1999; Sjaastad, 1962; Stark & Taylor, 1991). Human capital theory (Becker, 1993) posits that personal endowments like individual skills, abilities, entrepreneurial talent, physical strength, and so on are valued in the labor market as they enable increases in productivity. There are differences across labor markets in the extent to which the markets offer higher premiums to workers with higher productivity. Potentially more productive workers will accrue greater net returns than less productive workers if they migrate to destinations that provide higher premium, so that more productive workers are likelier to migrate, since for them the expected earnings at a new destination—because they exceed their earnings where they came from—are more likely to outweigh the costs of migration. That process will likely lead to a self-selected pool of migrants (Borjas, 1992; Sjaastad, 1962). Of course, families might be able to allocate resources to reduce the costs of migration, and so family support tends to decrease the necessity to self-select for productivity. Families

with fewer resources are less able to contribute to migration costs.[2] The earnings differential between migration destinations and migration origins therefore has to be greater for poorer migrants in order to convince them it is worth migrating. Among migrants with fewer family resources, the theory expects self-selection to be *stronger* than among migrants with more family resources. If the migrant population is self-selected for productivity, and self-selection is higher from families of lower origin, any correlation between productivity and parental resources can be expected to be weaker among migrants. Due to selection, migrants from low-resource family origins are usually better workers compared to non-migrants of low-resource family origins, and they are therefore more likely to find attractive labor opportunities at the migration destination. In 'climbing the social ladder', migrants are more likely to overcome the relative disadvantage of parental origins than are non-migrants. Thus, I expect social fluidity among migrants to be greater than among non-migrants (H1).

Hypothesis 1 can be further qualified by considering the role of the geographical distance between origins and destinations of migration. Greater migration distance from origin and away from a great part of the support networks of kinship, might mean a greater barrier to both the influence and the help of close family, kin and community and might decrease the influence of parental origins. Furthermore, long-distance migration usually requires greater investment than migration closer by. In Hungary, even though longer distance travel was possible via the dense railroad network (Berend & Ránki, 1974), traveling had quite high costs relative to the low average level of wages (Andorka, 1980). For poorer families the additional costs would have led to even stronger selection, which leads me to expect greater social fluidity among long distance migrants than among short-distance migrants (H2).

Urban labor markets in most cases place a relatively higher premium on personal endowments than do rural labor markets. As elaborations on the classic human capital model point out (Borjas, 1992, 1988; Chiswick, 1999), self-selectivity will be stronger among migrants heading for labor

[2] In developing rural economies, such as Hungary in our period, inequalities between families are even greater as many families have only immovable resources, such as land, which would be highly costly to convert to mobile assets, and agrarian families in such economies are therefore less able to promote migration among their offspring (Hoddinott, 1994).

markets that give higher relative premiums to worker productivity. Although to the best of my knowledge there are no data for urban-rural inequalities in wage returns to productivity for the period we are dealing with in Hungary, contemporary statistics from before World War II show an exceptionally large gap in earnings between the urban classes of large proprietors and professionals and the mostly rural working class (Andorka, 1980). Those differences in earnings coupled with the greater presence of higher-earning classes in urban labor markets could indicate that wage returns to education and other personal endowments were higher in urban than in rural areas in Hungary. If that was the case, urban areas would have attracted more productive migrant workers than lower-premium rural areas. It follows than that social fluidity was most likely greater among migrants moving to urban locations than among those moving to rural locations (H3).

5.3.2 Urbanization and social fluidity

The theory of industrialization states that cities are the breeding ground of modern forms of labor and puts forward several arguments to suggest that the emergence of modern cities is related to territorial differences in social fluidity (Kerr, 1983; Treiman, 1970). Industrial production in Hungary grew predominantly in cities (Beluszky, 2001; Berend & Ránki, 1974). Traditional hand-crafting occupations were more likely to survive in rural areas than in urban areas, largely because hand-crafting occupations were usually small-scale businesses inherited through generations and usually show high relative immobility (Hout & Rosen, 2000; Hout, 1984). Therefore, as the share of hand-crafting occupations among the urban working class declined more rapidly in cities than in rural areas, relative occupational inheritance was likely to be lower in urban than in rural areas.

Due to their greater level of industrialization, urban labor markets in Hungary also contained a greater proportion of occupations concerned with supervising factory production, maintaining industrial machinery, as well as attending to administrative and clerical duties. Such jobs are complex, require formal training, and in some cases require a considerable capacity for responsibility in employees due to the scale of production, so selection for them is likely to be based on skills, experience, acquired knowledge, and

recommendations from former employers instead of ascribed characteristics, such as parental class background. As non-manual classes in urban locations contain a higher proportion of these 'socially fluid' occupations of the labor force, social fluidity is likely to be greater in urban than in rural areas.

Finally, in urban locations class-barriers to accessing information, obtaining training that might be valuable to the attainment of class positions can be expected to be lower than in rural locations because of the greater proximity of diverse public and private services like local newspapers, libraries, or schools. In Hungary, urban locations were better equipped with such infrastructure than were rural locations (Beluszky & Győri, 2005; Beluszky, 2001; Kövér & Gyáni, 1998). The lack of structural opportunities in rural areas would naturally increase competition for resources and effectively entrench class-based inequalities in rural Hungary (cf. Grusky, 1983). Based on those three mechanisms, I would conclude that social fluidity was higher in urban than in rural contexts (H4).

5.4 Explaining temporal change in social fluidity

Earlier research had found that social fluidity increased in Hungary between 1860 and 1940 (Lippényi et al., 2013a) concurrently with the increase of urban population and internal migration. It is an empirical question whether part of the increase in social fluidity over time can be attributed to the changing level of urbanization, and migratory behavior of the population. If urban populations exhibit greater fluidity than rural populations, an increasing share of the population living in urban areas would imply that more people become exposed to meritocratic labor selection, which would ceteris paribus explain a part of the increase in social fluidity. Similarly, if migrant populations exhibit greater fluidity than no-migrant populations, increasing internal migration implies that more people live away from their familial origins and select themselves as entrants to those labor markets that valued their productivity. Again, this process would contribute to an increase in social fluidity. My expectation is that through these compositional changes, migration and urbanization contribute to the temporal increase in social fluidity (H5).

5.5 Data and measurements

The Hungarian Historical Social Mobility File (HHSMF) is a probability sample of Hungarian parish marriage registers (Lippényi et al., 2013b). The registers contain information about the birthplaces, residences and occupations of bridegrooms and their fathers at the time of marriages of the bridegrooms. The marriage registers were official documents filled in by church officials contemporaneously for each marriage and our dataset contains marriages between 1860[3] and 1950 from all Hungarian regions and municipal types corresponding with present-day Hungary. In that period close to 95 percent of the Hungarian male population married at some point in their lives (Hajnal, 1953, 1965), so marriage registers provide almost complete coverage of the population of Hungary.

A stratified sampling design was used to represent different municipal types within the sample. Hungarian municipalities were stratified both by legal status (villages, towns, and regional centers) and by level of development using latent class analyses (see Appendix A). The following strata were identified: rural villages, developing rural villages, urban-type villages, agrarian towns, industrializing towns, developed urban towns, and regional centers with municipal rights. For each of the seven large regions of present-day Hungary a maximum of two towns from each stratum was selected. In three regions, one regional center with municipal rights was also sampled, and two districts of Budapest were included. For each selected town or regional center, we randomly selected one or two villages in the micro-region of the town. Again, we selected villages from each stratum. For each municipality, marriage acts of all local religious congregations were digitized (Roman Catholic, Hungarian Reformed, Lutheran, and Jewish), and all parishes.

Records of occupations at marriage were digitized, coded into the Historical Intergenerational Standard Classification of Occupations (Van Leeuwen et al., 2002) and categorized in the Historical International Social Class Scheme (HISCLASS: Van Leeuwen & Maas, 2011). HISCLASS originally distinguishes 12 occupational classes, but not all classes were well

[3]In this chapter I had chosen for broader period definitions to avoid low cell counts, and included cases from 1860 onwards. I weighted the data to the contemporary censuses by using 10-year cohorts, so that marriages in the 1860–1869 period were weighted to the 1869 census data.

represented in the data. I collapsed the more sparse HISCLASS classes to achieve a 6-class version, distinguishing between (I) higher managers and professionals (including large proprietors and estate owners), (II) lower managers and professionals and clerical and sales personnel, (III) highly-skilled workers (including artisans), (IV) lower-skilled workers, (V) farmers, and (VI) farm workers. There are no records of permanent occupation for enlisted men in our data because they tended to be only temporarily employed by the military as draftees. These cases were excluded from the analyses.

Marriage acts include information on places of birth and residence of bridegrooms, whom we categorized as migrants if their residence at marriage was elsewhere than their place of birth. The HHSMF does not contain information on the timing of migration, and the historical migration research in Hungary does not provide that information either. In theory, it could be that a large proportion of the migrants moved with their parents when they were children. Historical migration research in England covering the same historical period shows that the overwhelming majority of migration events occurred there in early adulthood and primarily prior to the age when couples typically had children (Pooley & Turnbull, 1998). I therefore suspect that most migrants in the Hungarian data were of working age when they migrated.

To further assess the validity of our migration measurement, I used an external benchmark. The late-19th century American statistician Weber estimated internal migration in Hungary at 10.9 percent (see Grant, 2005, pg. 58) based on the enumeration of people in the 1890 census of Hungary who were elsewhere than their county of birth. I calculated inter-county migration for 1890 in the HHSMF, and arrived at a figure for inter-county migration of 8.5 percent which is slightly less than the census estimate. However, the census-based estimate might be somewhat upwardly biased because the place of enumeration was used to identify migrants instead of the place of residence, and the HHSMF-estimate might be somewhat downwardly biased, because it does not include migration after marriage nor short episodes of migration. Considering both biases, the estimates are quite close. Therefore, at least with respect to this external statistical benchmark, the HHSMF gives a good representation of migration, and in any case does not omit significant numbers of migrants.

From marriage registers it is possible to deduce whether a given individual migrated a shorter or longer distance. As the exact distances between migration origin and destination were unavailable to me I used regional vs. inter-regional migration as a proxy, with migrants within their region of birth categorized as shorter-distance migrants, and those who migrated across regional borders counted as longer-distance migrants. Migrants born outside the borders of present-day Hungary were excluded from the sample, since they were fewer than 1 percent of the total migrant sample.

Birthplaces and residences of bridegrooms were categorized as urban or rural based on a more elaborate classification of municipalities using various indicators of development in the 1930 census (see more detail in Appendix A).[4] Urban municipalities are characterized by their greater number of industrial establishments, higher proportion of the working population employed in the public sector, banking, trade, higher educational levels, greater migration gains, and greater population density than rural municipalities. A peculiarity of the Hungarian settlement structure was the existence of large farming towns in the South-Eastern region of the country, populous but lacking urban character as most of their inhabitants made a living from the harvest (Beluszky, 2001). In additional analyses based on the 1930 Hungarian census I found that towns with an urban character had significantly higher inflow of migrants than farmer-towns. In the typology of urban and rural settlements I therefore categorized farming towns as rural.

Based on migration, the municipal type of birthplace and place of residence, 9 groups were distinguished: (1) urban non-migrants, (2) urban to urban short distance migrants, (3) urban to urban long distance migrants, (4) rural non-migrants, (5) rural to rural short distance migrants, (6) rural to rural long distance migrants, (7) rural to urban short distance migrants, (8) rural to urban long distance migrants, (9) urban to rural short- and long distance migrants (short- and long distance collapsed due to low number of observations).

Five periods were distinguished to achieve similar and balanced sam-

[4]In this chapter rural villages, agrarian towns, and developing rural villages are categorized as 'rural', and urban-type villages, industrializing towns, urban centers and regional centers with municipal rights are categorized as 'urban'.

ple sizes and reasonably comparable period lengths: 1860–1889, 1890–1900, 1901–1914, 1920–1929, and 1930–1940. The periods covered by World War I (1915–1919) and World War II and post-World War II period (1941–1950) were excluded from the analyses because of possible effects of those wars and the influence of regime-change after World War II. Exclusion of those two periods left a dataset of 67,730 observations. The largest number of missing cases (12,020 observations, around 70 percent of all missing) came from the omission of registrations of birthplaces or residences of bridegrooms in the marriage registers. Inspection of missing patterns of birthplace and residence indicated that the most likely reason for their omission is that registration customs varied among church officials, something which is unlikely to have had anything to do with social mobility or migration patterns, and would therefore not lend bias to the estimates. Analyses of missing occupations (see Chapter 2) failed to indicate any potential bias in estimates of social mobility.

The total number of observations in the dataset with complete information on these variables is 51,387. For the descriptive analyses the data were weighted by regional population size and municipal types.

Table 5.1 shows temporal change in residential and migration patterns extracted from the data. The patterns reveal the growth of the urban sedentary population from 20 percent in 1860–1890 to 28 percent in 1930–1940; and a large decrease in the rural sedentary population from around 66 percent in 1860–1890 to 43 percent in 1930–1940. Migration increased over time, the difference between the proportion of migrants in the population of 1860–1890 and of 1930–1940 being around 13 percentage points. Migration to urban destinations from urban and rural origins was 4.8 percentage points higher in 1930–1940 than in 1860–1890, while migration to rural destinations was 8.4 percentage points higher. That latter increase in rural migration came predominantly from shorter distance migration between rural settlements. In the case of urban migration, longer and shorter distance migration increased at the same pace, their percentages approximately doubled.

I looked closely at average ages at marriage in different periods and for different groups to assess whether the observations of bridegrooms were made at comparably similar times in their lives. Because the recorded marriage ages of groups by residence and migration are closely similar

Table 5.1: Residence and migration patterns by period (%) and mean age at marriage

	1860–1889	**1890–1900**	**1901–1914**	**1920–1929**	**1930–1940**
Rural non-migrant	65.6	59.1	51.5	46.0	42.8
	[26.0]	[25.2]	[25.5]	[25.7]	[26.0]
Urban non-migrant	20.0	21.1	25.2	25.6	27.9
	[26.8]	[27.1]	[26.7]	[27.1]	[28.0]
Rural to urban short-distance migrant	2.4	3.7	5.0	5.1	5.2
	[25.3]	[27.7]	[26.6]	[26.8]	[28.1]
Rural to urban long-distance migrant	1.3	2.0	2.5	2.6	2.9
	[26.9]	[27.8]	[27.4]	[27.6]	[28.7]
Rural to rural short-distance migrant	5.7	7.6	7.9	11.0	11.4
	[26.1]	[26.6]	[25.4]	[26.3]	[26.6]
Rural to rural long-distance migrant	1.8	2.5	2.8	3.2	2.9
	[27.6]	[28.0]	[27.2]	[26.5]	[28.9]
Urban to urban short-distance migrant	.8	.9	1.4	1.9	1.7
	[26.2]	[26.9]	[27.3]	[28.7]	[27.4]
Urban to urban long-distance migrant	.7	1.4	1.5	1.7	2.0
	[28.6]	[26.7]	[27.9]	[27.8]	[29.0]
Urban to rural migrant	1.6	1.8	2.2	2.9	3.2
	[25.8]	[28.8]	[25.8]	[26.9]	[27.3]
N	**9670**	**6803**	**12903**	**9959**	**12052**

Notes: age at marriage in squared brackets. Data were weighted by region and municipal strata.

and there is no time trend apart from a somewhat younger average age at marriage in the migrant population from 1860–1890, it is unlikely that the measurements of intergenerational association were biased by differing average ages at observation.

5.6 Social mobility and occupational structure of migrants and urban residents

Table 5.2a shows the residence and internal migration patterns of different class origins. As expected from the spatially anchored character of farming, the two agrarian classes were highly spatially immobile—only about 25 percent of them moved from their birthplace. Between 33 and 54 percent from different non-agrarian family backgrounds migrated. People from non-manual and low-skilled manual class origins were the most likely to move from their birthplaces: 53 percent of sons of higher managers and professionals and 45–47 percent of sons from lower non-manual and non-agrarian manual class backgrounds left their birthplaces to live elsewhere. There were differences in non-agrarian class migration patterns: sons from non-manual origins, and especially of highest-class origins, were more likely to migrate to urban locations and also over longer distances than classes from manual origins. Men from highly-skilled worker origins were however less mobile in space than men from lower-skilled non-agrarian origins, and I attribute that to the situation of smaller-scale artisans among highly-skilled workers whose sons could work in their workshops or businesses at particular locations.

The occupational class destinations of migrants in Hungary (Table 5.2b) were generally higher, but in some cases lower in social ranking than those of non-migrants. Approximately 20 to 25 percent of urban migrants were in non-manual jobs as opposed to only around 10 percent among urban non-migrants. More of the migrants to urban locations were in skilled working class positions than those who stayed behind in urban locations, although among urban migrants there was also a somewhat higher percentage of low-skilled workers than among urban stay-at-homes. Similar patterns emerged from a comparison of rural mobility and immobility: rural movers achieved non-manual and skilled class positions more often

Table 5.2: Class origins, destinations, and total mobility by migration and residence

(a) Residence and migration patterns by occupational class origin (column %)

	I	**II**	**III**	**IV**	**V**	**VI**	**Total**
Rural non-migrant	15.69	23.23	26.82	26.79	63.52	46.05	**5.47**
Urban non-migrant	31.48	30.04	40.21	30.89	18.87	27.50	**24.31**
Rural to urban short-dist. migrant	6.74	8.58	7.08	6.57	3.10	5.80	**4.62**
Rural to urban long-dist. migrant	9.18	6.54	5.07	3.36	1.60	2.42	**2.60**
Rural to rural short-dist. migrant	5.23	8.70	5.61	13.58	8.75	10.65	**9.27**
Rural to rural long-dist. migrant	3.49	6.03	2.23	6.04	2.03	2.88	**2.88**
Urban to urban short-dist. migrant	4.62	5.05	4.53	3.78	.35	1.05	**1.55**
Urban to urban long-dist. migrant	15.76	6.47	4.74	3.11	.29	.94	**1.62**
Urban to rural migrant	7.81	5.37	3.71	5.86	1.50	2.73	**2.67**

(b) Class destinations and mobility of urban/rural residents and migrants (row %)

	I	II	III	IV	V	VI	Downward	Immobile	Upward
Rural non-migrant	.49	3.77	8.11	14.09	60.02	13.52	3.94	75.59	20.47
Urban non-migrant	1.84	9.68	19.29	23.27	30.74	15.18	9.96	59.84	30.20
Rural to urban short-dist. migrant	2.49	17.46	20.94	33.12	13.43	12.55	11.66	40.39	47.95
Rural to urban long-dist. migrant	4.97	22.54	22.55	34.78	7.05	8.11	15.73	34.44	49.82
Rural to rural short-dist. migrant	1.34	8.24	8.15	23.63	42.06	16.58	7.20	65.74	27.06
Rural to rural long-dist. migrant	1.73	15.52	9.25	33.11	26.21	14.19	9.48	61.42	29.10
Urban to urban short-dist. migrant	4.63	20.39	26.40	37.45	4.03	7.09	22.61	42.32	35.07
Urban to urban long-dist. migrant	10.27	26.26	26.95	30.18	2.28	4.07	23.85	38.86	37.28
Urban to rural migrant	2.85	19.34	12.77	29.94	21.70	13.40	10.54	56.66	32.80
Total	**1.43**	**8.12**	**12.55**	**20.22**	**43.90**	**13.79**	**7.30**	**66.10**	**26.60**

Notes: N=51,387. I=higher managers & professionals; II=lower managers, professionals, clerical and sales personnel, III=highly-skilled workers, IV=low-skilled workers, V=farmers, VI=farm workers. Industrial to non-manual transitions, agrarian to non-manual transitions, and agrarian to industrial transitions were treated as upward mobility. Within sectors, non-skilled to skilled transitions were treated as upward mobility. The reverse of these transitions were treated as downward mobility. Data were weighted by region and municipal strata.

than rural stayers.

I compared rates of immobility, downward mobility, and upward mobility among migrant and resident groups (Table 5.2b). Industrial to non-manual transitions, agrarian to non-manual transitions, and agrarian to industrial transitions were treated as upward mobility. Within sectors, non-skilled to skilled transitions were treated as upward mobility. The reverse of these transitions were treated as downward mobility. Figures for urban areas show much greater social mobility than those for rural areas. Sixty percent of urban 'stayers' were socially immobile, while in rural areas around 76 percent of non-migrating residents remained the same class as their parents. There are similarly strong urban-rural differences among migrants who did not cross rural-urban boundaries, with 61 to 66 percent of rural-origin migrants who had migrated to rural destinations remaining immobile, while only between 38 and 42 percent of urban-to-urban migrants stayed in their origin class. Individuals who crossed the rural-urban boundaries were socially more mobile than migrants who moved between similar places although that did not apply to urban-to-rural migrants, who were on average socially less mobile than urban-to-urban migrants. The patterns of upward and downward mobility I found among migrants and non-migrants in Hungary resemble the earlier findings by Hardy (1989) in 19th century Indianapolis: both mobility 'directions' were more frequent among migrants than among non-migrants.

Differences in absolute mobility rates do not necessarily indicate more or less equality in mobility chances because mobility flows between class origins and class destinations also reflect differences in occupational structures (Hauser, 1978). It is in fact unsurprising that migrants who crossed urban-rural boundaries were more mobile. Due to the fewer opportunities for agricultural work a certain number of migrants from agrarian origins were 'forced' to become mobile, even if origin-class inequalities were equally strong among migrants and non-migrants. By the same token, greater mobility in urban locations than in rural ones might have been the result simply of greater diversity of occupations in the urban occupational structure from which urban sons could choose, rather than being any indication of greater social openness.

5.7 Methods

5.7.1 Modeling the baseline pattern of class origin-class destination association

To estimate class inequalities in mobility chances while leaving them unaffected by the impact of occupational structural differences mobility research uses log-linear and log-multiplicative methods (Goodman & Magdison, 1978). Log-linear and log-multiplicative methods are well-suited to studying the impact of migration and urbanization on relative mobility (Lin & Christiadi, 2006) because they purge estimates of the influences of labor market dissimilarities between urban and rural areas, of the different class origins and destinations of migrants and non-migrants, and of complex distributional dissimilarities between migrants from different migration origins and migration destinations. Other frequently applied methods in mobility research, regression techniques (cf. Blau & Duncan, 1967) or binary logit/probit models (e.g., Hardy, 1989) do not control for the occupational distributional differences.

I estimated a log-linear model using the complete set of association parameters, in which relative mobility is represented by a unique parameter for each combination of origin and destination class. The model is useful for comparing the overall strength of the association across tables, but partitioning the association in the mobility table is advocated because they provide more informative estimates (cf. Xie & Killewald, 2010). I partitioned the association in the mobility table into two major parts: diagonal association, representing the propensity for class immobility, and off-diagonal association, representing mobility flows among those who left their class origins. I estimated a series of quasi-log-multiplicative row-and-column (RCII) association models (Goodman, 1979a,b). The model takes the following form:

$$\ln(F_{ij}) = \alpha_i + \beta_j + d_{ij,i=j} + \phi\mu_i\upsilon_j, \tag{5.1}$$

where $\ln(F_{ij})$ is the natural logarithm of the cell frequencies, α_i and β_j are, respectively, row and column marginal effects. The models empirically scale occupational origin and destination class by class scores (μ_i and υ_j) which rank the classes in a hierarchical order that represents 'mobility dis-

tances' between classes. The origin scores can be interpreted as the relative amount of—unmeasured—resources for mobility that each individual, on average, could draw from his class of origin and destination scores can be interpreted as the—unmeasured—desirability that people, on average, attributed to each class destination, regardless of social origin (Breen, 1994; DiPrete & Grusky, 1990). The difference in mobility flows (above structural changes in the margins) from origin classes A and A', respectively, to a destination class B, indicates the resource differential between classes A and A'. Similarly, the difference in mobility flows to destination classes B and B' from origin A expresses the desirability differential between destination classes B and B'.

The intrinsic association parameter ϕ expresses the intensity with which class inequality, in terms of available general resources (inequality of origins), affects class inequality in terms of mobility chances (inequality of destinations).

The parameters $d_{ij,i=j}$ partial out the diagonal cells in the table and reflects 'relative immobility' from social origins. In substantive terms, the diagonal effects express the propensity of certain classes for self-recruitment above immobility which would be expected based on the marginal distributions. They represent the extent to which class origins commanded specific resources (or confronted class-specific barriers) that led to the reproduction of occupational class positions but gave no advantage of access to other occupational classes. Land and farming skills are good examples of class-specific resources that can provide advantages to sons of farmers wishing to gain access to farming occupations, but are not directly convertible into occupational advantages outside farming (Laband & Lentz, 1983b). The diagonal effects also represent 'tastes' or the norms of members in a specific class that are associated with staying in the same class as one's father (see the discussion on inheritance in Erikson & Goldthorpe, 1992).

Among classes, more sons from farming backgrounds, and especially sons of men who owned the farm, followed their father's occupation than did sons of other classes. That was because farmers' sons accumulated specific farming skills during their upbringing, and because of the specificity of occupational resources (most importantly, land) that were passed down through generations. There were also stronger community norms dictating that a son should follow in his father's footsteps (Blau & Duncan, 1967;

Laband & Lentz, 1983b). In the models shown here I therefore estimated specified parameters of relative immobility for the two farming classes separately from the other classes. I also estimated separate inheritance effects for the class of higher managers and professionals, as previous results in Hungary indicated no temporal change in their relative immobility (Lippényi et al., 2013a).

5.7.2 Modeling differences in the class origin-destination association

To compare the origin-destination association across layers in the mobility table, the literature advocates the use of log-multiplicative layer-effect models (Erikson & Goldthorpe, 1992; Wong, 1995a; Xie, 1992). Log-multiplicative layer-effect models include parameters to describe the common pattern of association, and layer-specific comparison parameters. The layer-specific parameters show the extent to which the strength of the association differs in a specific layer from the common level of association.

The log-multiplicative layer effect model takes the general form:

$$\ln(F_{ijk}) = \alpha_{ik} + \beta_{jk} + \Omega_{ij}\psi_k, \tag{5.2}$$

where α_{ik} and β_{jk} are, respectively, row and column marginal effects for each of the k layers, Ω_{ij} is the baseline pattern of origin-destination association (in our case the quasi-RCII model), and ψ_k are layer-specific multipliers showing how the strength of the association differs per layer. In our study, the cross-classification of 9 types of residence and migration, and 5 time periods resulted in 45 layers in the mobility table, and 44 unique[5] layer parameters in the mobility model. Those layer-specific multipliers can be substituted by a model of layer differences, using main and interaction effects between layer variables (Wong, 2010). Based on our theoretical hypotheses, the following model of layer-effects was specified:

$$\psi_k = \psi + \psi_p P + \psi_r R + \psi_b B + \psi_m M + \psi_l L + \psi_{r\times m} R \times M + \psi_{r\times l} R \times L, \tag{5.3}$$

where the terms (and layer subscripts) *P,R,B,M,* and *L* indicate *p*eriod,

[5] An identification constraint is necessary on one of the layer parameters to identify the model.

urban-rural *r*esidence, urban-rural *b*irthplace, *m*igration, *l*ong-distance migration. The intercept ψ is constrained to be 1 for identification. The component $\psi_{r\times m}R \times M$ and $\psi_{r\times l}R \times L$ test Hypothesis 3, that the influence of (both) long and short distance migration was greater when it took place to urban destinations. In a similar fashion, $\psi_r R$ tests the main effect of urban residence (Hypothesis 4), $\psi_m M$tests the effect of (short-distance) migration (Hypothesis 1), and $\psi_l L$ test the additional effect of long-distance migration (Hypothesis 2). The models control for the influence of urban birthplace $\psi_b B$ and model the partial influence of temporal variation on social fluidity by $\psi_p P$. Estimated parameters are clear and easy to interpret for social fluidity: a negative sign of $\psi_r R$ for instance indicates that intergenerational association was weaker, therefore social fluidity was higher, among sedentary urban residents than among sedentary rural residents. To assess the role of urbanization and migration in temporal changes, I compared the model of all layer-effects to a reduced model which excludes non-temporal components. Comparison of estimates for ψ_p coefficients across the two models reveals how much of the period difference in the association is attributable to non-temporal layer variables.

5.8 Results

The lower-panel in Table 5.3 shows the estimated diagonal parameters and the off-diagonal association parameter. Layer-effects are included in this model, and therefore these parameters show the association for the reference category rural born and rural residing non-migrant in 1860–1889. The farmer class had the greatest propensity for class reproduction: the odds of immobility to mobility being about 19 ($e^{2.97}$). The lower-panel of Table 5.3 also includes the estimated scale values μ from the quasi-RCII model show 'proximity' and 'distance' between classes in terms of intergenerational mobility (see lower panel in Table 5.3).[6] In line with expectations, higher managers and professionals were on the top of the class hierarchy (.73), and farm workers were furthest from them (-.55). Industrial manual classes were more likely cross over to non-manual classes than were the agrarian classes and the 'distances' between adjacent classes coincide with sectorial

[6] I constrained row and column scores to be equal because doing that produced a better fit to the data than unequal scores using the BIC as a criterion for model selection.

barriers: intergenerational exchange occurred relatively more often within the agrarian classes among farmers and farm workers and within the industrial sector among highly-skilled and low-skilled workers than between other classes. The class distances between adjacent classes are not equal: the difference between higher managers and professionals and the adjacent lower-level professional, clerical, and sales personnel is the largest among all adjacent class distances. Higher managers and professionals classes were therefore the most difficult to reach from any other class origin, indicating the existence of a largely exclusive elite class at the top of the Hungarian class hierarchy.

The pattern of findings for rural to rural migrants is broadly consistent with Hypothesis 1. Short-distance migrants in agrarian classes were more fluid than non-migrants (the difference in log-odds immobility to mobility is -.21 and -.29 respectively), the relative immobility of long-distance migrants in the farming class was lower than among non-migrants (-.55), and mobility 'distances' shown by the figures were smaller among those who migrated long-distance (-1.43). The greater relative immobility of long-distance migrants in the non-agrarian manual classes and the lower non-manual class (.12) was unexpected, but noticeably appears only for long-distance rural migration: the interaction effect of distance and urban destination is negative (-.35), showing that long-distance urban migrants in those classes were actually less immobile than were non-migrants.

The full association model also provides support for the migration hypothesis: both short-distance and long-distance rural to rural migrants were in general more fluid than non-migrants (-.12 and -.20). The size of some of the estimated differences in fluidity is quite substantial. The baseline odds of immobility in the farming class are smaller by 47 percent among migrants to short distances ($1 - e^{2.97\times(1-.21)}/e^{2.97}$) and smaller by 81 percent ($1 - e^{2.97\times(1-.55)}/e^{2.97}$) among long-distance migrants.

In line with hypothesis 2, long-distance migrants were more fluid than short-distance migrants. The 'mobility distance' between classes was lower among urban-born long-distance migrants, and they had lower propensity of staying in the farming class than short-distance migrants. The hypothesis was also confirmed for in the full association model as the negative coefficient of long-distance migration is significantly larger than the coefficient of short-distance migration (b= -.078, s.e. =0.031, p<.05). Class immobility

Table 5.3: Parameter estimates from Quasi-RCII and Full Association models

	RCII					Full Association
	$\mathbf{D_I}$	$\mathbf{D_{II,III,IV}}$	$\mathbf{D_V}$	$\mathbf{D_{VI}}$	ϕ	
Short-distance migration	−.57	.03	−.21***	−.29***	−.12	−.12***
	(.47)	(.03)	(.03)	(.06)	(.45)	(.02)
Long-distance migration	−.40	.12*	−.55***	−.01	−1.43*	−.20***
	(.77)	(.06)	(.06)	(.11)	(.65)	(.03)
Urban residence	−.36	−.21***	.13	−.13	1.18	−.02
	(.51)	(.04)	(.07)	(.11)	(.66)	(.03)
Urban res.× short-distance	−.21	−.25***	−.22*	−.18	1.31	−.17***
	(.81)	(.06)	(.10)	(.15)	(.90)	(.04)
Urban res. × long-distance	.33	−.35***	.14	−.14	1.21	−.08
	(.87)	(.07)	(.12)	(.18)	(.92)	(.04)
Urban birthplace	−.92	−.14***	.06	−.18	1.56**	−.04
	(.57)	(.03)	(.06)	(.10)	(.55)	(.02)
Time	.52	−.04	.03	.06	.85*	.05***
	(.48)	(.02)	(.03)	(.05)	(.36)	(.01)
Time^2	−.13	−.01*	−.02*	−.03*	−.08	−.02***
	(.11)	(.00)	(.01)	(.01)	(.08)	(.00)

	Diagonal association				μ, υ
	$\mathbf{D_I}$	$\mathbf{D_{II,III,IV}}$	$\mathbf{D_V}$	$\mathbf{D_{VI}}$	
I: Higher managers and professionals	1.08*				.73
	(.45)				(.01)
II: Lower managers, professionals		2.24***			.25
		(.11)			(.02)
III: Highly-skilled workers		2.24***			.01
		(.08)			(.02)
IV: Low-skilled workers		2.30***			–.15
		(.09)			(.02)
V: Farmers			2.97***		–.30
			(.09)		(.03)
VI: Farm workers				1.98***	–.54
				(.10)	(.02)
ϕ					1.78***
					(.32)

Notes: N = 51,387. Maximum likelihood estimates of log (odds). Quasi-RC model fit statistics: L^2 = 2951, df = 1074, D=10.5. Full association model fit statistics: L^2 = 3369, df = 1092, D=12. Models estimated with period, migration, urban residence, and urban birthplace- specific origin/destination marginal effects. Normalization constraints on the equal row-column scales in the quasi-RC model are $\sum \mu_i = \upsilon_i = 0$ and $\sum \mu_i^2 = \upsilon_i^2 = 1$. Multiplicative layer effect intercepts are constrained to 1 for identification. Components of the layer-effect are additive. D = diagonal parameters, ϕ = scaled association parameter. * =p < .05, ** = p < .01, *** = p < .001 (2-sided). Asymptotic standard errors are in parentheses.

was not lower for long-distance migrants than for short-distance migrants among agrarian workers nor among the non-agrarian manual classes or the lower non-manual class.

Rural-born migrants to urban destination close by, as hypothesis 3 predicted, were more fluid than rural-destination migrants. That effect was found both for non-agrarian manual classes and lower non-manual class (-.26) and for farmers (-.22), but not for farm workers nor for the off-diagonal association. Social rigidities among long-distance urban migrants were lower for non-agrarian classes (-.35), but not for other classes.

Hypothesis 4, which predicted greater fluidity among urban residents, received less support. Urban residents from non-agrarian manual and lower-manual class backgrounds did emerge as less immobile than their rural counterparts (-.21), urban residents from other classes were no different in their relative immobility from rural residents. The off-diagonal association among urban residents showed no difference from those among rural residents, but the greater mobility distance among urban-born individuals (1.55) shows that they were relatively less likely to reach social destinations far from their social origins than the rural-born.

None of the proposed hypotheses garnered support for the social reproduction of higher managers and professionals, and similarly to earlier findings (Lippényi et al., 2013a), the relative immobility of those classes too was not seen to change over time.

Our last hypothesis was that migration and urbanization may explain part of the temporal variation in social fluidity. To see whether this is the case, I re-estimated the RCII and full association models with only time effects included and compared the time trend with the trend net of migration and urbanization estimated in the complete model. The difference in the sizes of the time slope parameters between the two models shows how much of the change in fluidity is due to migration and urbanization. Earlier research on mobility during early modernization in Hungary found an early decrease in social fluidity, followed by increasing openness (Lippényi et al., 2013a). Building on those results I specified quadratic time slopes in a model including only time and then compared the predicted time trends with the trends predicted from a model which includes the compositional terms, migration and urbanization. The non-significant quadratic time parameters were omitted from the estimation, but their omission did

not influence the magnitude nor the significance of other model estimates. Figure 5.4 shows the total and partial predicted changes over time in the averaged non-agrarian relative class inheritance (Figure 5.4a), farmer and farm worker class inheritance (Figure 5.4b and 5.4c), the intergenerational association among those who were mobile (Figure 5.4d), and the full intergenerational association (Figure 5.4e). Predicted changes in the inheritance parameters and in the full association are given as multipliers.

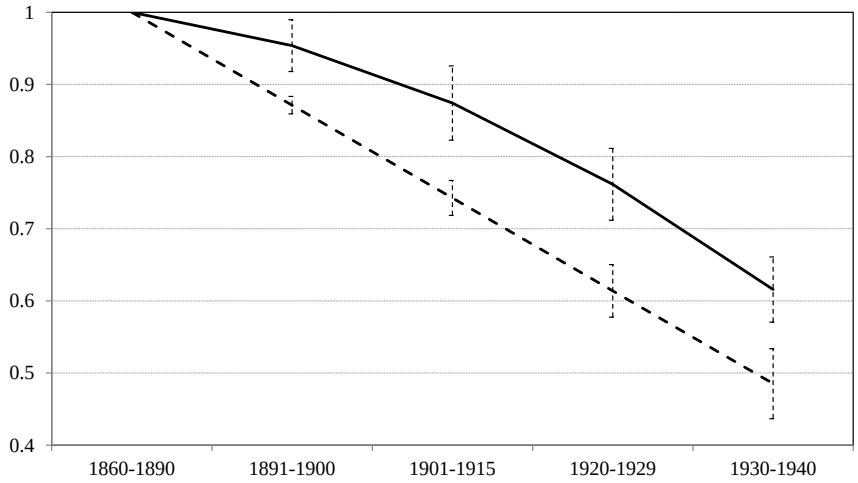
The predicted time trends of social inheritance in the non-agrarian classes are substantially different. The 'time only' model predicts 26 percent greater decline in non-agrarian relative class inheritance over time than the 'compositional + time' model, indicating that migration and urbanization explain a substantial part of the decreasing relative immobility of those classes between 1860 and 1940. Migration and urbanization do not explain predicted trends in relative class inheritance in the agrarian classes as the two models' predicted trends do not differ. As farmers and the farm worker classes were the most numerous in the studied historical period, the trends of their class inheritance dominate the changes we see in the full association between class origins and destinations. Consequently, the trends in the full origin-destination association too are identical in the two models. With respect to off-diagonal class mobility, for the period 1890–1930 the 'time only' model seems to be predicting less social fluidity than the 'compositional + time' model. However, the periodic difference in off-diagonal fluidity estimates between the two models is due to the time trend specification, as it becomes statistically insignificant when the models are re-estimated with unique period effects (results not shown). Migration and urbanization therefore explain temporal change in the inheritance only of lower non-manual and non-agrarian manual classes.

5.9 Conclusions and discussion

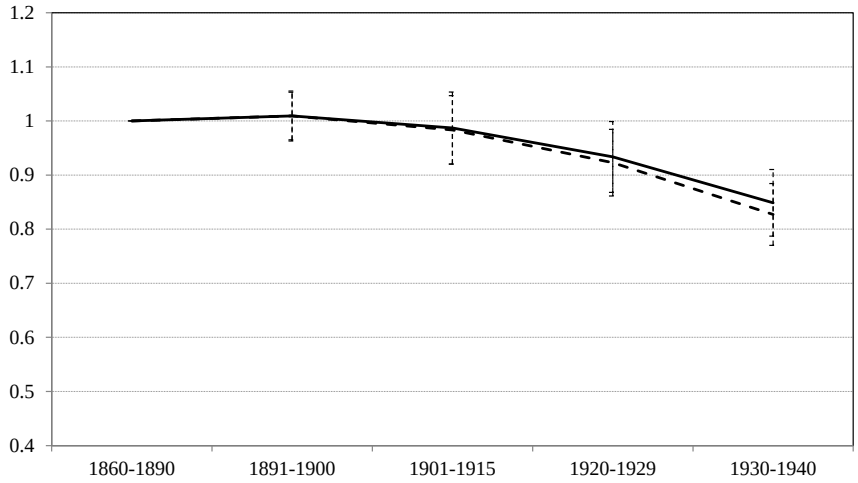
Mobility research has gone to great lengths to describe long-term changes in social mobility, and given rather less attention to the explanation of these trends. This chapter has taken a step in that direction by investigating how internal migration and urbanization related to social fluidity in modernizing Hungary in the 19th and earlier 20th centuries. The results from Hungary in this chapter suggest that both optimistic and pessimistic

Figure 5.4: Migration, urbanization and predicted temporal change in social fluidity

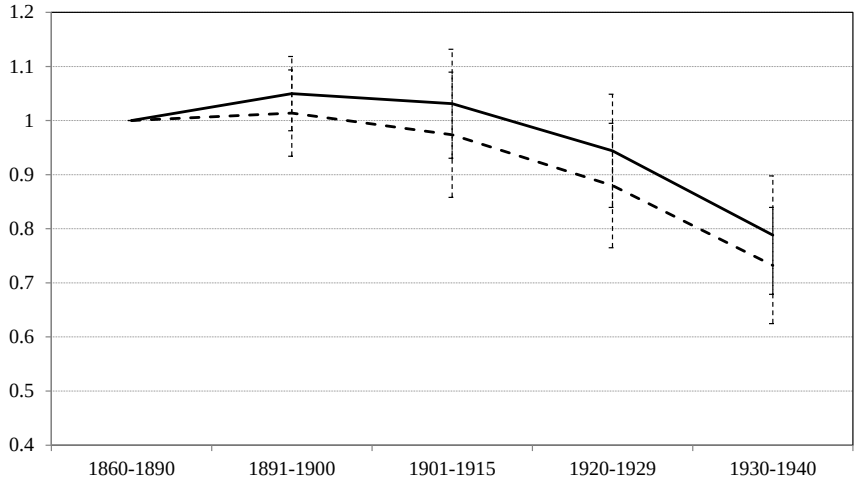
a) Non-agrarian class inheritance



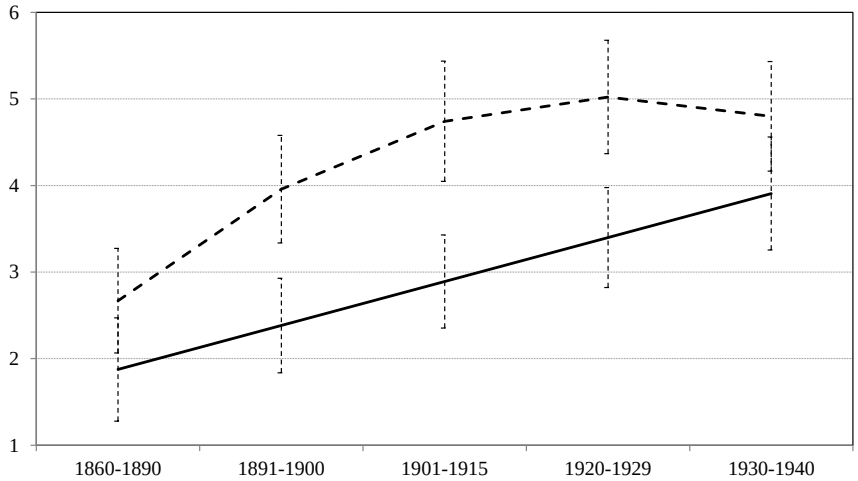
b) Farming class inheritance



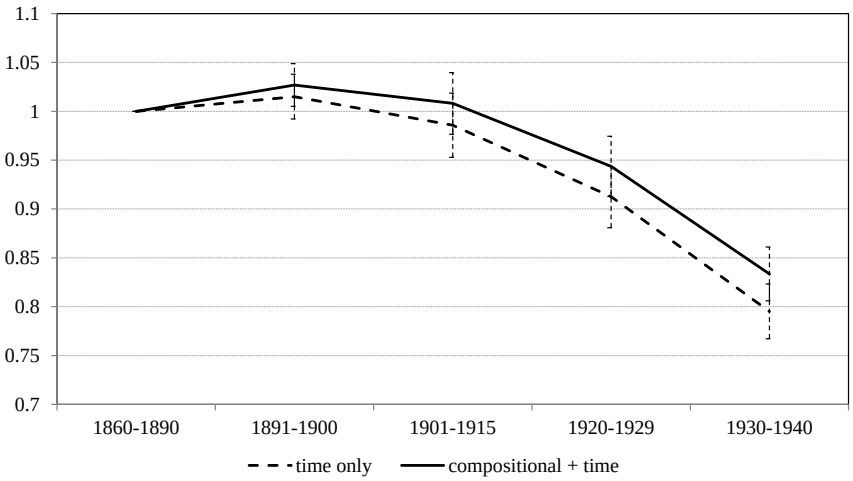
c) Farm worker class inheritance



d) Off-diagonal association



e) Full association



Notes: A-D estimated from quasi-RCII models, E from Full Association models. 95% percent c.i. shown. Predicted temporal changes in the inheritance parameters and in the full association are given as multipliers. Specification of marginal effects identical in 'time only' and 'compositional + time' models.

narratives about how urbanization and migration were related to social inequalities are too simplistic in their descriptions. The overall pattern of my findings suggests that, in line with my expectations derived from the parental resource and migration selection perspectives, social fluidity was greater among migrants. Contrasting with expectations from the theory of industrialization, the chances for urban residents of reaching higher or lower social classes were in most cases no better than those for rural people. The greater urban upward and downward mobility is therefore a result of temporal differences in occupational structure in cities, and not that of greater 'equality of opportunity'.

The investigation of temporal changes in fluidity partially confirms that migration and urbanization are related to long-term changes in social fluidity. As the population in Hungary became more urban and geographically more mobile, the non-manual classes became 'socially fluid': it became easier to 'enter' these classes or to 'escape' from them to other classes. At the same time, however, migration and urbanization could not be adduced to explain the decrease in class rigidities in the agrarian classes nor do

they shed any clear light on the increases in class inequalities that affected chances of reaching different class destinations.

The social reproduction of higher managers and professionals was the same among migrants and non-migrants as it was between urban and rural locations also. The persistence of class rigidities in the social elites was also found in earlier studies done to test modernization effects on social fluidity (Grusky & Hauser, 1984), and points toward explanations according to status reproduction theory: social elites could maintain their advantages and compensate for potential competition from other classes (Bourdieu & Passeron, 1990), which made access to high-class status relatively more difficult.

These results call for a reconsideration of how population processes, such as urbanization and migration, relate to changing social inequalities during modernization. Many earlier studies of social mobility in late modernizing societies (Breen, 1994; Ishida, 2001; Ringdal, 1994; Torche, 2005; Whelan & Layte, 2002; Wu & Treiman, 2007) found no variation in social fluidity over time and concluded with a lack of support for theories predicting growing social openness through modernization. My study has revealed that the influences of two population processes differ in their strength across classes, and their joint impact explained temporal decline in class rigidities only among the non-agrarian middle-ranks of the class hierarchy. Urbanization and migration therefore did not counteract increasing inequalities between classes among those who were mobile, and the explanation for the pattern of my findings is likely to be that opportunities in Hungary for entering higher class positions, such as education or apprenticeships, remained generally scarce during early modernization (Beluszky, 2001; Kövér & Gyáni, 1998). Competition for resources and class positions might have effectively strengthened adaptive mechanisms among the higher classes (Bourdieu & Passeron, 1990; Collins, 1979) and improved the chances open to sons from more resourceful class origins at the expense of the sons of less resourceful origins. In urban areas of Hungary opportunities to gain access to resources likely did not grow at the same pace as competition for resources, which may explain why origin class-based inequalities showed no decline in urban areas, but also why mobility channels to higher-class occupations failed to open up. I did find greater fluidity and also greater upward mobility among urban migrants

than rural migrants irrespective of their birthplaces, which suggest that greater mobility in urban areas might result from migration selection processes, and not from greater 'equality of opportunity' which was proposed by the theory of industrialization.

Chapter 6

Intergenerational micro-class mobility during and after socialism: The Power, Education, Autonomy, Capital, and Horizontal (PEACH) model in Hungary*

6.1 Introduction

The collapse of state socialist societies and their rapid movement toward market-based economic systems was the most dramatic example of macro-level institutional change in the second half of the 20th Century. Inspired by the possibility that market transition could reveal the processes through which economic and social institutions shape social inequality, sociologists have explored the impact of sweeping market reforms on different aspects of social stratification (see Keister & Borelli, 2012 for a recent review). Many studies address intragenerational processes of inequality, such as the relative effects of political, human, and social capital, gender, and struc-

*This chapter is submitted to an international journal. An earlier version (Lippényi, Zoltán, Theodore P. Gerber. 2013. Occupational mobility and market transition: The Capital, Autonomy, Power, and Education (CAPE) model in Hungary) was presented at the at the ISA RC28 meeting in Brisbane, 17 July, 2013.

tural change on earnings, employment, and other labor market outcomes (Bian & Logan, 1996; Domański, 2005; Gerber & Mayorova, 2010; Gerber, 2000a, 2002, 2006, 2012; Nee & Opper, 2010; Nee, 1989, 1991, 1996; Róna-Tas, 1994; Trapido, 2007; Verhoeven et al., 2005; Walder, 2002, 2003; Wu & Xie, 2003; Wu, 2006; Xie & Hannum, 1996; Zhao & Zhou, 2002; Zhou et al., 1997).

Here we push the market transition literature in a relatively new direction by focusing on how the institutional retreat from state socialism re-shaped the mechanisms governing intergenerational occupational mobility. Although some work has examined post-socialist changes in intergenerational stratification processes such as the effects of social origins on education and status attainment (Bukodi & Goldthorpe, 2009; Gerber & Hout, 2004; Gerber, 2007; Luijkx et al., 2002; Saar, 2009; Simonova, 2003; Walder & Hu, 2009; Wu, 2010), this literature is less developed than analyses of intragenerational processes.

The potential effects of the institutional changes associated with market transition on intergenerational stratification are less intuitively obvious than their effects on earnings and labor market outcomes. This is because it takes some time to observe changes in the origin-based patterns of investment in education that form the principle mechanisms of intergenerational inequalities in contemporary societies. Moreover, these studies generally share a limited theoretical agenda emphasizing whether and how market transition affects the *magnitude* of origin-based inequalities in educational and occupational attainments. For example, the rise of market institutions and retreat of state-based commitments to provide equal opportunity increased the strength of origin effects on educational and occupational destinations (Bukodi & Goldthorpe, 2009; Gerber & Hout, 2004). The present study breaks new ground by considering whether the collapse of state socialism leads to changes in the *mechanisms* shaping how parents' occupations influence those of their children.

This requires a theoretical model of how intergenerational occupational mobility operated differently under socialism than under market regimes. Here the existing literature offers little guidance. Numerous comparative mobility analyses have analyzed current and former state socialist countries (e.g., Breen, 2004; Erikson & Goldthorpe, 1992; Grusky & Hauser, 1984) and others have analyzed individual socialist countries (Bukodi &

Goldthorpe, 2009; Ganzeboom et al., 1990; Gerber & Hout, 2004; Kolosi, 1988; Róbert & Bukodi, 2004b; Wong & Hauser, 1992). However, these studies examine whether state socialist societies depart from capitalist societies in their pattern of occupational mobility rather than explicitly modeling one or more distinctive dimensions of mobility that directly reflect the unique institutional features of state socialist society. A more theoretically satisfying answer to the question of whether state socialist societies exhibited particular mobility patterns should propose at least one mechanism or dimension of mobility that is particular to state socialist institutions. The article by Wu & Treiman (2007) stands out as an important attempt to conceptualize and measure a distinctive mobility regime in a state socialist society. However, their model of how China's hukou system created starkly different mobility patterns in urban and rural areas is not applicable to any other state socialist societies, because only China had a hukou system.

We propose a model of occupational mobility based on four theoretically derived vertical dimensions of occupational resources: power, education, autonomy, and capital, plus a single horizontal dimension consisting of linkages among occupations in the same industry or branch of the economy. Our mobility model explicitly incorporates the political power associated with different occupations, an especially salient vertical dimension of intergenerational occupational linkages unique to state socialist societies due to the overwhelming political and economic control of their Communist Parties. We hypothesize that the power dimension is a signature feature of socialist-era mobility regimes that should, in principle, diminish or even disappear with the passing of state socialism and the consolidation of market institutions. We also expect the effects of education to remain roughly similar, the importance of autonomy and capital in intergenerational occupational inheritance to increase, and the role of horizontal linkages to decline as a result of market transition.

We estimate our model's parameters, which directly correspond to the five dimensions covered by our hypotheses regarding common and distinctive features of state socialist and market-based mobility regimes, using data from surveys conducted in Hungary during three periods: late state socialism (pre-transition), the era of transition to a market-based economy, and the post-transition period of 'market consolidation,' when market institutions had been clearly re-established. By analyzing a single country

under state socialist and post-socialist conditions, we can explicitly test the effects of reigning political economic institutions (state socialism vs. markets), because potential confounding factors such as national culture or prior historical pathways are controlled by the focus on a single country. To better capture independent variation among occupations along all five of our theoretically central dimensions, we analyze 'micro-class' mobility (Jonsson et al., 2009). Our model fits the data well and performs better than other conventional mobility models, including other theoretically-derived models and models that empirically scale occupations.

Comparisons of the magnitude and significance of specific parameters across the three periods covered by our data mainly support our hypotheses. State socialist mobility regimes exhibited distinctive characteristics from market-based mobility regimes that are inadequately characterized by statements regarding the overall level of mobility or the degree of divergence from the model of 'core social fluidity' (Erikson & Goldthorpe, 1992). Under socialism—but not during or after market transition—political power was a separate dimension of occupations that shaped how people's occupations depended on those of their parents. Education is an equally important component of occupational inheritance under both systems. The autonomy and capital associated with occupations play a greater stratifying role under market systems than under state socialism, while horizontal linkages among groups of occupations play a lesser, though still statistically significant role, in market systems than under state socialism. Additional analyses show only minimal variations in mobility parameters by gender and confirm that the changes in parameter values represent period effects rather than cohort replacement.

6.2 A new mobility model: Power, Education, Autonomy, Capital, and Horizontal linkages (PEACH)

Occupational mobility researchers have proposed a range of models for the study of how occupational origins and destinations are related. Two broad types of models have their adherents (see Hout, 1983): association models, which empirically scale origin and destination occupational

categories and represent the association between these categories using a single parameter (Goodman & Magdison, 1978), and topological models, which theoretically specify regions in the mobility table with distinctively high and low cell frequencies, denoting either excess mobility or immobility (Erikson & Goldthorpe, 1992; Hauser, 1978). Association models often provide a better fit to the data, because they optimize the scaling of occupational categories empirically. But for the same reason they are less satisfying from a theoretical perspective because they offer limited scope for testing hypotheses about the mechanisms that lead to class reproduction across generations. Hybrid approaches combining elements of both these strategies have proven popular (see Hout & Hauser, 1992; Wong & Hauser, 1992).

Building on more general efforts to capture inequalities on the occupational level (Grusky & Weeden, 2001; Weeden & Grusky, 2012; Weeden, 2002), Jonsson et al. (2009) present a new model for the analyses of 'micro-class' mobility, combining elements from both association and topological approaches. They model intergenerational reproduction within micro-classes using a unique effect for each diagonal cell in detailed 82 × 82 occupational mobility tables. Their model also allows excess mobility between micro-classes that fall in the same larger ('big' or 'meso') class and scales occupations along a single socio-economic status dimension to capture vertical mobility between micro-classes. Jonsson et al. (2009) show that there are occupation-specific rigidities in social reproduction that large-class analyses do not capture. Because they focus on immobility and the extent to which apparent 'meso-class' immobility reflects micro-class mobility, their specification of vertical mobility between micro-classes is underdeveloped. Moreover, because it uses a large number of parameters to represent diagonal association, Jonsson et al.'s model does not provide a parsimonious and intuitive way to decipher what aspects of occupations induce variation in rates of immobility within them and of mobility to and from other types of occupations.

Jonsson et al. suggest that their model, the only one to date we have seen applied to disaggregated mobility tables, can be extended by scaling occupations according to the kinds of skills, cultural capital, or social networks that are distinctively associated with them, with the expectation that mobility is greater between occupations with more similar values

on these scales (Jonsson et al., 2009, pg. 991). We take up that suggestion by proposing a new model for micro-class mobility in socialist and post-socialist Hungary which derives from and extends upon Hout's 'status, autonomy, and training' (SAT) model (Hout, 1984). The SAT model conceives of occupational mobility (and immobility) in terms of movement (and persistence) across the three vertical dimensions in its title. We supplement and modify these dimensions to generate the 'power, education, autonomy, capital, and horizontal' (PEACH) model. Thus, in contrast to the Jonsson et al. model and association models we theoretically specify multiple dimensions of occupations across which parents' occupations influence those of their offspring. The five dimensions of our model are derived from individual and occupational level mechanisms which *jointly* determine the pattern of occupational reproduction and mobility. Our occupational-level model shares with other intergenerational mobility models that it does not disentangle individual and occupational level mechanisms. We now present each of these dimensions in turn. Then we develop hypotheses as to how their relative importance changes due to the institutional transformations associated with the collapse of state socialism.

6.3 Power

The Communist Party (CP) is a central institutional source of social stratification in state socialist societies (Gerber, 2000b). In market societies, the distribution of economic resources is driven largely (though not entirely) by market forces and privately-held resources; political power is less influential on life chances (Parkin, 1971). In state socialist societies the CP monopolizes both political and economic power. It controls the allocation of the means of production between different production sites (Kornai, 1992), as well as elite jobs (Li & Walder, 2001; Walder, 1995), social rewards, housing, and other privileges (Matthews, 1978; Szelényi, 1983). In systems where the party and the state are intertwined, certain economic and social privileges are mainly accessible through political connections; therefore, political power in the form of political information and network capital is a pervasive determinant of life chances (Gerber, 2000b). In light of the significant rewards that, on average, accrue to CP members, it is not surprising that parental CP membership has been a significant predictor of

educational attainment, net of other measures of parental background, in state socialist societies (Gerber, 2000a, 2007; Matějů, 1993; Szelényi et al., 1998; Walder & Hu, 2009; Wong, 1998; Zhou et al., 1997).

Communist parties recruited members disproportionately from certain occupations. Although their official ideological commitments led them to maintain a presence among the industrial proletariat, CPs also sought to bring various governmental, managerial, professional, military, and technical elites into their fold, as a means of maintaining control (Djilas, 1957; Harasymiw, 1984). Party membership ensures political reliability, and thus, in the context of state socialism, it became a paramount criterion for advancement in careers involving ideological work, leadership, responsibility, or potential influence. In state socialist Hungary even rank-and-file CP members often provided information to party officials in the form of 'morale reports' (a translation of the Hungarian expression *hangulatjelentés*, meaning reports on the political morale of workers) or they investigated the political reliability of colleagues.

For these reasons, CP membership is rightly viewed as a measure of power (or 'political capital' (Verhoeven et al., 2008)) in state socialist societies. Applying this notion to occupations, we propose that the level of an occupation's party saturation (the percentage of incumbents who are party members) is an independent vertical dimension of occupational transmission from parent to child in state socialist societies. Incumbents in occupations with high levels of party saturation enjoy higher levels of political, economic, and social power relative to those in occupations with low levels of party membership, *whether or not they are members of the party themselves.* Of course, those who are in the CP most likely enjoyed even greater social power than those who were not. But irrespective of individual-level CP membership, the more the CP saturates a given occupation, the more we can infer that the occupation is politically, economically, and socially important, and the more likely that political considerations shape its hiring, promotion, and evaluation criteria, how professional ties are formed, through which channels information is gathered, and which strategies are applied to get ahead. Even non-party members in that occupation would have to become adept at complying with party norms and practices and would likely exploit the strategic importance of their occupation to secure benefits and resources from the party. Thus, political power is a tangi-

ble and measurable occupation-based resource to a much greater degree in state socialism than it is in market societies. In effect, the level of party saturation of an occupation testifies to its political standing in the eyes of the party. Incumbents in party-saturated occupations likely have both the incentive and the means to encourage their children to enter party-saturated occupations. They could do so by socializing them into the ideological norms and practices of the CP, using network connections to enhance the opportunities for recruitment by the CP, and emphasizing the less obvious advantages (within the reigning institutional structure) of CP membership.

An apparent 'power' effect on mobility rates could be an artifact of the positive association of party membership with income and educational attainments. We hypothesize, however, that even controlling for the education and income associated with occupations (as we do in our model), the power associated with occupations exerts an independent effect on intergenerational mobility due to the over-arching authority of the CP in state socialism. In contrast, we doubt that power represents an independent source of occupational transmission in market societies because they lack the institutional equivalent of a monolithic, omnipresent, and all-powerful Communist Party.[1]

6.4 Education

The role of education in intergenerational inequality is well known from the literature on social reproduction (Bernstein, 1975; Bourdieu & Passeron, 1990; Collins, 1979; DiMaggio & Mohr, 1985; DiMaggio, 1982). Educational credentials and training are associated with occupational specialization, and through childhood socialization parents who are professionals influence their sons and daughters so as to encourage them to pursue professional occupations themselves (Kohn, 1969). Families transmit education-based cultural and network resources to their children, but also norms of

[1]Note that our notion of power as a dimension of occupations that should matter for mobility under state socialism is distinct from the concept of supervisory 'authority' that class theorists have cited as an alternative basis for class position (Dahrendorf, 1959; Wright, 1985). We are using 'power' in a much broader sense that is closer to the usage of 'power elite' theorists (Domhoff, 1998; Mills, 1956): generalized, society-wide power (as opposed to power concentrated in the workplace).

the 'occupational subcultures' parents belong to (Collins, 1975; Weeden & Grusky, 2012), which influence the educational careers of their offspring and direct them towards occupations which require educational credentials. Our 'education' dimension is similar to Hout's 'training' (Hout, 1984), but it is broader because it captures the different ways that education can serve as a resource (which include, but are not limited to, specialized training).

The salience of occupational education as a dimension of intergenerational mobility presumes that class origins affect educational attainment, which may have been less characteristic of socialist systems, given their stated commitment to egalitarian principles. For example, Hungary's socialist regime implemented quotas to promote the access of individuals from the working class and farm backgrounds to education (Simkus & Andorka, 1982). At the same time, the state socialism aimed to establish an educational meritocracy in occupational allocations (Luijkx et al., 2002). Empirical research shows that neither aim was accomplished. An initial decline in origin-based educational inequalities gave way to their restoration by the 1980s (Bukodi & Goldthorpe, 2009; Hanley & McKeever, 1997). Comparisons between Hungary and market economies show that the general patterns with which occupational class origin determines education and conversely, education determines occupational class destination are basically the same (Ishida et al., 1995). Thus, we do not expect that education played a particularly weak role in occupational transmission during Hungary's socialist period.

6.5 Autonomy

The degree of autonomy associated with a parent's occupation tends to positively predict average autonomy of a child's occupation (Hout & Rosen, 2000; Hout, 1984; Hundley, 2006; Sørensen, 2007). Autonomy, usually equated with self-employment, is transmitted between generations through mechanisms of role modeling, internalization of dispositions characteristic of entrepreneurship (i.e. self-sufficiency, independence, risk-taking, aversion to authority) during socialization, property inheritance, and in early career involvement in small-business operations.

The transmission of occupational autonomy presumes that political institutions maintain legal and economic conditions that foster a fairly large

contingent of occupations with high average autonomy. In state socialist economies, however, self-employment and private property ownership is restricted or even criminalized. In socialist Hungary, arguably the most liberal of state socialist economies from the late 1960s onward, less than 3% of the labor force was self-employed (Róbert & Bukodi, 2004b). In the 1980s entrepreneurial activity in the 'second economy' (Gábor, 1989) began to grow in the form of non-registered side jobs, occasional part time work, or 'second informal shifts' at the workplace where one had a full-time job. The second economy developed first in the agricultural sector (Szelényi, 1988): the large majority of family farms, roughly 1.7 million, engaged in 'secondary' agricultural production ranging in size from self-sufficient farms to farms with large-scale marketing (Galasi & Gábor, 1981). The emergence of the second economy could influence mobility during the state socialist period, but the very low level of self-employment overall and hierarchically organized authority structure of state-owned enterprises and organizations meant that few occupations could be associated with high levels of autonomy. Therefore, we do not expect that autonomy shaped occupational inheritance and mobility patterns under state socialism.

6.6 Capital

Capital (economic resources) associated with different occupations, which we operationalize as occupational income, shapes intergenerational occupational transmission in straightforward and intuitive fashion: parents in high-earning occupations have both the resources and the incentive to ensure that their children also end up in high-earning occupations. Parental income can be deployed to secure educational advantages for children (more prestigious schools, extra-curricular tutoring, freedom from having to combine work with study), which in turn lead to more lucrative careers. Income can also influence occupational reproduction through preferences for consumption patterns and lifestyle acquired in the family environment (Bourdieu, 1984). Children from high consuming and affluent families prefer jobs that allow them to reproduce the lifestyle of their families.

We expect the influence of capital to be weak, if not absent, in most state socialist countries, including socialist-era Hungary. The most important reason is that income differentials between occupations are low

compared to market economies (Atkinson & Micklewright, 1992). In command economies, wage bargaining on the labor market is largely absent as the price of labor is determined by central wage-setting policies. As the general aim of wage policies is to keep income inequalities low, manual occupations have relatively high salaries compared to managers, supervisors, and professionals. The absence of a steep occupational wage gradient diminishes both the resource advantages of (relatively) high earning parents and the incentives for their children to pursue (relatively) high earning occupations. In addition, a large range of consumer goods are absent on the market due to economic shortages (Kornai, 1992) and central price-setting kept price differences of products low. Therefore, we do not expect capital differences to be a strong determinant of intergenerational occupational mobility under state socialism in Hungary.

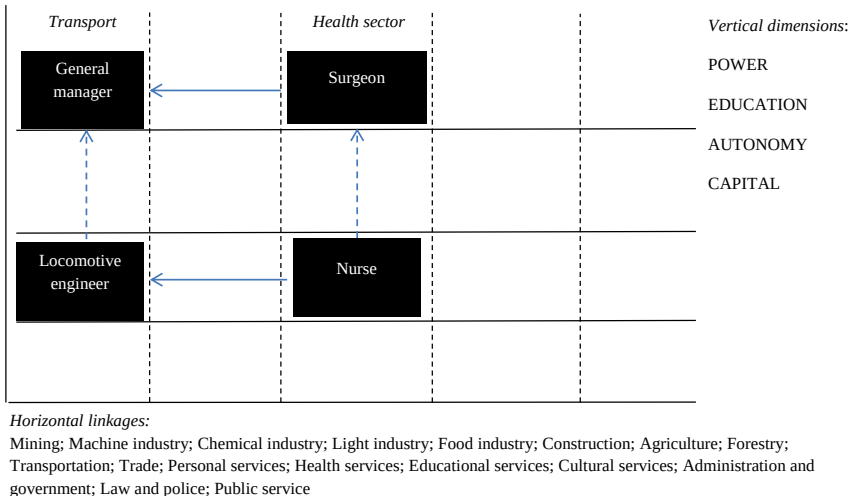
Traditional status attainment models often scale occupations using a combination of the average earnings and education of incumbents (e.g., Blau & Duncan, 1967), a strategy used in recent studies of mobility (Jonsson et al., 2009; Luijkx et al., 2002). However, Hauser & Warren (1997) showed that it is preferable to disaggregate the earnings and education associated with occupations in standard status attainment models, and we believe the same applies for the scaling approach in mobility table analysis. Moreover, we have theoretical reasons to expect education to play a substantially greater role than capital in shaping occupational transmission in state socialism. Therefore, it is particularly important to scale occupations separately by education and earnings in a mobility model designed explicitly to capture state socialist and post-socialist patterns.

6.7 Horizontal linkages

Our model also incorporates horizontal channels of mobility between occupations in the same industry or branch of the economy. Jonsson et al. (2009) observe excess intergenerational mobility between occupations clustered together in certain branches of the economy–e.g., high intergenerational exchange between carpenters and painters, suggesting a construction branch effect.[2] Workers in different occupations within the same branch of

[2]Erikson et al. (2012) and Chan & Goldthorpe (2007) relate this form of horizontal differentiation to the concept of occupational "situs," originally developed by Morris &

Figure 6.1: Illustration of horizontal and vertical mobility in the PEACH model



Note: horizontal origin-destination movement denoted as "→"; origin-destination movement across one or more vertical dimensions without horizontal movement as "-→".

the economy often share common values, norms, practices, specific skills, and attitudes (Kohn, 1969; Morris & Murphy, 1959). These similarities are intrinsically 'horizontal' because they apply to occupations that can differ widely in terms of socioeconomic resources.

Consider the example of occupations in transportation, which range from general managers of transport companies to aircraft pilots to occupations such as truck driver. These horizontal aggregations of occupations in the same line of work can be seen as intermediary groups that provide a sense of identity, common interests, goals, tastes, and sources of information (Grusky & Galescu, 2005). Returning to our example, transport workers in many industrialized countries have their own formal organizations (such as trade unions) and informal meeting opportunities (yearly balls, sport clubs, charities), which help forge corporate identifications and facilitate reciprocal exchanges of influence and information. These horizontal linkages are likely to affect intergenerational social mobility also because branch-specific human and social capital of children, accumulated during childhood, increases the likelihood of an occupational choice within

Murphy (1959).

the same economic branch (Laband & Lentz, 1983a,b, 1992). In our example, a daughter of a locomotive engineer is more likely than average to develop knowledge about and interest in transportation and have more members in her network with ties to transportation. Even if she achieves high educational qualifications and thus chooses a different educational path than that of a locomotive engineer, the chance that she becomes a skilled professional in the transportation sector (e.g., manager at a transport company) is higher than that for daughters from socio-economically similar origins but outside the transportation sector.

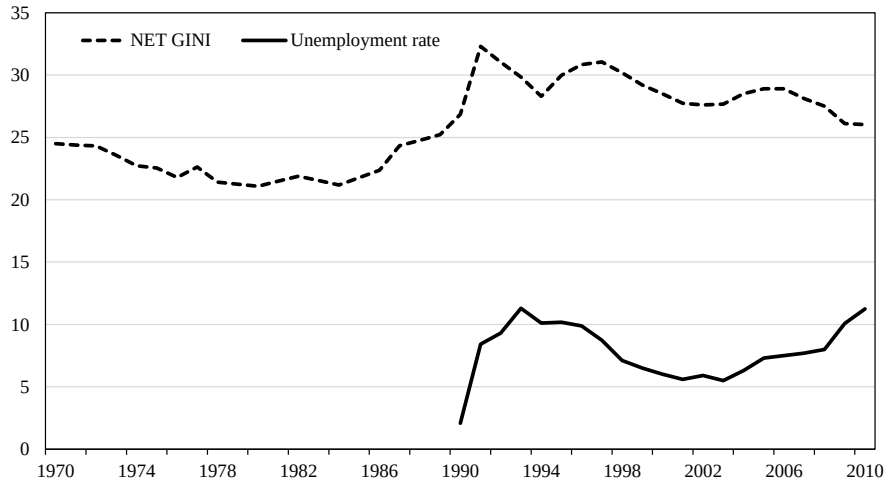
We specify intergenerational horizontal effects in occupational mobility by scaling occupations by the extent to which they are embedded in different horizontal clusters.[3] Figure 6.1 illustrates our model with vertical and horizontal components and shows the 17 specific clusters we use in our model.

6.8 Market transition in Hungary: hypothesized effects on mobility mechanisms

Following the Soviet-supported communist takeover of Hungary in the late 1940s, the state nationalized all economic activity and established central planning bureaus to exercise control over the distribution of resources, including production goods, labor and skills. The agricultural sector was collectivized. Central planning helped modernize the Hungarian economy and establish Hungary as an industrial nation, kept income inequality to a comparatively low level (Atkinson & Micklewright, 1992), and guaranteed life-long employment and job protection for workers. However, ultimately the intrinsic inefficiencies in the planned economy generated chronic shortages and hindered growth (see Kornai, 1992). The regime of János Kádár undertook market reforms in the 1970s in an effort to address some of these inherent problems of the central planned economies and avoid social unrest. The reforms provided greater freedom to state enterprises to respond to

[3] Were we able to use more detailed occupational codings that incorporated industry as well as occupations, we could in principle use dummy variables to denote presence or absence of an occupation in a particular cluster. However, given the level of occupational aggregation necessary to support our analysis our best option is to scale each occupation by the percentage of its incumbents who belong to each of the clusters.

Figure 6.2: Hungarian income inequality and unemployment rate between 1970 and 2010



Sources: NET GINI: SWIID Version 3.1 (see Solt, 2009); Unemployment rate: IMF World Economic Outlook (IMF, 2013).

market signals and permitted restricted forms of private economic activity, particularly in the provision of goods and services which were lacking in the state sector. Nevertheless, Hungary's economy remained dominated by large state enterprises and the wall between the state and private sectors of the economy prevented the flow of resources, labor, and skill (Róna-Tas, 1994).

After 40 years of single-party rule by the Hungarian Socialist Workers Party, the Velvet Revolutions of 1989 ushered in multi-party democracy, and successive governments implemented radical market reforms. Between 1990 and 1998 restrictions on private property were abolished, enterprises were privatized, planning was eliminated, and state control over the economy evaporated, including centralized wage controls. As a consequence of the privatization of the economy and withdrawal of state control, income inequality and unemployment rose sharply (Atkinson & Micklewright, 1992; Kolosi & Sági, 1998; Róbert & Bukodi, 2004b). The market transition also had a profound impact on occupational careers: between 1991 and 1997 90 percent of men experienced at least one em-

ployment transition (either unemployment or job-to-job mobility), and 58 percent reported downward or upward occupational status mobility during this period (Bukodi & Róbert, 2006). However, in Hungary the 'shock therapy' measures did not create a long-lasting crisis, and by the end of the 1990s the Hungarian economy reached a more stable and prosperous phase (Figure 6.2).

The potential effects of Hungary's market transition on the parameters in our mobility model result from the collapse of the Communist Party's preeminent position, increasing earnings inequality linked to occupations and (potentially) education, the rise of a new private sector and self-employment, and the withdrawal of the state from the allocation of resources and wages across economic branches. In Hungary's transition the Communist Party lost its central and privileged status both within the economy and within the political system. The legal successor of the Hungarian Socialist Workers Party, the Hungarian Socialist Party was formed by pro-market reform communists and rose to power in the 1994 elections. However, far from restoring state control of the economy, its leaders joined with the Alliance of Free Liberals to adopt legislation accelerating privatization and economic liberalization. Holdovers from the Hungarian Socialist Workers Party have not reached the parliamentary threshold since the first democratic election. Thus, although orphaned remnants of the socialist-era Communist Party remain in Hungary today, they in no way resemble their deceased parent.

Therefore, the institutional basis for unmeasured advantages accruing to those occupations that were highly saturated with CP members disappeared. A straightforward and intuitive hypothesis follows: in the course of Hungary's market transition, the effects of the power dimension of occupations should diminish and/or disappear entirely. To be sure, Communist Party members appear to have succeeded at 'converting' their former political power into higher earnings in the new market economy (Róna-Tas, 1994; Verhoeven et al., 2008). But this does not contradict the argument that the formal institutional basis whereby occupations were valued based on their association with CP membership no longer held sway after the collapse of state socialism. If CP cadres and/or rank-and-file members managed as individuals to parlay their connections or their CP-based human capital into earnings advantages in market conditions, they did not

do so by monopolizing access to occupations that were highly saturated by CP members under state socialism—at least not net of the education, autonomy, and capital now associated with those occupations.[4]

According to Victor Nee's market transition theory, a radical shift from state-orchestrated redistribution to market allocation of resources such as Hungary undertook in the early 1990s benefits private sector employees, entrepreneurs, and the highly educated at the expense of Communist Party cadres (Nee & Cao, 2005; Nee, 1996, 1989). Others have questioned whether markets intrinsically reward human capital and argued that political elites from the state socialist era use their positions or network assets to maintain their advantages following the transition (Bian & Logan, 1996; Gerber & Hout, 1998; Xie & Hannum, 1996; Zhou, 2000; see Keister & Borelli, 2012 for a thorough review). Studies of Eastern European countries such as Hungary tend to find evidence of rising returns to education in the course of the post-socialist transition (Domański, 2005; Verhoeven et al., 2005). The government's withdrawal from the labor market, the rapid privatization of certain sectors of the economy, and the change from redistributive principles to market principles increased occupational differences in income, as well as a simultaneous increase in overall earnings inequality. Even in sectors which remained in the hand of the state, such as education and health, partial marketization drove the earnings of professionals disproportionately higher.

The growth in overall earnings inequality, emergence of a wage hierarchy typical of market economies, and strengthening of the associations of earnings with occupation and education in the course of Hungary's market transition have potential implications for the effects of occupational education and capital on occupational transmission. But with few exceptions (Gerber & Hout, 2004; Walder & Hu, 2009), the market transition literature focuses on intra-generational mobility, i.e. who were the winners and losers in terms of occupational outcomes after the transition. Gerber & Hout (2004) hypothesize that the strengthening of market principles increases the overall earnings inequality of occupational origins and destinations. Growing earnings inequalities intensify the competition

[4]See Róna-Tas (1994); Gerber (2000b), Gerber (2001); Gerber & Mayorova (2010); and Róna-Tas & Guseva (2001) for a debate over whether former CP members owe their advantages to CP-based network advantages vs. unobserved human capital.

for higher-paying occupations and the negative consequences of having a low-paying occupation. These developments propel intra-generational job mobility involving regression towards origins: those who were downward mobile with respect of their origins because the socialist redistribution system disadvantaged them, but have substantial human and entrepreneurial capital in their family (e.g., children of pre-communist intelligentsia, managers, and large proprietors), are likely to enjoy advantages in the competition and return to the social origins. Those who were upwardly mobile during communism, but do not possess family resources, are likely to be downwardly mobile during market transition. In Gerber and Hout's view, these intragenerational processes produce a strengthening of the origin-destination association.[5] For our purpose, the question is how regression towards origins relates to the effects of education, autonomy, and capital on intergenerational mobility.

The regression towards origins argument may be applicable to the Hungarian case insofar as children of pre-communist elites in Hungary were displaced with respect to the education, autonomy, and capital of their origins. If there was no or little status displacement under communism, return to origins are expected to have a minor or no effect on intergenerational mobility. Former research has extensively investigated whether former elites in Hungary were disadvantaged in education (Simkus & Andorka, 1982; Szelényi et al., 1998), but apart from the increasing odds of lower educated origins to enter higher education during communism, pre-communist professional elites and intelligentsia were able to reproduce their educational capital. In the context of diminished differentiation of occupations on the basis of earnings and autonomy characteristic of state socialism, education remained an area where elites could most effectively pass on their advantages to their offspring.

As education becomes a more important asset on the labor market following transition, one might expect increasing competition for educational resources, strengthening the association between origins and destinations endowed with high educational resources (Collins, 1979; Grusky, 1983). However, earlier research shows that association between occupational class origins and education only slightly increased following the

[5] Iván Szelényi's theory on interrupted embourgeoisment (Szelényi, 1978, 1988) is based on somewhat similar processes.

market transition in Hungary, and–contrary to the expectation of market transition theory the education–occupational class destination association even weakened during transition in the 1990s (Bukodi & Goldthorpe, 2009). The smaller-than-expected increase in the origin-education association can be attributed to the simultaneous expansion of tertiary education and professional and clerical jobs. As job opportunities were available to the growing number of graduates the competition for resources did not increase. Moreover, although one can rapidly change jobs and thereby enter a higher-paying or lower-paying occupation or one that involves self-employment to greater or lesser extent, it takes many years to obtain the credentials necessary to enter occupations that require university education of most incumbents. Thus, the education dimension of intergenerational mobility should in general be more immune to short-term changes even in the course of radical institutional transformations. For these reasons, we do not expect displacement and return to origins in education, and the association between origins and destinations endowed with high levels of education is unlikely to change during the post-socialist transition.

We do, however, hypothesize that the transition leads to increases in the strength of the effects of occupational autonomy and capital on intergenerational mobility and immobility rates. With respect to capital advantages, sons of former managerial, supervisory, professional, and entrepreneurial elites were clearly disadvantaged in the early communist period (Szelényi et al., 1998). Apart from the likely restoration of the occupational earnings and autonomy advantages of the offspring of pre-Communist elites, the economic resource differentials of occupational origins are expected to increase due to the steeper career earnings profile of occupations under market circumstances (Gerber & Hout, 2004; Gerber, 2002). It is along the dimension of capital that a regression toward origins process should be most salient: as competition for better paying jobs grows, higher-income Hungarian families can use their income-based resources to secure more remunerative occupations for their children. When price differentials across products and services and their availability on the market both increase, so do the 'stakes' associated with obtaining a well-paid occupation. Origin-based inequalities in occupational earnings and autonomy also affect access to cultural resources more strongly during market transition (Bukodi, 2010), which indicates accumulation of cultural capital among the higher

strata. Insofar as cultural resources convert to labor market advantage, these processes can lead to strengthening influence of parental social status. We thus expect the strengthening of the association between origins and destinations endowed with high capital during transition.

Despite the expectation that similar intergenerational processes would develop for self-employment as entrepreneurship resurged after Hungary's market transition, intergenerational transmission of self-employment remained weak in the early 1990s (Róbert & Bukodi, 2004b). Instead, self-employment formed a life-stage in the period of transition from school to work (Róbert & Bukodi, 2006), or, subsidized by the government, it was a strategy to escape unemployment (Róbert & Bukodi, 2004b). The character of entrepreneurship changed during transition. The high unemployment figures of the early years of market transition (according to Köllő (1995), 13.9 percent in 1993) dropped to 7–8 percent by the end of the decade. High-unemployment, the driving mechanism behind forced self-employment, is also specific to the early phases of transition. The number who were forced into self-employment to avoid being unemployed fell and a new bourgeoisie class emerged in Hungary; a group of large entrepreneurs who gathered entrepreneurial experiences in the second economy during communism and can be considered as winners of the market transition (Kolosi & Sági, 1998). Among these 'real entrepreneurs' greater intergenerational inheritance of entrepreneurship can be expected. Based on these considerations, we expect stronger association between origins and destinations endowed with autonomy especially during the later periods of transition.

Excess mobility within horizontal clusters of occupations in the same industry or branch of the economy is largely based on socialization, networks, and common cultural capital. These factors apply equally to state socialist and market economies, so on the basis of them alone we have little reason to expect a change in the strength of horizontal linkages. However, under state socialism these social processes promoting horizontal mobility were supplemented by a vertical dimension intrinsically connected to planning. State planners prioritized heavy industry, construction, extraction, and military production over other sectors of the economy: they chronically ignored consumer goods production, services, and agriculture (Gerber, 2002, 2012). Workers in the favored branches enjoyed clear advantages

Table 6.1: Summary of hypotheses

	Pre-transition	**Transition**	**Post-transition**
Power	++	0/+	0
Education	+	+	+
Autonomy	0	0/+	++
Capital	0/+	+	++
Horizontal links	++	+	+

Note: ++ denotes strong positive effect; + weaker positive effect; 0 no effect.

in earnings and other benefits. The inflexibility inherent to the planned economy might have worsened the position of workers in non-prioritized industries. Planning cycles resulted in overinvestment in high-priority industries and projects, which inevitably created shortages that exacerbated competition among industry leaders to gain production resources (Bauer, 1978; Kornai, 1992). The weaker bargaining position of non-prioritized industries intensified the vertical inequalities between workers across horizontal lines. This vertical component of the horizontal dimension is not unknown in market economies, where industries vary in terms of average wages due to a range of political and institutional factors discussed in the 'new structuralism' studies of the late 1970s and early 1980s (see Baron & Bielby, 1980; Baron, 1984). But the principles dictating which industries are privileged and which are penalized differ starkly in state socialist and market systems, and market systems do not have planning cycles and related shortages which catalyze industry differences, so the collapse of socialism led to a rapid re-allocation of labor and resources across industries (Gerber, 2002, 2012). Given that the same industries no longer bore the same levels of advantage or disadvantage under the new institutional regime, the vertical incentives for within-industry intergenerational job transmission most likely diminished following the collapse of socialism, even as the other mechanisms producing excess mobility within horizontal clusters remained intact. Therefore, we hypothesize that the strength of horizontal ties among occupations declines following the collapse of state socialism.

In sum, our theoretical analysis of the institutional changes connected

Table 6.2: Data sources

Survey	Year	Investigator(s)	N
Social mobility and life history survey	1983	Kulcsár & Harcsa	15832
General Social Survey	1986	Kolosi	3039
Social mobility and life history survey	1992	Andorka	10919
Social stratification in Eastern Europe after 1989	1993	Treiman & Szelényi	1850
Way of life and time use survey	2000	Falussy & Harcsa	4231
EU-SILC Hungary	2005	HCSO	5850
Total			**41721**

to market transitions leads us to expect the disappearance of the P effect, stability in the E effect, increases in the A and C effects, and decline (though not disappearance) of the H effects. These hypotheses are summarized in Table 6.1.

6.9 Data and measures

Our data come from six different surveys conducted in Hungary from 1983 to 2005 (Table 6.2), including two from each of three periods: the pre-transition era (pre-1989), the transition era (1989–1998), and the post-transition era (post 1998). We distinguish the transition from the post-transition eras to allow for a gradual (though short) transition from state socialist and market conditions. The reforms quite likely took some time to have consequences for intergenerational occupational mobility, and there is no a priori basis for specifying the precise timing of changes in mobility. Moreover, privatization in Hungary was a long process, marked by political negotiations and delays (Stark, 1994) which might have prolonged the institutional power of former professional and managerial elites, albeit without manifest political authority, allowing them to invest and transmit occupational resources to their offspring.

We restrict our analyses to non-retired respondents who are employed, self-employed, or temporarily out of the labor force (e.g., on maternity

leave). Consistent with recent trends toward disaggregated analyses of occupations, we analyze a 67-category micro-class mobility table. Some of the micro-classes in the original 82-class scheme advocated by Jonsson et al. (2009) were too small or empty and had to be merged with similar small classes. We assign values to each occupation on each of the PEACH dimensions as follows: Power (P) is the percentage of incumbents in occupation who were CP members during the socialist era, Education (E) is the percentage who completed tertiary schooling, Autonomy (A) is the percentage of self-employed in an occupation, Capital (C) is the percentage of incumbents in an occupation with above-median earnings, and the H dimensions are the percentages within the occupation who work in each of the horizontal clusters listed in Figure 6.1.

Origin and destination scores of P were estimated by pooling the answers from the 1986, 1992, and 1993 surveys. We apply period-specific scores for A and C to capture the effects of growing income inequalities across occupational groups and privatization of economic sectors. As the transition period saw educational expansion in the tertiary sector, we used period- and cohort-specific scores for E. Scores for A and E were estimated separately for origins and for destinations. We set the origin scores of C equal to the C scores estimated for the pre-transition era because the incomes of fathers were not measured in the surveys. However, as the measurement of occupational origins relates to the period when the respondent was 14, the late communist period of income measurement of origins corresponds to the majority of the survey. The descriptive statistics and correlations among our vertical dimensions for each of the three periods we analyze are presented in Table 6.3.

Note that the correlations are fairly stable, with the noteworthy exception of the correlation between education and capital: consistent with Nee's market transition theory, occupational education (measured as the proportion of university-educated incumbents) became much more strongly associated with occupational earnings after market transition.

The H scores were estimated from the 1992 dataset which included a detailed industry and branch classification. To prepare our list of horizontal clusters, we started with the list of 'situses' originally proposed by Morris & Murphy (1959) then modified the list in consideration of the industrial-agrarian features of the Hungarian labor market. We then cal-

Table 6.3: Scores for vertical occupation dimensions: descriptive statistics and correlations

(a) Descriptive statistics

	Mean	**S.d.**	**Min**	**Max**
Destinations				
Power	.12	.10	0	.52
Education pre-transition	.23	.31	0	1
Education transition	.34	.32	0	1
Education post-transition	.44	.34	.05	1
Autonomy pre-transition	.03	.06	0	.28
Autonomy transition	.09	.12	0	.61
Autonomy post-transition	.13	.13	0	.75
Capital pre-transition	.55	.28	0	1
Capital transition	.46	.28	0	1
Capital post-transition	.52	.24	0	1
Origins				
Power	.12	.10	0	.52
Education pre-transition	.17	.29	0	1
Education transition	.29	.36	0	1
Education post-transition	.35	.35	0	1
Autonomy pre-transition	.08	.14	0	.90
Autonomy transition	.09	.13	0	.73
Autonomy post-transition	.05	.09	0	.50
Capital	.55	.28	0	1

(b) Correlations

	Education	Power	Autonomy
Pre-Transition			
Power	.50		
Autonomy	−.16	−.20	
Capital	.51	.62	−.02
Transition			
Power	.55		
Autonomy	.00	−.07	
Capital	.58	.58	.18
Post-transition			
Power	.55		
Autonomy	.11	−.04	
Capital	.82	.66	−.04

Note: units of analysis are occupations, unweighted by size.

culated the proportion of incumbents in each occupation in the 1992 survey who worked in each horizontal cluster and assigned that as the score for the corresponding category. The list of period-specific origin and destination scores of vertical PEACH dimensions can be found in Appendix C.

6.10 The estimated PEACH model

For origin occupation i and destination occupation j, our core PEACH model takes the following form:

$$\begin{aligned}\ln(F_{ij}) =& \alpha_i + \beta_j + \gamma_1 P_i P_j + \gamma_2 E_i E_j + \gamma_3 A_i A_j + \gamma_4 C_i C_j \\ &+ \sum \theta_k H_{ik} H_{jk} + \gamma_5 D_{ij} A_i^2 + \gamma_6 D_{ij} C_i^2, \end{aligned} \tag{6.1}$$

where $\ln(F_{ij})$ is the natural logarithm of the cell frequencies, α_i and β_j are, respectively, row and column marginal effects; P, E, A, and C denote the power, education, autonomy, and capital scores of occupations; H_k denote the k horizontal cluster scores; D_i=1 if i=j and 0 otherwise, and the γ and θ parameters are estimated from the data.

Similarly to Hout (1984), we explain relative immobility by scaling the diagonal cells rather than fitting an overall diagonal parameter or multiple diagonal parameters. The independent variables which we designate to explain immobility are Autonomy and Capital. The two scaled diagonal parameters γ_5 and γ_6 indicate that for entering certain occupations, property, specific entrepreneurial experience, or high amount of financial capital is needed, which are likely to be provided by the same occupational origins, leading to higher reproduction in these occupations. While Hout also uses the 'training' dimension as a predictor of immobility, our education dimension captures more general effects of human capital than his 'training' dimension, so we do not use it as predictor of immobility.

Mobility studies of specific countries often identify specific channels of and barriers to mobility that vertical or horizontal dimensions do not adequately capture. Erikson & Goldthorpe (1992) present a solution by applying effect matrices that capture affinities and disaffinities between particular classes. While this is a parsimonious solution, research practice shows that the patterns of affinities and disaffinities are different across countries (cf. Breen, 2004) which leads to adjustments to these matrices

and comparability problems. We take a somewhat different approach, using interactions between particular pairs of our original model terms to capture these channels and barriers. In order to refine our core model, we add the following interactions to Equation (6.1):

Agriculture → Education. This term captures a negative association reflecting well-known rural disadvantages in access to education in Hungary (Simkus & Andorka, 1982). Because they are predominantly located in rural areas, children whose fathers work in agricultural occupations have lower odds of entering occupations requiring higher education than children with non-agrarian origins, ceteris paribus.

Agriculture → Autonomy. Due to agrarian collectivization in the 1960s, which turned agrarian workers—including those whose fathers were self-employed—into employees, it should be particularly difficult for farm-origin respondents to take up occupations with high levels of self-employment. This implies a barrier between agricultural-sector occupations and those with high autonomy, net of the other effects.

Agriculture → Educational sector. This term represents a channel—thus positive association—between agrarian origins and teaching occupations. Pursuing careers as school or nursery teacher was a strategy often followed by agrarian families: in our data 49.2 percent of higher educated female respondents from agrarian origins work as school or nursery teachers, compared to those 42.4 of those from non-agrarian origins. Higher educated male respondents from agrarian origins also prefer teaching occupations: 15.9 percent of them chose such careers, compared to 11.3 percent from non-agrarian family origins. The likely explanation for why this channel exists is geographic vicinity: teacher training institutions in Hungary were better represented in small towns and rural eras compared to other higher education tracks, and educational sector occupational opportunities were greater in rural communities (such as primary school teachers) compared to other occupations requiring higher education.

Education → Educational sector. The offspring of highly-educated fathers (as represented by fathers' incumbency in occupations requiring higher education) are found to be less likely to pursue careers in the education sector, net of the other effects in our model, due to the lower prestige of educational careers compared to other occupations that require higher education.

Agriculture → Construction and Construction → Agriculture. These channels between agrarian and construction occupations reflect the prominence of both types of work in rural labor markets, their shared seasonality, and their typical involvement in the second economy during socialism.

Machine industry → Agriculture. Under socialism heavy industry was favored by planners while the agriculture sector was regularly neglected, explaining the barrier to (downward) mobility from the former to the latter above and beyond the effects captured by the other parameters in the model.

6.11 Results

6.11.1 Comparisons with other models

We first compare the fit of the PEACH model to that of other frequently used models of mobility in order to assess whether it offers the best representation of Hungarian mobility patterns (Table 6.4). Data were pooled across periods and weights were applied to equalize the effective sample size for each period. Our preferred measure of fit is the BIC statistic (Raftery, 1995) which is typically used to compare the fit of non-nested models.

Although it hardly merits mention, we follow the convention in mobility studies by noting that the independence model (1) fits the data poorly: occupational origins and destinations are associated in Hungary, as they are in every mobility table ever analyzed. Models (2) through (4) are versions of the RCII association model first developed by Goodman (1979b): in these models, a single dimension of row and column scores, constrained so that the row score of an occupation equals its column score, is estimated from data in order to optimize the fit of the model, and the association between origins and destinations is parameterized with a single parameter. Excess densities in the diagonal cells are captured in (2) using topological diagonal terms that map the occupation categories into the larger, widely-used EGP class categories developed by Erikson et al. (1979), in (3) by unique diagonal cell parameters for each occupation, and in (4) by both EGP-class immobility and unique diagonal cell parameters. Consistent with Jonsson et al. (2009) occupation-specific diagonal parameters provide a substantially better fit according to BIC, despite the much greater parsi-

mony of the EGP diagonal specification: immobility is better characterized as within-occupation than within-class. In our data, after accounting for micro-class mobility we obtain a poorer model according to BIC when we add EGP class immobility.

Models (5)-(7) are similar to models tested by Jonsson et al. (2009): they scale occupations by socio-economic status (a linear composite of occupational education and occupational earnings) and specify immobility (in parallel fashion to the RCII models) using EGP classes (5), micro-class diagonal parameters (6), and the two combined (7). The Hungarian data follow the same patterns found by Jonsson et al. for the United States, Sweden, Germany, and Japan: most immobility occurs at the within-micro-class level, but there is also some excess within-EGP-class movement net of micro-class immobility, because model (7) fits better than model (5). However, all of these models fit substantially worse than the RCII models. This is not surprising, because the RCII models scale the occupations in such a way as to optimize the fit of the model rather than impose an a priori scale (SES) on them. A single SES dimension is unlikely to fully capture how occupations are vertically arrayed.

Next we consider two popular theoretically based models of mobility: (8) the Core Social Fluidity (or CASMIN) model (Erikson & Goldthorpe, 1992) and (9) Hout's SAT model (Hout, 1984). It is worth noting that CASMIN fits better than SAT and also better than the optimal Jonsson et al. model, despite its reliance on the aggregated EGP classes rather than detailed micro-classes to capture mobility patterns.

Model (10) includes only the vertical effects from our PEACH model, and model (11) adds the horizontal effects. Clearly, the horizontal effects are key components of the model, as they substantially improve its fit. Our core PEACH model (11) fits the data better than either CASMIN or SAT, and also better than the Jonsson et al. models. It appears, therefore, that our vertical and horizontal dimensions capture Hungarian mobility patterns more effectively than conventional theoretically-based mobility models. Moreover, the core PEACH model also out-performs the quasi-RC II model with EGP diagonal effects.

When we add the parameters capturing particular channels and barriers to the core PEACH effects (model 12), we obtain a better model than the best alternative, the quasi-RC II model with micro-class diagonal pa-

Table 6.4: Fit statistics for alternative models

	Model specification	L^2	**df**	**BIC**	**p**	**D**
1	Null	16246	4356	-30101	.000	42.9
2	Equal-Quasi RCII EGP diagonal	7567	4278	-37950	.000	26.8
3	Equal-Quasi RCII micro-class diagonal	6203	4223	-38729	.000	23.6
4	Equal-Quasi RCII micro-class and EGP diagonals	6132	4215	-38715	.000	23.5
5	Linear-by-linear SES EGP diagonal	11457	4343	-34752	.000	36
6	Linear-by-linear SES micro-class diagonal	10226	4288	-35398	.000	32.9
7	Linear-by-linear SES micro-class and EGP diagonals	9923	4280	-35615	.000	32.3
8	Core Social Fluidity model	9571	4348	-36691	.000	31.2
9	SAT model	9921	4351	-36373	.000	32.6
10	PEAC model	9556	4350	-36727	.000	33.4
11	PEACH model	7851	4333	-38252	.000	29.4
12	PEACH model + channels/barriers	7132	4326	-38896	.000	27.4

Notes: Models 1–12 are estimated on pooled data sets listed in Table 6.2, weighted in order to equalize effective sample size across periods, N= 41721.

rameters (3). Thus, our expanded PEACH model out-performs a model that scales occupations in order to optimize fit (albeit along a single dimension and constraining row and column scores to be equal) and also explicitly fits excess immobility in every cell along the diagonal (when the PEACH model uses only two parameters to capture excess micro-class immobility). To be sure some of our 'channels and barriers' emerged after inspection of the residuals from the core PEACH model. However, partially data-driven affinity parameters are also features of other theoretically derived mobility models, such as CASMIN and SAT. Most importantly, the core PEACH model fit better than the other theoretically derived models, and the extended model is far less tailored to the data at hand than the RC II models are by their very nature (because they estimate all the occupational scores from the data rather than derive them from theoretical principles). By any reasonable standard, our PEACH model does the best job representing intergenerational micro-class mobility in Hungary.

6.11.2 Gender, period, and cohort differences

We next test for gender differences in the associations represented by the PEACH model and whether there is period variation and to what extent apparent period variation is driven by cohort replacement (Table 6.5). Jonsson et al. (2009) suggest that associations in the father-daughter micro-class table are weaker than in the father-son table because the resources of fathers convert less efficiently to the occupational outcomes of daughters than to those of sons due to gendered occupational socialization.[6] Wong & Hauser (1992) analyses in Hungary, however, suggest a more complex pattern of father-daughter association: in the 1980s women are less likely than men to inherit their father's occupational class, while their movements into other occupational classes are more strongly determined by origins. In sum, earlier research suggests that is important to test separately for gender differences in immobility and mobility separately.

[6] A more informative solution, which controls for differential sex role socialization to occupations, would be to analyze a mother-father-offspring three-way table (Beller, 2009). This is however not viable for micro-class mobility, as it would result in a table with 67^3 cells, rendering the overwhelming majority of cells empty even in datasets within extremely large number of cases. We therefore restrict our analyses to the less satisfactory but still informative solution of analyzing gender differences in the father-offspring tables.

Accordingly, we test alternative specifications of gender differences in the diagonal and main vertical effects in our model. We specify the following models: (A) no gender differences in the vertical parameters of the PEACH model; (B) a single uniform gender difference across all vertical effects; (C) uniform gender difference in immobility (measured by the scaled diagonal parameters) and uniform gender difference in vertical mobility (measured by the vertical association parameters); (D) uniform difference only on the scaled diagonal association parameters, implying gender differences in the strength of occupational reproduction but not in the scaled association pertaining also to off-diagonal cells; and (E) different vertical parameters by gender (that is allowing for different patterns of mobility by gender). We also tested uniform and heterogeneous gender differences in horizontal effects (F and G) and in specific channels-barriers (H and I) using the optimal specification of gender differences in vertical effects as a baseline.

With respect to the vertical components, the uniform difference on the scaled diagonal effects (D, Table 6.5) is the optimal specification. Although it barely differs from that of the model with uniform difference on all parameters (B), the inferior fit of the model with different unidiff parameters for the scaled main and diagonal parameters (C) indicates that the gender differences in association are most associated with barriers to father-daughter occupational inheritance, consistent with D. Fully heterogeneous vertical parameters by gender (E) fit marginally worse than model (A). Using (D) as a baseline, incorporating either uniform (F) or heterogeneous (G) gender differences in the horizontal parameters leads to inferior models according to BIC, thus we can rule out variation in horizontal effects by gender.

However, we did find evidence for gender-specific patterns in the particular channels and barriers we used to expand our core PEACH model: model (I) is our optimal model.

We tested a series of models for change across periods in the horizontal and vertical effects. Our preferred specification of change in the horizontal effects is a single unidiff parameter implying a proportional change in the H parameters during the Transition period but no change from Transition to Post-Transition (P2, Table 6.5). This model's BIC is better than the model with no change in horizontal effects by period (results not shown),

Table 6.5: Fit statistics for specifications of gender, period, and cohort effects

	Model specification	L^2	df	BIC	p	D
Gender differences						
A	No differences (vertical, horizontal, channels/barriers)	11170	8748	-81917	.000	33
B	*A* with unidiff (vertical)	11140	8747	-81936	.000	33
C	*A* with unidiff diagonal and off-diagonal (vertical)	11136	8747	-81940	.000	32.9
D	*A* with unidiff diagonal (vertical)	11127	8746	-81939	.000	32.9
E	*A* with heterogeneous differences (vertical)	11104	8742	-81919	.000	32.7
F	*D* with unidiff (horizontal)	11133	8746	-81932	.000	32.9
G	*D* with heterogeneous diff (horizontal)	11065	8730	-81831	.000	32.8
H	*F* with unidiff (channels/barriers)	11135	8746	-81931	.000	32.9
I	*F* with heterogeneous diff (channels/barriers)	11037	8740	-81964	.000	32.5
Period differences						
P1	Heterogeneous (vertical, horizontal, channels/barriers)	14031	12978	-124081	.000	35.4
P2	P1 with transition unidiff (horizontal)	14089	13011	-124373	.000	35.7
P3	P2 with no difference (vertical)	14168	13023	-124422	.000	35.8
P4	P2 with transition model (vertical)	14111	13018	-124426	.000	35.7
Period and cohort differences						
PC1	Period differences	21128	30436	-300640	.999	42.8
PC2	Cohort differences	21174	30436	-300595	.999	42.9
PC3	Full period/cohort differences	21085	30410	-300409	.999	42.6
PC4	PC2 with period differences for middle cohort	21072	30384	-300147	.999	42.6

Notes: **Models A-I** include gender-specific marginal destination effects and gender-common marginal origin effects. Gender-specific marginal origin effects did not differ by gender. **Models P1-P4** are estimated with period-specific origin and destination marginals. Model P4 vertical effects are specified as follows. P: transition effect, A: no effect before transition, C: linear change over period; E: no period change. **Models PC1-PC4** are estimated on with period-cohort specific marginals. The satisfactory model fit is due to the large degrees of freedom relative to the (reduced) sample size. Education cohort and/or period differences are constrained to zero, and horizontal effects are constrained to unidiff change over period and/or cohort.

and also outperforms the heterogeneous period effects model as well (P1, Table 6.5). Therefore, we incorporate a parameter for unidiff change in horizontal effects in our final model specification. The model of no change in the vertical parameters (P3) fits better than the model with unique period effect for each vertical parameter (P2). However, our hypotheses imply changes in only a subset of vertical parameters, so free estimation of each parameter in each period is not warranted. We specified a more parsimonious model including only the changes we hypothesized (P4). This model includes a one-time 'transition effect' (change in the Transition period but stability from Transition to Post-transition) on the Power dimension, no change for the Education, no effects for Autonomy before the transition but unique effects during the transition and pre-transition, and linear change on the two Capital parameters. This specification outperforms both the heterogeneous vertical effects (P2) and no change models (not shown), providing evidence that the parameters governing occupational mobility did change in Hungary after the collapse of socialism. Below we present the parameters from this optimal specification (Table 6.6) and interpret them in terms of our hypotheses.

However, before analyzing the period-based changes, we first need to consider whether the apparent period effects actually represent a cohort-replacement. To do so, we defined three cohorts: one born 1940–49 that was fully observed only in the first two periods (because most reached the retirement age of 62 during the Post-transition period), one born 1950–1959 that was observed in all three periods (because they turned 25 in 1984 at the latest and 62 in 2012 at the earliest), and one born 1960–1969 that was observed mainly in the last two because they mostly turned 25 after 1989. Cross classifying these three cohorts by periods and blocking out the two cells with few observations due to the exits of the first cohort and the entries of the last yields seven origin-by-destination tables: two tables for each of the youngest and oldest cohorts and three for the middle cohort. The last four models in Table 6.5 show the fit statistics for alternative specifications of the changes over time applied to these tables, estimated with cohort-specific scores. Because it is not possible to map some of the period changes onto cohorts, we analyzed heterogeneous period or cohort change on all parameters aside from education (held constant) and horizontal components (modeled with uniform period and/or

cohort differences.)

If what looks like period change is merely cohort replacement, then a model allowing variation in parameters by period only should fit worse than a model allowing variation by cohort only (Gerber & Hout, 2004). In fact, the period specification of change (PC1) fits better than the cohort specification of change (PC2). Moreover, the period specification also fits better than a model allowing full variation by both period and cohort (PC3), and one where all the period change is concentrated in the middle cohort (PC4). The superior fit of the period change model indicates that the change over time follows a period pattern consistent with our arguments regarding the effects of the collapse of state socialism on intergenerational mobility and that, in effect, the changes affect all age groups in the same fashion: there is, therefore, no need to introduce the complicating factor of cohort variation.

6.11.3 Parameter estimates: testing our hypotheses

We examine the period-specific parameter estimates from our preferred model to assess our hypotheses about mobility in Hungary during and after state socialism (Table 6.6). Consistent with our expectations, the power dimension played a strong independent role in shaping intergenerational occupational transmission under state socialism, and that role disappeared with the collapse of the state socialist system. Also consistent with our expectations, the influence of the education dimension proved remarkably stable in Hungary across the three periods.[7]

With respect to the autonomy dimension, we expected no effect before transition and an increase in the late period of the transition. The association parameters of autonomy are indeed not significant before transition.[8] Support for our hypothesized increase in the role of autonomy

[7]The fit of the model specified with period change on the Education dimension is worse than our preferred period-change model (P4 in Table 6.5) which specifies no change (ΔBIC = +13, ΔL^2 = 8, Δdf = 2), which supports our claim of stability in the Education dimension across periods.

[8]We tested this claim explicitly by allowing pre-transition Autonomy effects to be estimated freely. However, this model fits worse than our preferred period-change model (P4 in Table 6.5) which has zero constraints on the pre-transition Autonomy effects (ΔBIC = +21, ΔL^2 = 0.1, Δdf = 2), supporting our hypothesis that there was no Autonomy-effect prior to transition.

in shaping occupational transmission is somewhat more mixed: the overall association parameter of A is only significant during the Transition period, and its effect for inheritance (diagonal effect) is significant only for Post-transition. Thus, although autonomy did indeed become a more salient basis for micro-class transmission following the collapse of state socialism, it first had a general influence, then acquired a more specific effect in shaping immobility. We are reluctant to speculate on why the increase in the role of autonomy unfolded in this particular fashion, but it is broadly consistent with our expectations.

Capital played a greater role in intergenerational mobility during state socialism than we expected: in particular, capital had a positive and significant effect on immobility during the socialist period. The magnitude of the capital effect on immobility did not increase, though, in conjunction with Hungary's transition to the market. Also consistent with our view that state socialism exhibited distinctive mobility patterns, the effect of capital on mobility between occupations was actually negative during the socialist era, implying that net of the other effects the children of fathers in low-income occupations were more likely to end up in higher-income occupations, and vice-versa. This suggests that policies discriminating against pre-Communist elites in occupational allocation were at least partly effective (after controlling for occupational education). This negative effect, in turn, diminished after the collapse of socialism (the contrast implied from the model for the transition period: $b = -.16$, $p > .05$) and by late-transition was superseded by a positive, though, non-significant capital effect ($b = .18$, $p > .05$). Thus, in post-socialist Hungary the influence of capital is felt mainly in occupational inheritance, but as the significant increase on the main scaled effect shows, was emerging for mobility between occupations.

Sixteen of the 17 horizontal clusters of occupations have significant and positive effects on micro-class mobility: that is, mobility between occupations is higher to the extent that they score similarly high on the likelihood of being found in the same horizontal cluster. As we hypothesized, the magnitude of these horizontal effects declined (by roughly 13%, given the unidiff parameter value of .87 for the transition and post-transition eras). Thus, Gerber's arguments about the importance of structural change for understanding earnings and job mobility in Russia's market transition (Gerber, 2002, 2012) appear to be relevant for understanding changes in intergen-

Table 6.6: Parameter estimates from the PEACH model

	estimate	s.e.
Vertical effects		
Power pre-transition	10.43***	1.57
Power transition-post-transition	−1.14	.84
Education	4.18***	.10
Autonomy transition	1.87***	.48
Autonomy post-transition	.11	1.30
Autonomy diagonal transition	−.53	.63
Autonomy diagonal post-transition	5.15*	2.10
Capital pre-transition	−.50***	.14
Capital, linear change	.34***	.09
Capital diagonal pre-transition	.41***	.04
Capital diagonal, linear change	.03	.03
Female UNIDIFF diagonal	.48***	.07
Horizontal effects		
Transition UNIDIFF multiplier	.87***	.05
Mining	2.10***	.35
Machine industry	2.88***	.40
Chemical industry	8.85***	1.57
Light industry	.54**	.17
Food industry	1.66**	.53
Construction	2.12***	.30
Agriculture	2.20***	.11
Forestry	5.27***	.59
Transport	1.14***	.20
Trade	1.05***	.24
Personal service	2.18***	.45
Health services	1.99***	.30
Educational services	.50***	.15
Cultural services	8.48***	1.21
Administration	−.50	.66
Law & police	3.14**	1.20
Public service	3.80***	.50

Notes: The model is estimated on pooled data sets listed in Table 6.2, and includes period- and gender-specific marginals, and period and gender specific channels and barriers (estimates listed in Appendix D). Datasets weighted in order to equalize effective sample size across periods. A small constant (.001) was added to avoid empty cells. L^2= 21377, df= 26262. Errors are asymptotic standard errors. * =p < .05, ** = p < .01, *** = p < .001 (2-sided)

erational occupational mobility as well.

As noted above, our preferred model includes a uniform gender effect on the strength of the vertical effects on immobility, as well as non-uniform gender differences in the 'channels and barriers' parameters. The effects of autonomy and capital on occupational inheritance are markedly weaker for daughters than for sons, with a undiff parameter of .48.

Although we view the channels and barriers (see estimates in Appendix D) as country-specific parameters of lower theoretical interest, we nonetheless note here several interesting gender differences that make intuitive sense. Daughters of fathers in agricultural occupations have elevated mobility into education sector occupations, while sons of such fathers have elevated mobility into construction and lower mobility into high-autonomy occupations. But daughters of construction workers are more likely to enter agricultural occupations. In the socialist era, sons of workers in machine industry (heavily favored by state planners) had exceedingly low rates of mobility into agricultural occupations, and this barrier diminished with the passage to a market system.

6.12 Discussion

Overall, our empirical results support our hypotheses. Most importantly, we find strong evidence that political power was a signature dimension of intergenerational occupational mobility under state socialism that rapidly disappeared when Hungary made its transition to the market. This confirms our argument that state socialism exhibited a distinctive, institutionally-based mechanism of occupational transmission across generations that is not adequately captured by prior mobility models developed to study market based societies. Also confirming expectations, we find that under market conditions the capital and autonomy dimensions became more salient in shaping intergenerational occupational mobility and inheritance than under state socialism. Horizontal, industry-based, differentiation in intergenerational mobility was found to be stronger prior to market transition, relating to the distinctly high privileges some sectors enjoyed in the planned economy of state socialism.

In broad terms, our results show that national political and economic institutions decisively shape intergenerational occupational transmission.

Mobility researchers have tended to look for common patterns that characterize mobility in all industrialized societies (Breen, 2004; Erikson & Goldthorpe, 1992; Ishida et al., 1995; Jonsson et al., 2009), seeking variation in the magnitude of intergenerational occupational inheritance and mobility rather than in the mechanisms that govern the associations between parents' and children's occupations. Our findings from Hungary suggest that comparative mobility researchers should reconsider the possibility that national institutions dictate distinct patterns of mobility.

Market transition may be an extreme case that is uniquely suited for identifying distinctive institution-based mobility regimes. It remains to be seen, of course, whether our findings from Hungary pertain to other former state socialist countries that have undergone market transition. Hungary is usually touted as an economic and democratic success story among transitioning countries, and as such it may be especially likely to exhibit the disappearance of political capital as a dimension of occupational mobility. It could be that in more authoritarian state socialist societies which introduced fewer economic reforms in the 1970s and 1980s Communist Party membership has a longer lasting effect than in Hungary. China would be a particularly interesting test case, because in contrast to all other transition countries aside from Vietnam it has introduced sweeping market reforms without abandoning the leading role of the Communist Party (Walder & Hu, 2009). Accordingly, we might expect political power to continue to operate as a dimension governing intergenerational occupational mobility in China even under market conditions. In any event, our approach can be readily applied in mobility studies of other transition countries, and ultimately our model's applicability to other contexts is an empirical question that can only be resolved with further research.

Apart from market transition countries, mobility researchers may be able to identify other national economic and political institutions that could produce variations in the patterning of intergenerational occupation transmission, such as the extent of formal credentialing within labor markets, the relative strength of between- and within-occupation earnings differences, the rates of unionization and the development of formal institutions at the occupational level, and the degree to which industries vary in terms of wages and other benefits. In some cases, political or religious institutions can intervene with the intergenerational transmission.

For example, in rigid caste systems the proportion of incumbents in certain occupations that come from specific castes may be an operative dimension of occupational inheritance and mobility. In highly racialized societies the racial composition of occupations might play a role similar to that of Communist Party membership in our analysis. We believe it would be a fruitful development for mobility research to go beyond perennial debates about the extent to which societies vary in their overall levels of 'openness' and start to look for systematic, theoretically coherent variations in patterns and mechanisms that shape how parents' occupations are linked to those of their children.

Such efforts will be facilitated by the adoption of a micro-class approach to the study of mobility tables. The broader substantive justifications for taking the micro-class perspective instead of using EGP classes or some other big class schema that focus on the degree to which common identities, practices, and rewards emerge and are institutionally reproduced around occupations rather than more aggregate class categories are also relevant when it comes to intergenerational mobility (Jonsson et al., 2009). But expanding the number of occupational categories also increases the degrees of freedom available for identifying multiple dimensions of occupational inheritance. Given the increasing availability of the large data sets necessary to provide the statistical power for the full exploitation of the additional degrees of freedom, there is less reason to insist on using aggregated class categories.

Recently sociologists have re-invigorated Max Weber's original notion of 'status' as an alternative basis to socioeconomic 'class' in occupational stratification (Chan & Goldthorpe, 2007). Our study of Hungary can be seen as an effort to incorporate the third component of Weber's classic triumvirate of dimensions of inequality in his essay, "Class, Status, and Party." Although political power may be linked less to occupations in developed market societies, state socialism represented a stratification regime in which the life chances linked to a particular occupation were closely linked to its political importance, which we conceptualize as the political power associated with occupations and measure as its degree of Communist Party saturation. Thus, our study continues in the tradition of returning to overlooked features of classic accounts of social stratification in developed societies.

Chapter 7

Conclusions

7.1 Introduction

Hungary has enjoyed substantial interest from social mobility researchers in the past. The major political and economic transitions during the country's history have inspired sociologists to study the impact on social openness of institutional transformations. I have tried in this book to contribute to that effort by studying social mobility in Hungary, focusing on two major transitions that have received less attention in previous studies. The first transition is the early economic and social modernization period during the late 19th and early 20th centuries before the communist takeover in 1950. Early modernization is interesting for social stratification research because several theoretical mechanisms connect societal developments during the period as class-based inequalities in life chances changed, although given the absence of data in Hungary only the final few decades of the period could be studied. For the current research project we gathered a large-scale mobility dataset which has allowed us to study social mobility in Hungary during the second part of the 19th century. The Hungarian Historical Social Mobility File (Lippényi et al., 2013b) is a contribution to the growing body of micro-data on historical populations, and we hope it will be of good use for future research as well.

The second transition during which we analyzed social mobility was the transformation of state socialist Hungary to a market economy in the early 1990s. Studying stratification processes in periods such as the market transition is interesting for stratification sociologists as it can reveal how

changing economic and political institutions re-shape the mechanisms of intergenerational social inequality.

In my introduction I formulated three research puzzles related to these transitions, which this book has aimed to solve. In this final chapter I shall look at how we cracked all three of those puzzles, and I shall draw general theoretical conclusions, and indicate possibilities for future research.

7.2 The first puzzle

According to social historical and sociological accounts, the social structure of Hungary was extremely rigid in the 19th and early 20th centuries despite its early modernization. The first research puzzle was the unexpected findings of previous studies that suggested that social openness was increasing in Hungary long before communist restructuring. In Chapter 3 we used a newly gathered historical dataset and investigated long-term mobility trends for a period before the era of survey data. The main finding was that Hungary became more open in the period 1865–1950. The occupational structure opened up because of a decreasing propensity for social classes to reproduce their own class positions in succeeding generations. However, we did not witness increasing equality among those who were mobile from their class origins in reaching different class destinations. In fact, the results suggest that some class barriers to mobility, mainly those involving greater mobility steps across the class hierarchy, became slightly stronger before 1905. The 'opening up' of early modernizing Hungary thus occurred in 'small steps'. The tendency to social mobility increased for all classes, but mobility exchange took place primarily between those in the class hierarchy that were similarly resourceful.

7.3 The second puzzle

Explaining social fluidity patterns during early modernization raises the second puzzle. The two explanations used most often in mobility research for the increase in social fluidity, the expansion of tertiary-level educational opportunities and large-scale welfare state interventions pertain to the recent history of developed countries (Breen & Jonsson, 2007; DiPrete & Grusky, 1990). But which social or economic factors can explain the

decline in social rigidities in the period of late 19th and early 20th century modernization in Hungary? In Chapters 4 and 5 we looked for answers for that question. In Chapter 4, based on the theory of industrialization (Treiman, 1970) we tested a number of macro-level mechanisms in different municipal contexts which are thought to be responsible for the declining of origin-class based social rigidities in class mobility. We found that industrialized labor markets were associated with consistently greater relative social mobility among occupational classes. In industrial municipal labor market contexts in Hungary, sons inherited their fathers' occupational classes to a lesser extent than in agrarian labor market contexts. We found less convincing evidence to suggest that social fluidity was any greater in municipal contexts with better educational and transport opportunities or greater population size. However, modernization processes taken together explained a considerable amount of the variation in social class rigidities among the industrial and lower non-manual classes, which were in the middle of the Hungarian class hierarchy. Thus, in economically and socially more modern contexts in Hungary, sons were more likely to leave those origins and sons from agrarian or higher non-manual origins entered them more frequently than they had done in less modern contexts. Modernization, however, did not lead to an opening-up of the professional, managerial and agrarian occupational classes, or only to a modest extent, and for men from the lower social classes it did not result in any easier access to the higher ones. Early modernization in Hungary thus created opportunities predominantly for pathways of mobility toward the lower-middle levels of society.

In Chapter 5 I investigated the relation between migration, urbanization and social fluidity. In line with theoretical expectations, it emerged that migration was a path towards greater equality of mobility chances as migrants left their class origins more often than non-migrants did, and long-distance migrants and migrants to urban destinations were the most successful in leaving their social origins. I found less support for the hypothesis that cities provide greater equality in mobility chances, and social class inheritance in urban populations showed no marked difference from rural ones. To solve the research puzzle I investigated to what extent temporal differences in class inheritance and mobility can be explained by migration and urbanization. Increasing urbanization and migration flows

explained the temporal decline of class inheritance only among the low non-manual classes and the non-agrarian working class, but did not explain changes in agrarian and high non-manual class inheritance, nor in inequalities in mobility between classes. My findings were in accordance with the patterns found in Chapters 3 and 4, and show that the modernization processes 'opened up' mobility paths primarily to the middle ranks of the class hierarchy.

7.4 Modernization and the 'open society': general conclusions

The occupational class inheritance which had dominated class attainment among Hungarians in the second half of the 19th century decreased between the 1860s and the 1950s, supporting the modernization theory (Landes, 1969; Parsons, 1967) which predicts a gradual increase in the openness of occupational structure. Our findings imply a transition toward greater equality in occupational resources, such as occupational training, educational qualifications or access to information about the job market in Hungary. It might also suggest that Hungarians experienced more freedom from the constraints of their social origins on occupational choices, and more 'universalistic' occupational hiring criteria among employers. Modernization theory, however, comes up short in explaining why inequality of opportunity increased temporarily among mobile men during the first industrial transformation of the Hungarian economy at the turn of the 19th to the 20th centuries. Could that lend support to those suggesting that there are no long-term trends just fluctuations in social openness (Erikson & Goldthorpe, 1992; Sorokin, 1959 [1927])? Indeed, other studies of social mobility during economic development periods—although most of them were conducted on 20th century mobility patterns—found stability in social fluidity (Ishida et al., 1991; Ishida, 2001; Van Leeuwen & Maas, 1997; Ringdal, 1994) and some even found a slight increase in social rigidity (Fukumoto & Grusky, 1993). However, the findings laid out in this book support a different interpretation. In Hungary social rigidities declined in the long term, but that decline was interrupted by the period of increasing social rigidity affecting mobile men in entry to higher classes during

the rapid economic transition at the end of the 19th century. That 'intermezzo' of increasing social rigidity in Hungary was most likely staged by the more resourceful classes, who successfully adapted to the challenges of a new economy and exploited the opportunities emerging from it. As their classes benefitted the most from emerging opportunities in terms of resources, it helped them to nullify competition from other classes and to secure advantageous class positions for their own children. Earlier findings of large inequalities in income (Andorka, 1980) and educational opportunities (Simkus & Andorka, 1982) in Hungary are consistent with that interpretation, as is the finding that the social reproduction of higher professionals and managers did not change over time, and saw no decrease through increasing educational opportunities, transport, urbanization or migration. Those results lend support to status maintenance theories of higher-class status reproduction (Bourdieu & Passeron, 1990; Collins, 1979) and might also point to closure mechanisms in prestigious and higher-income professional occupations (Grusky & Weeden, 2001; Weeden, 2002).

While the same time as the channels of social mobility to the higher classes remained narrow, social fluidity among the lower classes in Hungary was increasing. The middle ranks of society, lower non-manual and industrial working classes provided increasingly equal access to entrants from other classes. Modernization processes fostered that, since in more industrial contexts the lower non-manual and industrial working classes were more 'open', and better education and transport contributed to a decrease in rigidity in accessing those classes. These findings lend support to the 'theory of industrialization' (Treiman, 1970), although the prediction that urban growth is related to greater fluidity has not been supported. I found that the social rigidities in class reproduction among the middle ranks of society declined also as migration increased. Migration proved to be a channel for social mobility for the lower classes to leave their class origins, and long-distance migration even decreased hierarchical barriers to mobility among socially mobile men, findings which are congruent with parental resource- and human capital-based perspectives of migration (Borjas, 1992; Breen & Jonsson, 2007; Chiswick, 1999; Sjaastad, 1962). These findings challenge the historical narrative which says that early-modernization migration and urbanization was merely a vehicle for the social reproduction of the disadvantages of the proletariat

(Thernstrom, 1973). However, modernization processes had no effect on the higher classes and barely influenced 'mobility distances' for those who were mobile from their class origins, suggesting that modernization did not create 'boundless' opportunity to access higher classes (Landes, 1969).

In Hungary the transition toward a more open society during early modernization occurred by 'small steps' which eventually contributed to the creation of more equal chances of mobility. It is a question whether the mobility patterns seen in Hungary during the late 19th and 20th centuries are comparable to what was going on in other countries. While some other countries, such as Britain or the USA saw increasing social fluidity in the late 19th century (Lambert et al., 2007; Long & Ferrie, 2005; Miles, 1994), they would probably make for inferior comparisons because by then they were already much more industrialized than Hungary was. Research on historical patterns of mobility in Sweden, which was another late-industrializing country, has produced results very similar to those we found in this study (Maas & Van Leeuwen, 2002): as in Hungary, inequalities in mobility to higher class destinations increased in Sweden while the country was industrializing, while at the same time class inheritance declined. Might it have been that the more rapid late-industrialization of Hungary and Sweden induced greater social inequalities than the slower industrialization processes seen in some other countries? It is an interesting future research question to find out how far the development of social openness in late-industrializing countries is unique, or resembles the social mobility patterns of earlier industrialized countries.

7.5 The third puzzle

Large political transitions lead to fundamental changes in the societal institutions that govern stratification outcomes, and that creates a new puzzle for intergenerational mobility research. That is, to what extent did transitions such as the institutional retreat from socialism re-shape the mechanisms governing intergenerational occupational mobility? In Chapter 6 there was no investigation of the change in social openness during market transition in Hungary, which has already been looked at in earlier studies (Bukodi & Goldthorpe, 2009; Róbert & Bukodi, 2004b). We examined instead how occupational mobility operates differently under socialism and

market regimes, and to do so we proposed a theoretical model of social mobility in market-transitioning societies. Our PEACH model specified four vertical dimensions of occupational resources—power, education, autonomy, and capital—plus a horizontal dimension consisting of linkages among occupations in the same economic branch.

Given the nature of state socialist political and economic institutions, we expected to see that power had much stronger effects on intergenerational occupation in the socialist mobility regime while, based on market transition theory (Cao & Nee, 2000; Nee, 1989), autonomy and capital should play greater stratifying roles after the market transition. We expected also that the strength of horizontal linkages would diminish with market reforms, but would not disappear altogether. The results confirm our hypotheses. Most importantly, we found strong evidence that political power was one important dimension of intergenerational occupational mobility under state socialism that rapidly disappeared when Hungary made its transition to the market, confirming our argument that state socialism exhibited a distinctive, institutionally based mechanism of occupational transmission across generations that is not adequately captured by the mobility models previously developed for the study of market-based societies. The model we developed to assess the generalizability of our propositions can be applied just as readily to intergenerational mobility in other communist or post-communist countries. Indeed China is an obvious and very interesting case for future research, as market reforms there have not been accompanied by political democratization as they were in Hungary, which leads to the expectation that power has remained more significant in China than it did in Hungary (cf. Li & Walder, 2001; Walder & Hu, 2009).

7.6 Future challenges: historical 'big data'

In order to study historical periods before the era of social surveys we relied on a large-scale historical mobility dataset collected for the purpose of this study. Historical micro-datasets have in common with modern day 'big data' generated through the World Wide Web the fact that they give us 'a little about plenty'. Information is available about a great many individuals, but that information is 'thin' by the standards of social surveys of the characteristics of each individual. It is desirable to have a

broad array of measurements at the level of individuals to help distinguish different mechanisms of class attainment—most importantly education, income or property ownership—but historical data usually does not include such information. Even though that can be partially remedied by linking individual-level observations for specific parts of the population, when one uses historical micro-data, detailed individual information is usually traded for variation in temporal and social contexts. In my opinion, the price of greater contextual variation is worth paying, because social-historical contexts provide interesting new insights into how different social economic and political institutional settings shape social inequalities. I hope that the studies reported in this book have convinced the reader on the point.

A useful way of enriching marriage register data is to link the registers with different vital registers of other information, (see for instance the Historical Sample of the Netherlands Mandemakers, 2000). While information taken from marriage acts alone can be used to study other phenomena such as homogamy or homophily, multiple measurements of occupations over a lifetime are essential to the research of stratification outcomes, such as intra-generational occupational mobility (Schulz, 2013). Multiple measurements give a much finer-grained picture of lifetime migratory behavior than is possible from a single measurement. An interesting new way to study development of mobility processes is to use data on siblings (Knigge et al., forthcoming).

The peculiarity of historical marriage records as a data source for social mobility studies raises some good questions about data quality and comparability, some of which concerns were addressed in Chapter 2. As marriage in 'our' period was close to universal in Hungary, I suspect that the Hungarian Historical Social Mobility File represents practically the total population. The missing occupations of fathers in marriage records are frequently cited as a source of bias (Delger & Kok, 1998) but I did not find that to be so in these data. The amount of detail on occupations in the gathered data was found to be high throughout the period investigated to grant successful classification of occupations, and I did not find temporal patterns of age at marriage causing bias in our results. Moreover, using available external statistical sources I found that the dataset gives a reliable account of the extent of migration. All the same, there were some questions which it was simply impossible to address empirically, and

one of those was the matter of the validity of the measurement of modernization indicators in Chapter 4. Incidentally, those values were partly estimated from the Hungarian Historical Social Mobility File. While some indicators, such as population size and the proportion of population in non-agrarian occupations are often used in historical studies as measurements of industrialization, the indicators of opportunities for education or the availability of transport are novel and their validity should be tested using other indicators.[1] Such improvements will require additional efforts in data collection that would have exceeded the resources and objectives of this research project, but they are definitely worthwhile subjects for future research.

7.7 Future challenges: class analyses

Chapter 6 adopted a micro-class approach to the study of intergenerational mobility. Expanding the number of occupational categories increases the degree of freedom available for identifying multiple dimensions of occupational inheritance and, given the accumulation of historical occupational data, disaggregated class analyses can provide new possibilities for the study of social mobility in historical periods. There is an ongoing debate in mobility research whether intergenerational inequalities are better captured at the occupational or micro-class level instead of at the level of big classes (Erikson et al., 2012; Jonsson et al., 2009). Particularly interesting for this debate is to assess how mobility develops historically among different occupations that together form macro-classes, and to explore how far macro-class inheritance and mobility patterns are driven by compositional changes in larger classes (see Jonsson et al., 2009 for a study on contemporary intergenerational micro-class mobility). Over-time changes in micro-class versus macro-class mobility have rarely been investigated (with the exeption of Jonsson et al., 2008) and analyzing intergenerational mobility between smaller occupational groups in different historical periods not only provides a more detailed understanding of how mechanisms of social fluidity change over time, but it could well provide insights into other questions, such as the economic and historical aspects of class-formation (Goldthorpe

[1] The collection of alternative measures of historical municipal modernization in Hungary is a work in progress.

& McKnight, 2006). At present, such a micro-class scheme does not exist for historical research, and its development and cross-national validation is a prospect that should bear fruit in future research.

7.8 Concluding remarks

In this book, I have presented research on the development of social mobility during historical transitions in both the very recent and more remote past in Hungary and addressed three unsolved research puzzles about social openness. This research project has further contributed the Hungarian Historical Social Mobility File, a new large-scale dataset to help in the study of historical mobility. We have developed the PEACH model of social mobility to study varying mechanisms of intergenerational micro-class mobility during market transition and we improved the empirical tools available for explanatory studies of social fluidity, which we then used to quantify the impact of modernization processes on it. It is to be hoped that our contributions here will be useful to future mobility researchers.

A perfectly open society is actually an implausible idea, and certain processes leading to intergenerational reproduction of social positions, such as the inheritance of cognitive abilities, have always been and will likely remain beyond the reach of social institutions. It can even be argued that it is wholly undesirable to intervene in such processes. However, social, economic and political institutions can influence social rigidity in a number of ways and answers to questions about the extent to which institutions could contribute to more open societies and how they might do so are of interest to policy makers and lay people alike. Sociology can make important contributions by studying social mobility as it occurs within different institutional frameworks. Study of the historical development of societies, and in particular transition periods, provides a huge opportunity to learn how changing social contexts influence intergenerational reproduction of social inequalities. I hope that the insights in this book will help inspire future scholarly investigations.

Appendix A

Creating municipal strata for sampling by using latent profile analysis

To sample marriage records for the Hungarian Historical Social Mobility File we stratified Hungarian municipalities, based on developmental differences between municipalities. We relied on various dimensions of economic development and urbanization, and to find the categorization that best fits the structure of municipal differences in Hungary we used Latent Profile Analysis (LPA). The goal of LPA is to find a latent categorical pattern behind an observed set of indicators (McCutcheon, 1987). For any given case, the method estimates the probability of its potential membership in each of the strata, and based on that probability we assigned cases to the stratum to which they were most likely to belong. The method has the advantage over cluster analytical methods that it is based on a probabilistic model and on maximum likelihood estimation procedures (Vermunt & Magidson, 2002) which makes it possible to evaluate and compare the fit of different stratification solutions to the data.

To choose the number of strata we used the Bayesian Information Criterion (BIC) and the Entropy measure, with lower BIC values indicating better model fit.[1] The Entropy measure reflects the quality of classifi-

[1]Classic Latent Profile Analyses assumes that the relationship between observed continuous indicators can be fully explained by the latent categorical variable, meaning that the items are locally independent, i.e. uncorrelated within each latent class (Marsh et al., 2009). As these models did not fit the data when a parsimonious number of strata was

cation by showing whether the strata are sufficiently distinct from each other. The Entropy index runs from 0 to 1, larger values indicating better separation in the estimated stratum-membership probabilities.

Models were run using Mplus 5.0, with a maximum of four strata and allowing items to co-vary within classes. We did not allow more strata for reasons of parsimony and to keep sufficient numbers of observations per stratum.

A.1 Data and measurements

The 1930 Hungarian census contains information on demographics, labor and the housing situation of the Hungarian population. The figures were aggregated on the municipal level, and complemented with information on economic establishments from the Hungarian Central Statistical Office. Full information on all statistics was available for all 3,417 municipalities. The following dimensions of municipal modernization were distinguished.

Industrialization and economic development

Settlements differ with respect to the agrarian or industrial character of the working population. Municipal industrial development was measured by the percentage of active population in agriculture, and the number of industrial establishments per 1,000 inhabitants. The latter indicator excludes establishments with no employees. Economic development creates a higher demand for workforce, and developing areas attract workers from less developed areas, resulting in a mobility surplus. Net migration between 1920 and 1930 was used as an indicator of economic development. Net migration (migration arrivals minus migration departures) was measured as a percentage of the population in 1930.

Urban functions

Urban functions of a municipality are defined as the services it provides to its inhabitants, and to its surroundings (Beluszky & Győri, 2005) and included are service institutions such as banks, courts, tax offices, governmental directorates, and centers of trade. Naturally, urban settle-

specified, we allowed co-variances between the indicators. The models then provided a better fit. Additional models (not presented) have shown that the co-variance structure is similar across strata, and co-variances between indicators are therefore constrained to be equal in each stratum.

ments employ a large number of professionals to work in such institutions. Urban functions were measured with the percentage of active population working in public sector, banking, and trade. Urban settlements also have the function of providing their surroundings with opportunities for employment. An important urban employment opportunity for village-born people was domestic service (Gyáni, 1981) and at the turn of the 20th century, as the Hungarian bourgeoisie and the middle classes of the cities become wealthier, the demand for household servants rose sharply, resulting in significant temporal migration of young village-born women to larger cities. The percentage of domestic servants in the working population was therefore used as a measurement of urban function.

Cultural functions

Urban settlements are also centers for cultural and educational institutions and organizations, and associated professional occupations usually cluster in urban locations. We assumed that higher cultural activity within a municipality would correlate with a better general level of education among the population and accordingly measured the cultural function by the percentage of population older than 6 who could read and write.

Urban character

We included population density per square kilometer to measure the urban character of the settlement.

We standardized variables in order to facilitate estimation. Table A.1 shows the descriptive statistics of the indicators. Conforming to the sampling plan of the HHSMF, we stratified towns and villages separately. Municipalities in Hungary in 1930 were officially assigned to statuses: 3 percent of all municipalities (105 settlements) were officially towns, approximately 97 percent had no status, while fewer than 0.5 percent (12 settlements) were regional centers with municipal rights. Even though town or regional center status conferred certain institutional rights on settlements, there was still a good deal of heterogeneity within official settlement types in economic development, industrialization, and their urban character. In their study of Hungarian settlement structure as it was in 1910, Beluszky & Győri (2005) showed that around 300 settlements—almost three times more than the 'official' number of towns—had some urban function, while a number of 'official' towns lacked any urban character. Using LPA we were able to explore the developmental variation within official settlement

Table A.1: Descriptive statistics of municipal characteristics in 1930

Villages, N=3000		**Mean**	**S.d.**	**Min**	**Max**
% active population in agriculture	*AGR*	78.31	16.02	.47	100.00
Number of industrial establishments per 1000 inhabitants	*IND*	6.01	4.68	.00	68.85
Net migration 1920–1930 (% of population 1930)	*MIG*	−6.36	10.05	−47.84	60.82
% active population working in public sector, banking, and trade	*URB*	1.52	1.08	.00	16.80
% domestic servants in the working population	*DOM*	.86	.75	.00	10.25
% population older than 6 who cannot read and write	*ILLIT*	10.66	5.91	.00	53.99
Population density (km2)	*DENS*	81.42	144.23	7.27	6072.76
Towns, N=105					
% active population in agriculture	*AGR*	45.52	27.10	.50	83.77
Number of industrial establishments per 1000 inhabitants	*IND*	11.12	4.04	4.62	22.36
Net migration 1920–1930 (% of population 1930)	*MIG*	.61	12.97	−17.29	58.49
% active population working in public sector, banking, and trade	*URB*	5.01	2.59	1.49	10.84
% domestic servants in the working population	*DOM*	1.99	.87	.72	4.67
% population older than 6 who cannot read and write	*ILLIT*	10.46	4.82	2.96	24.10
Population density (km2)	*DENS*	523.88	1346.57	37.24	8637.01
Regional centers with municipal rights, N=12					
% active population in agriculture	*AGR*	21.40	19.66	.93	59.02
Number of industrial establishments per 1000 inhabitants	*IND*	15.95	3.53	9.21	20.01
Net migration 1920–1930 (% of population 1930)	*MIG*	3.89	9.03	−5.19	23.34
% active population working in public sector, banking, and trade	*URB*	8.77	2.89	4.40	15.58
% domestic servants in the working population	*DOM*	3.29	1.24	2.07	6.29
% population older than 6 who cannot read and write	*ILLIT*	7.08	3.64	2.45	14.67
Population density (km2)	*DENS*	769.30	1344.74	79.35	4870.53

Table A.2: Results from Latent Profile Analyses

		BIC	Entropy	LL	MLR s.f.	df
villages	1 cluster	59847		-29781.8	19.96	35
	2 cluster	47224	.946	-23409.5	3.20	50
	3 cluster	*45367*	*.855*	*-22420.0*	*1.89*	*65*
	4 cluster	44387	.774	-21869.4	2.01	80
towns	1 cluster	2144		-1039.4	1.86	14
	2 cluster	1194	.994	-480.5	1.19	50
	3 cluster	*1104*	*.988*	*-403.1*	*1.08*	*64*

Notes: Robust Maximum Likelihood estimates (MLR), N village=3300, N town=105. MLR s.f.=MLR scaling factor. The variance of population density constrained across two groups to be equal for model identification. Models with 4 latent classes did not provide admissible results due to low number of observations.

types and create an optimal categorization to be used for stratification of municipalities. We treated the 12 regional centers as a separate stratum and did not include them in our analysis.

A.2 Results

For villages the 3-strata solution is optimal (Table A.2.). Although the BIC values are lower for the 4-strata solution, the higher entropy value of the 3-strata version indicates better separation. Table A.3 contains the sample means and standard errors for each stratum. Stratum 1 (4 %) is titled urban-type villages. Those settlements had a dominantly urban-industrial character with the average number of industrial establishments per 1,000 inhabitants almost twice the average for all villages and their average proportion of urban-type workers was three times that average (cf. Table A.1). Urban-type villages had a high mobility surplus, low illiteracy rates, and high density compared to the other strata. Stratum 2 (23.6 %) is titled developing rural villages. The settlements in this stratum still had a rural character, but industrial-urban development was present as they had a slightly higher average of industrial establishments than the average of all villages. They still show negative net migration, although to

a lesser extent than the average net migration of all villages. Developing rural villages were relatively sparsely populated, which points again to their more rural character. Stratum 3 (72.4%) includes rural villages and the settlements in it were agrarian. More than 80 percent of the population worked in agriculture, and only a small fraction (fewer than 2 percent) had an urban-type occupation. High migration loss (7 percent in terms of the 1930 population migrated away between 1920 and 1930) points to lack of economic development in those settlements.

Evaluating the latent structure of town types, the 3-strata version proved to be the best solution, having the lowest BIC and a satisfactory Entropy index (Table A.2). Table A.3 shows the characteristics of the strata. Stratum 1 (28.5 %) can be called industrial centers. Those settlements had more industrial activity—in terms of the number of industrial establishments—than the average of all towns (cf. Table A.1). Industrial centers had relatively high presence of urban functions, and attracted the highest number of domestic servants of all town strata (2.85 percent of the working population). Those towns, however, still show some similarities with the countryside: they were less densely populated than the town-subsample average and a quarter of their active populations still worked in agriculture. Stratum 2 (16.3 %) contains urban centers. Those settlements were the most developed among Hungarian municipalities: the proportion of agrarian population was negligible, and the settlements had high concentrations of urban functions (7.5 percent of the population held a 'typically urban' occupation) and their low illiteracy rate compared to other towns shows they offered greater cultural and educational opportunities. Urban centers were densely populated and had an exceptionally high mobility surplus (20 percent in terms of the 1930 population migrated into those settlements between 1920 and 1930). Stratum 3 (55.2 %) were agrarian centers where more than two-thirds of the population worked in agriculture. Those towns show some urban functions (3.11 percent of population worked in urban-type jobs), but their negative net migration, low population density, and high illiteracy rate all point to a lack of industrial and urban development.

Table A.3: Estimated means and variances of developmental indicators in municipal strata

	Urban-type villages		Developing rural villages		Rural villages		Urban centers		Industrial centers		Agrarian centers	
	Mean	*Var.*	*Mean*	*Var.*	*Mean*	*Var.*	*Mean*	*Var.*	*Mean*	*Var.*	*Mean*	*Var.*
AGR	−2.65	2.50	−.76	1.07	.40	.15	−1.51	.09	−.71	.17	.81	.09
	(.22)	(.36)	(.08)	(.12)	(.02)	(.01)	(.05)	(.04)	(.09)	(.03)	(.04)	(.01)
IND	1.60	5.07	.34	1.16	−.20	.49	.02	.99	1.12	.54	−.59	.26
	(.25)	(1.24)	(.06)	(.10)	(.02)	(.03)	(.24)	(.32)	(.14)	(.11)	(.07)	(.05)
MIG	1.24	3.61	.09	1.26	−.10	.69	1.48	2.01	.15	.24	−.51	.14
	(.20)	(.55)	(.05)	(.15)	(.02)	(.03)	(.35)	(.54)	(.09)	(.08)	(.05)	(.02)
URB	2.67	6.12	.27	.83	−.24	.25	.81	.81	.96	.28	−.74	.15
	(.34)	(1.20)	(.06)	(.10)	(.01)	(.01)	(.24)	(.25)	(.11)	(.06)	(.05)	(.04)
DOM	1.40	3.55	.38	1.48	−.20	.48	−.25	1.08	1.00	.63	−.44	.33
	(.23)	(1.09)	(.07)	(.15)	(.02)	(.03)	(.26)	(.54)	(.18)	(.21)	(.08)	(.06)
ILLIT	−.48	.49	−.16	.67	.08	1.10	−1.10	.15	−.40	.49	.53	.78
	(.07)	(.07)	(.04)	(.07)	(.02)	(.05)	(.01)	(.05)	(.13)	(.16)	(.12)	(.14)
DENS	2.08	19.19	.04	.10	−.13	.03	1.44	3.54	−.20	.00	−.32	.00
	(.53)	(13.67)	(.03)	(.02)	(.00)	(.00)	(.47)	(1.40)	(.02)	(.00)	(.00)	(.00)
N	**127**		**719**		**2454**		**17**		**30**		**58**	

Notes: AGR % active population in agriculture, IND Number of industrial establishments per 1000 inhabitants, MIG Net migration 1920–1930 (% of population 1930), MIG % active population working in public sector, banking, and trade, DOM % domestic servants in the working population, ILLIT % population older than 6 who cannot read and write, DENS population density (km2). Standard errors are in parentheses.

A.3 Conclusions

The distribution of municipalities across strata shows that the settlement network of Hungary in 1930 was overwhelmingly agrarian. 71 percent of all municipalities were rural villages and the three municipal strata in which fewer than 50 percent of the population worked in agriculture (urban-type villages, industrial centers, and urban centers), and regional centers together made up only 5.4 percent of all settlements. The distribution of population among the strata was more even however: 37 percent of the Hungarian population lived in urban-type settlements (urban-type villages, industrial centers, urban centers, and municipal towns), while 38 percent lived in villages. The small proportion, but relatively large population size of urban-type settlements supports a sampling procedure which oversamples municipalities over urban-type settlements. In that way, and by using the municipal strata we had constructed, we were able to obtain information about a large enough sample of marriages from modernized and modernizing municipalities.

Appendix B

Municipalities in the Hungarian Historical Social Mobility File

Table B.1: Region, micro-region, and stratum of municipalities in the HHSMF

Name	Micro-region	Region	Stratum
Alsógalla	Tatabánya	Central Transdanubia	developing rural villages
Bánhida	Tatabánya	Central Transdanubia	urban-type villages
Boldog	Hatvan	Northern Hungary	rural villages
Bóly	Mohács	Southern Transdanubia	urban-type villages
Cegléd	Cegléd	Central Hungary	agrarian centers
Ceglédbercel	Cegléd	Central Hungary	developing rural villages
Cered	Salgótarján	Northern Hungary	rural villages
Csót	Pápa	Central Transdanubia	developing rural villages
Dunaföldvár	Dunaföldvár	Southern Transdanubia	agrarian centers
Elek	Gyula	Southern Great Plain	developing rural villages
Felsőgalla	Tatabánya	Central Transdanubia	urban centers
Fertőrákos	Sopron	Western Transdanubia	rural villages
Foktő	Kalocsa	Southern Great Plain	rural villages
Gönyű	Győr	Western Transdanubia	developing rural villages
Győr	Győr	Western Transdanubia	municipal centers
Gyula	Gyula	Southern Great Plain	industrial centers
Hajdúnánás	Hajdúböszörmény	Northern Great Plain	agrarian centers
Halászi	Mosonmagyaróvár	Western Transdanubia	rural villages
Hatvan	Hatvan	Northern Hungary	industrial centers
Heréd	Hatvan	Northern Hungary	rural villages
Hódmezővásárhely	Hódmezővásárhely	Southern Great Plain	municipal centers
Homokmégy	Kalocsa	Southern Great Plain	rural villages

Name	Micro-region	Region	Stratum
Igal	Kaposvár	Southern Transdanubia	developing rural villages
Kalocsa	Kalocsa	Southern Great Plain	industrial centers
Kaposvár	Kaposvár	Southern Transdanubia	urban centers
Kazár	Salgótarján	Northern Hungary	developing rural villages
Kecskemét	Kecskemét	Southern Great Plain	municipal centers
Kópháza	Sopron	Western Transdanubia	developing rural villages
Köveskál-Szentbékkálla	Tapolca	Southern Transdanubia	rural villages
Lánycsók	Mohács	Western Transdanubia	developing rural villages
Mindszent	Hódmezővásárhely	Southern Great Plain	developing rural villages
Mohács	Mohács	Southern Transdanubia	industrial centers
Mosonmagyaróvár	Mosonmagyaróvár	Western Transdanubia	industrial centers
Mosonszentmiklós	Mosonmagyaróvár	Western Transdanubia	developing rural villages
Murakeresztúr	Nagykanizsa	Western Transdanubia	developing rural villages
Nagycenk	Sopron	Western Transdanubia	developing rural villages
Nagykanizsa	Nagykanizsa	Western Transdanubia	industrial centers
Nagykőrös	Cegléd	Central Hungary	agrarian centers
Németkér	Dunaföldvár	Southern Transdanubia	rural villages
Nyúl	Győr	Western Transdanubia	rural villages
Öttevény	Győr	Western Transdanubia	developing rural villages
Pápa	Pápa	Central Transdanubia	industrial centers
Rákóczifalva	Szolnok	Northern Great Plain	rural villages
Rákospalota-Budapest	Budapest	Central Hungary	urban centers
Salgótarján	Salgótarján	Northern Hungary	urban centers
Somoskőújfalu	Salgótarján	Northern Hungary	urban-type villages
Sopron	Sopron	Western Transdanubia	municipal centers

Name	Micro-region	Region	Stratum
Szakmár	Kalocsa	Southern Great Plain	rural villages
Szegvár	Szentes	Southern Great Plain	rural villages
Szentes	Szentes	Southern Great Plain	agrarian centers
Szolnok	Szolnok	Northern Great Plain	industrial centers
Szulok	Barcs	Southern Transdanubia	rural villages
Tarján	Tatabánya	Central Transdanubia	rural villages
Taszár	Kaposvár	Southern Transdanubia	rural villages
Tatabánya	Tatabánya	Central Transdanubia	urban-type villages
Tataháza	Bácsalmás	Southern Great Plain	rural villages
Tiszakécske	Kecskemét	Northern Great Plain	rural villages
Törtel	Cegléd	Central Hungary	rural villages
Újszász	Szolnok	Northern Great Plain	developing rural villages
Újpest-Budapest	Budapest	Central Hungary	urban centers
Vaszar	Pápa	Central Transdanubia	rural villages
Véménd	Mohács	Southern Transdanubia	rural villages
Vértesszőlős	Tatabánya	Central Transdanubia	developing rural villages
Zalaszentbalázs	Nagykanizsa	Southern Transdanubia	rural villages

Table B.2: Number of digitized marriages in HHSMF per municipality

Name	Israelite	Lutheran	Reformed	Catholic
Alsógalla				273
Bánhida				627
Boldog				1067
Bóly			93	1148
Cegléd	105		1706	1113
Ceglédbercel				1603
Cered				449
Csót				800
Dunaföldvár	22	18	120	1961
Elek			31	1812
Felsőgalla				873
Fertőrákos				826
Foktő	13			768
Gönyű				800
Győr	48	416	314	3454
Gyula	32		211	3959
Hajdúnánás			2501	
Halászi				808
Hatvan	47		120	1522
Heréd				613
Hódmezővásárhely			1971	877
Homokmégy	2			824
Igal				918
Kalocsa	134			2422
Kaposvár	1001	178	154	1685
Kazár				1113
Kecskemét			1757	1421
Kópháza				829
Köveskál-Szentbékkálla			104	518
Lánycsók				1059
Mindszent				619
Mohács			4	1795
Mosonmagyaróvár	41			2200
Mosonszentmiklós				645
Murakeresztúr				732
Nagycenk				605

Name	Israelite	Lutheran	Reformed	Catholic
Nagykanizsa	164	64	185	1509
Nagykőrös	185			839
Németkér				394
Nyúl				431
Öttevény				456
Pápa	140	46	269	1592
Rákóczifalva			37	612
Rákospalota-Budapest			13	2567
Salgótarján	106	293	121	2346
Somoskőújfalu				661
Sopron	170	1179	109	2045
Szakmár				610
Szegvár				1084
Szentes	121			2261
Szolnok	235	16	14	1414
Szulok				1493
Tarján			80	373
Taszár				1002
Tatabánya		91	25	1727
Tataháza				835
Tiszakécske				947
Törtel				915
Újszász			28	934
Újpest-Budapest	84			52
Vaszar				887
Véménd				1272
Vértesszőlős				253
Zalaszentbalázs				1803
Total	**2650**	**2301**	**9967**	**74052**
Grand total				**88970**

Table B.3: Population sizes of municipalities from Hungarian national censuses, 1000 inhabitants

Name	1869	1880	1890	1900	1910	1920	1930	1941	1949
Alsógalla	.585	.562	.614	.935	1.622	1.336	1.308	37.955	40.221
Bánhida	1.55	1.617	1.872	2.22	3.638	5.005	9.424	37.955	40.221
Boldog	1.505	1.604	1.995	1.994	2.485	2.57	2.861	2.909	3.185
Bóly	2.596	2.589	3.032	2.946	3.298	3.022	3.095	3.085	3.104
Cegléd	22.216	24.872	27.549	30.106	33.942	36.929	37.413	38.87	37.965
Ceglédbercel	2.048	2.367	2.68	2.925	3.396	3.66	3.963	3.916	4.007
Cered	.711	.726	.767	1.147	1.239	1.435	1.63	1.479	1.808
Csót	1.084	1.136	1.241	1.392	1.349	3.82	1.336	1.473	1.485
Dunaföldvár	12.382	12.72	12.364	12.117	12.087	11.733	11.34	11.48	11.216
Elek	4.583	5.607	6.629	7.591	7.268	7.64	8.446	6.757	6.67
Felsőgalla	1.079	1.218	1.299	1.621	9.563	13.378	15.57	37.955	40.221
Fertőrákos	1.864	1.98	2.491	2.799	2.98	3.025	3.371	3.745	2.053
Foktő	3.618	3.54	3.535	3.517	3.353	3.133	2.899	2.85	2.847
Gönyű	1.206	1.361	1.508	1.625	1.767	2.085	2.33	2.713	2.873
Győr	26.235	27.571	30.021	37.543	44.3	50.036	50.881	57.19	55.143
Gyula	18.495	18.046	19.991	22.446	24.284	24.908	25.241	24.901	23.567
Hajdúnánás	13.198	13.957	14.457	15.884	16.781	17.085	17.99	18.77	18.222
Halászi	1.539	1.724	1.779	1.674	1.943	1.881	2.03	2.456	2.423
Hatvan	4.018	4.877	6.979	9.838	12.387	14.359	15.38	16.02	16.458
Heréd	1.37	1.253	1.577	1.879	1.955	2.055	2.264	2.179	2.706
Hódmezővásárhely	49.153	52.424	55.475	60.883	62.445	60.922	60.342	58.977	56.769
Homokmégy	2.189	2.246	2.736	2.656	2.879	2.858	3.062	3.043	3.172

Name	1869	1880	1890	1900	1910	1920	1930	1941	1949
Igal	1.931	2.19	2.076	2.152	2.089	2.169	2.214	2.375	2.467
Kalocsa	9.504	9.116	10.77	11.38	11.738	12.332	11.88	12.341	11.546
Kaposvár	6.649	9.571	12.544	18.218	24.124	29.61	32.715	33.515	33.535
Kazár	.743	.835	1.035	1.37	1.57	1.383	1.853	1.924	2.00
Kecskemét	42.319	44.887	49.993	59.225	68.424	73.109	79.467	87.269	88.369
Kópháza	1.302	1.501	1.735	1.849	1.855	1.795	1.811	1.909	1.813
Köveskál-Szentbékkálla	1.024	.962	1.098	1.017	1.086	1.006	.946	.915	.8
Lánycsók	1.954	1.988	2.232	2.171	2.405	2.332	2.264	2.354	2.297
Mindszent	9.814	9.508	9.203	9.667	10.057	10.069	9.946	9.63	9.54
Mohács	12.14	12.385	14.403	15.832	17.092	15.734	17.369	18.355	19.093
Mosonmagyaróvár	16.898	17.662	17.252	18.922	23.062	16.898	17.662	17.252	18.922
Mosonszentmiklós	1.794	1.842	1.94	2.19	2.228	2.297	2.427	2.4	2.482
Murakeresztúr	1.144	1.23	1.402	1.454	1.663	1.893	2.195	2.235	2.175
Nagycenk	1.773	1.921	1.855	1.754	1.74	2.004	2.126	1.886	1.826
Nagykanizsa	15.125	18.398	20.619	23.978	26.524	30.037	30.869	30.792	28.46
Nagykőrös	20.091	22.769	24.584	26.638	28.575	28.701	28.591	28.977	29.397
Németkér	1.44	1.552	1.675	1.862	1.932	2.007	2.142	2.411	1.893
Nyúl	2.875	2.974	3.135	3.243	3.301	3.311	3.438	3.487	3.426
Öttevény	1.38	1.615	1.515	1.417	1.494	1.707	1.988	2.025	2.156
Pápa	14.223	14.654	14.261	17.426	20.15	19.255	21.356	23.736	21.815
Rákóczifalva	.373	1.521	2.727	3.589	4.14	4.325	5.222	5.386	5.807
Rákospalota-Budapest	3.203	3.844	5.971	11.424	24.426	35.033	42.949		
Salgótarján	3.7	6.316	9.478	13.552	13.746	15.213	16.98	20.318	20.128
Somoskőújfalu	1.08	1.235	1.303	1.514	1.831	1.737	2.342	2.863	2.602
Sopron	21.108	23.222	27.213	33.478	33.932	35.248	35.895	45.646	35.164

Name	1869	1880	1890	1900	1910	1920	1930	1941	1949
Szakmár	2.683	2.616	2.7	2.946	2.934	3.225	3.565	3.545	3.712
Szegvár	5.611	5.952	6.81	7.249	7.369	7.872	7.979	7.902	7.58
Szentes	27.658	28.712	30.791	31.308	31.593	32.387	32.861	33.119	32.509
Szolnok	15.847	17.15	20.748	25.379	28.778	32.539	38.764	42.011	30.935
Szulok	1.841	1.945	1.996	1.855	1.773	1.758	1.879	1.742	2.127
Tarján	1.872	1.958	2.038	1.98	1.922	2.007	2.065	2.162	2.627
Taszár	.78	.801	.811	.759	.788	.763	.811	.921	.794
Tatabánya				4.881	8.104	8.491	6.844	37.955	40.221
Tataháza	1.504	1.693	1.764	1.814	1.675	1.703	1.862	1.926	2.012
Tiszakécske	6.069	7.226	9.708	10.583	11.459	12.107	13.05	13.371	13.421
Törtel	1.99	2.354	2.971	3.339	3.629	4.158	4.589	4.414	4.854
Újszász	2.671	3.023	3.535	4.045	4.26	4.388	5.46	5.468	5.807
Újpest-Budapest	6.977	11.929	23.814	42.178	55.918	57.464	67.4		
Vaszar	1.737	1.886	1.946	1.957	2.126	2.153	2.229	2.189	2.244
Véménd	2.049	1.992	2.208	2.255	2.388	2.381	2.38	2.479	2.568
Vértesszőlős	1.076	1.13	1.213	1.391	1.392	1.504	1.739	1.757	1.725
Zalaszentbalázs	1.134	1.205	1.326	1.565	1.453	1.498	1.486	1.548	1.535
Budapest	270.685	390.551	491.938	732.322	889.889	929.69	1006.184	1711.106	1589.065

Notes: municipalities listed with their present-day name. Alsógalla, Felsőgalla és Bánhida merged with Tatabánya in 1947. Tiszakécske was established in 1950 following the merger of Ókécske and Újkécske. Újpest and Rákospalota, representing Budapest together with its agglomeration, merged with Budapest in 1951. Mosonmagyaróvár was established in 1939 after the merger of Moson and Magyaróvár.

Appendix C

Descriptive statistics of the Hungarian occupational micro-classes

Table C.1: Sample size, destination score, and origin score values for occupational micro-classes

Micro-class destinations	**Pre-trans. N**	**Trans. N**	**Post-trans. N**	**E, Pre-trans**	**E, Trans.**	**E, Post-trans**
Jurists	22	29	49	1.00	.97	1.00
Health professionals	125	79	69	.98	.94	.96
Professors and instructors	47	38	44	1.00	.95	1.00
Natural scientists	79	43	12	.80	.80	1.00
Statistical and social scientists	130	43	67	.62	.61	.97
Architects	37	16	21	.92	1.00	1.00
Accountants	95	73	41	.26	.64	.98
Journalists, authors, and related writers	20	17	37	.71	.95	.90
Engineers	320	145	137	.74	.83	.98
Officials, government and non-profit organizations	146	80	54	.53	.66	.91
Managers	501	353	464	.41	.56	.79
Commercial Managers	600	418	253	.16	.36	.70
Systems analysts and programmers	34	30	61	.65	.84	.94
Personnel and labor relations workers	15	12	172	.53	.93	.85
Elementary and secondary school teachers	639	619	527	.79	.88	.99
Creative artists	49	26	50	.57	.47	.77

Micro-class destinations	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Professional, technical, and related workers, n.e.c.	649	532	318	.32	.53	.64
Workers in religion	11	12	14	.91	.92	1.00
Nonmedical technicians	316	359	264	.22	.47	.74
Health semiprofessionals	242	94	301	.14	.55	.54
Hospital attendants	78	107	104	.18	.43	.74
Nursery school teachers and aides	44	38	32	.43	.53	.72
Other agents	114	134	267	.29	.56	.64
Sales workers and shop assistants	456	488	688	.03	.23	.29
Telephone operators	36	25	8	.02	.28	.28
Bookkeepers and related workers	529	408	322	.09	.43	.62
Office and clerical workers	892	644	405	.08	.38	.49
Postal and mail distribution clerks	76	59	48	.01	.08	.31
Craftsmen and kindred workers, n.e.c.	38	43	152	.18	.23	.25
Production foremen	155	75	137	.26	.38	.61
Electronics service and repair workers	157	135	78	.04	.22	.47
Printers and related workers	45	30	73	.02	.28	.29
Locomotive operators	134	77	14	.02	.05	.52
Electricians	259	204	152	.04	.11	.27
Tailors and related workers	595	350	256	.02	.07	.09
Vehicle mechanics	637	514	227	.02	.08	.21
Blacksmiths and machinists	634	378	352	.05	.06	.11

Micro-class destinations	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Jewelers, opticians, and precious metal workers	175	144	80	.02	.23	.30
Plumbers and pipe-fitters	125	122	75	.00	.05	.11
Cabinetmakers	59	52	80	.12	.15	.15
Bakers	69	73	54	.00	.07	.12
Welders and related metal workers	170	118	79	.00	.08	.11
Painters	159	96	90	.01	.07	.05
Butchers	53	52	52	.04	.02	.05
Stationary engine operators	86	88	30	.03	.12	.30
Bricklayers, carpenters, and related construction workers	722	398	253	.01	.02	.08
Heavy machine operators	500	279	161	.00	.00	.07
Truck drivers	579	452	200	.02	.06	.10
Chemical processors	190	111	49	.04	.08	.13
Miners and related workers	208	93	28	.03	.07	.24
Longshoremen and freight handlers	639	314	36	.02	.09	.13
Textile workers	567	391	108	.01	.03	.07
Sawyers and lumber inspectors	176	88	18	.00	.01	.11
Metal processors	297	112	140	.03	.10	.15
Operatives and kindred workers, n.e.c.	889	502	308	.02	.05	.12
Forestry workers	51	51	20	.00	.02	.31

Micro-class destinations	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Policeman, firefighters, and members of the armed forces	37	25	156	.48	.65	.67
Transport conductors	23	20	16	.00	.20	.18
Guards and watchmen	47	135	109	.13	.31	.18
Food service workers	397	290	238	.04	.09	.22
Mass transportation operators	200	166	163	.04	.09	.18
Service workers, n.e.c.	612	280	368	.02	.11	.17
Hairdressers	83	77	74	.07	.19	.42
Housekeeping workers	381	277	260	.00	.03	.20
Janitors and cleaners	524	470	211	.00	.02	.05
Farmers and farm managers	179	187	322	.16	.17	.19
Farm laborers	1718	579	33	.01	.03	.06

Note: Education (E) is the percentage who completed tertiary schooling.

Micro-class destinations	**C, Pre-trans**	**C, Trans.**	**C, Post-trans**	**A, Pre-trans**	**A, Trans.**	**A, Post-trans**	**P**
Jurists	1.00	1.00	.96	.04	.35	.26	.18
Health professionals	.71	1.00	.88	.00	.02	.30	.06
Professors and instructors	.91	1.00	.89	.00	.00	.02	.28
Natural scientists	.82	1.00	.83	.01	.02	.07	.19
Statistical and social scientists	.89	.33	.90	.02	.07	.11	.20
Architects	.87	.25	.77	.00	.00	.22	.30
Accountants	1.00	.78	.79	.00	.04	.22	.21
Journalists, authors, and related writers	1.00	1.00	.65	.00	.28	.44	.17
Engineers	.92	.92	.79	.00	.03	.13	.32
Officials, government and non-profit organizations	.90	.80	1.00	.00	.00	.00	.39
Managers	.77	.91	.83	.03	.22	.30	.30
Commercial Managers	.67	.70	.67	.12	.31	.28	.14
Systems analysts and programmers	.60	.60	.71	.00	.03	.06	.06
Personnel and labor relations workers	.89	.91	.78	.00	.15	.10	.32
Elementary and secondary school teachers	.73	.48	.81	.00	.01	.02	.18
Creative artists	.57	.60	.54	.20	.30	.40	.07

Micro-class destinations	C, Pre-trans	C, Trans.	C, Post-trans	A, Pre-trans	A, Trans.	A, Post-trans	P
Professional, technical, and related workers, n.e.c.	.85	.54	.65	.01	.02	.05	.21
Workers in religion	.50	.25	.73	.00	.08	.00	.00
Nonmedical technicians	.35	.59	.74	.00	.01	.09	.15
Health semiprofessionals	.29	.21	.58	.00	.01	.02	.08
Hospital attendants	.39	.36	.57	.00	.00	.03	.02
Nursery school teachers and aides	.00	.00	.36	.00	.03	.21	.13
Other agents	1.00	.69	.68	.00	.08	.18	.14
Sales workers and shop assistants	.18	.34	.19	.02	.14	.25	.05
Telephone operators	.22	.20	.25	.00	.04	.09	.03
Bookkeepers and related workers	.45	.48	.62	.00	.01	.06	.08
Office and clerical workers	.39	.36	.47	.00	.01	.03	.14
Postal and mail distribution clerks	.00	.13	.23	.00	.00	.00	.03
Craftsmen and kindred workers, n.e.c.	.34	.26	.47	.03	.02	.01	.12
Production foremen	.88	.67	.78	.00	.05	.10	.34
Electronics service and repair workers	.65	.38	.67	.01	.10	.13	.12
Printers and related workers	.71	.00	.55	.00	.06	.13	.08
Locomotive operators	.65	.67	1.00	.00	.00	.00	.11

Micro-class destinations	C, Pre-trans	C, Trans.	C, Post-trans	A, Pre-trans	A, Trans.	A, Post-trans	P
Electricians	.57	.48	.51	.02	.05	.18	.14
Tailors and related workers	.22	.20	.16	.11	.15	.13	.06
Vehicle mechanics	.54	.40	.53	.02	.04	.14	.12
Blacksmiths and machinists	.61	.47	.47	.03	.07	.07	.12
Jewelers, opticians, and precious metal workers	.67	.45	.51	.05	.08	.13	.10
Plumbers and pipe-fitters	.63	.73	.40	.09	.10	.25	.07
Cabinetmakers	.61	.43	.28	.08	.23	.30	.07
Bakers	1.00	.10	.41	.07	.10	.05	.02
Welders and related metal workers	.61	.25	.49	.01	.04	.02	.10
Painters	.62	.42	.33	.14	.22	.32	.05
Butchers	.40	.18	.30	.02	.02	.08	.09
Stationary engine operators	.59	.50	.58	.01	.03	.00	.09
Bricklayers, carpenters, and related construction workers	.47	.45	.33	.07	.13	.20	.06
Heavy machine operators	.47	.26	.33	.00	.01	.05	.12
Truck drivers	.59	.52	.52	.02	.15	.16	.10
Chemical processors	.34	.33	.47	.03	.03	.02	.11
Miners and related workers	1.00	.93	.64	.03	.05	.09	.15
Longshoremen and freight handlers	.32	.18	.14	.00	.01	.08	.09
Textile workers	.20	.19	.26	.02	.01	.03	.05

Micro-class destinations	C, Pre-trans	C, Trans.	C, Post-trans	A, Pre-trans	A, Trans.	A, Post-trans	P
Sawyers and lumber inspectors	.36	.36	.00	.05	.06	.05	.04
Metal processors	.66	.20	.34	.00	.05	.02	.11
Operatives and kindred workers, n.e.c.	.22	.26	.22	.01	.02	.03	.06
Forestry workers	.43	.25	.42	.04	.11	.17	.07
Policeman, firefighters, and members of the armed forces	.82	.79	.86	.00	.04	.01	.52
Transport conductors	.50	.60	.33	.00	.10	.00	.05
Guards and watchmen	.27	.40	.42	.00	.03	.14	.03
Food service workers	.17	.18	.30	.03	.05	.12	.05
Mass transportation operators	.61	.53	.56	.04	.18	.11	.09
Service workers, n.e.c.	.25	.29	.31	.05	.07	.05	.07
Hairdressers	.20	.31	.31	.25	.61	.75	.04
Housekeeping workers	.03	.08	.21	.01	.00	.02	.01
Janitors and cleaners	.00	.07	.13	.00	.01	.05	.02
Farmers and farm managers	.80	.45	.23	.28	.51	.44	.13
Farm laborers	.26	.00	.14	.03	.09	.05	.06

Notes: Autonomy (A) is the percentage of self-employed in an occupation. Capital (C) is the percentage of incumbents in an occupation with above-median earnings. Power (P) is the percentage of incumbents in occupation who were CP party members during the socialist era.

Micro-class origins	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Jurists	44	30	45	.95	.97	1.00
Health professionals	69	38	102	.99	.97	1.00
Professors and instructors	17	19	31	1.00	1.00	1.00
Natural scientists	65	43	11	.58	.86	.91
Statistical and social scientists	22	16	52	.59	1.00	.94
Architects	29	19	57	.91	1.00	.93
Accountants	54	40	20	.30	.72	.71
Journalists, authors, and related writers	5	12	8	.80	.83	1.00
Engineers	103	100	220	.65	.91	.97
Officials, government and non-profit organizations	98	90	52	.25	.64	.68
Managers	302	229	217	.22	.52	.72
Commercial Managers	294	158	133	.09	.28	.64
Systems analysts and programmers	1	3	2	.00	1.00	1.00
Personnel and labor relations workers	9	7	42	.41	.11	.66
Elementary and secondary school teachers	174	167	233	.66	.88	.97
Creative artists	77	41	33	.11	.20	.55

Micro-class origins	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Professional, technical, and related workers, n.e.c.	292	254	122	.33	.69	.52
Workers in religion	14	15	8	.93	1.00	.88
Nonmedical technicians	66	115	227	.27	.65	.54
Health semiprofessionals	17	3	40	.00	.00	.49
Hospital attendants	7	7	17	.00	.29	.50
Nursery school teachers and aides	6	9	14	.33	.89	.60
Other agents	32	41	65	.13	.66	.58
Sales workers and shop assistants	146	151	226	.01	.14	.19
Telephone operators	6	4	4	.00	.00	.42
Bookkeepers and related workers	86	84	95	.09	.55	.63
Office and clerical workers	251	167	101	.08	.41	.39
Postal and mail distribution clerks	82	48	42	.00	.08	.11
Craftsmen and kindred workers, n.e.c.	13	36	257	.00	.00	.09
Production foremen	99	89	157	.05	.32	.47
Electronics service and repair workers	45	33	68	.00	.10	.24
Printers and related workers	19	9	35	.00	.11	.20
Locomotive operators	434	279	66	.00	.02	.10

Micro-class origins	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Electricians	134	155	214	.01	.07	.08
Tailors and related workers	677	433	216	.00	.02	.06
Vehicle mechanics	410	413	277	.00	.03	.07
Blacksmiths and machinists	600	440	752	.00	.02	.05
Jewelers, opticians, and precious metal workers	113	61	85	.02	.12	.23
Plumbers and pipe-fitters	58	77	91	.00	.00	.06
Cabinetmakers	193	115	167	.00	.01	.05
Bakers	74	63	66	.00	.02	.04
Welders and related metal workers	105	106	173	.02	.00	.05
Painters	76	59	100	.01	.00	.00
Butchers	92	76	48	.00	.03	.02
Stationary engine operators	53	52	35	.00	.10	.15
Bricklayers, carpenters, and related construction workers	1408	985	598	.00	.01	.02
Heavy machine operators	331	402	377	.00	.00	.02
Truck drivers	234	340	349	.00	.03	.05
Chemical processors	71	54	39	.00	.06	.03
Miners and related workers	693	528	297	.00	.02	.05
Longshoremen and freight handlers	580	453	130	.00	.04	.01
Textile workers	123	93	77	.00	.03	.05

Micro-class origins	Pre-trans. N	Trans. N	Post-trans. N	E, Pre-trans	E, Trans.	E, Post-trans
Sawyers and lumber inspectors	73	62	29	.01	.00	.07
Metal processors	270	138	121	.00	.04	.01
Operatives and kindred workers, n.e.c.	869	664	429	.00	.04	.04
Forestry workers	166	151	59	.01	.02	.17
Policeman, firefighters, and members of the armed forces	71	41	252	.25	.36	.64
Transport conductors	55	74	98	.00	.01	.04
Guards and watchmen	18	20	26	.00	.23	.08
Food service workers	177	143	109	.01	.04	.08
Mass transportation operators	121	115	218	.01	.04	.09
Service workers, n.e.c.	879	515	374	.00	.02	.05
Hairdressers	70	34	23	.00	.00	.09
Housekeeping workers	52	29	35	.02	.00	.06
Janitors and cleaners	83	70	55	.00	.01	.00
Farmers and farm managers	2879	1218	1190	.00	.02	.05
Farm laborers	4085	2234	170	.00	.00	.01

Note: Education (E) is the percentage who completed tertiary schooling.

Micro-class origins	A, Pre-transition	A, Tran-sition	A, Post-transition
Jurists	.05	.20	.07
Health professionals	.00	.03	.04
Professors and instructors	.00	.05	.00
Natural scientists	.00	.02	.09
Statistical and social scientists	.00	.06	.02
Architects	.03	.00	.03
Accountants	.00	.00	.00
Journalists, authors, and related writers	.00	.00	.13
Engineers	.00	.04	.01
Officials, government and non-profit organizations	.00	.00	.00
Managers	.05	.04	.08
Commercial Managers	.29	.21	.02
Systems analysts and programmers	.00	.00	.50
Personnel and labor relations workers	.00	.38	.02
Elementary and secondary school teachers	.00	.01	.00
Creative artists	.32	.34	.09
Professional, technical, and related workers, n.e.c.	.00	.00	.01
Workers in religion	.00	.00	.13
Nonmedical technicians	.00	.02	.02
Health semiprofessionals	.00	.33	.02
Hospital attendants	.00	.00	.00
Nursery school teachers and aides	.00	.00	.00
Other agents	.00	.02	.06
Sales workers and shop assistants	.12	.07	.25
Telephone operators	.00	.00	.00
Bookkeepers and related workers	.00	.00	.00
Office and clerical workers	.00	.01	.00

Micro-class origins	A, Pre-transition	A, Tran-sition	A, Post-transition
Postal and mail distribution clerks	.00	.00	.00
Craftsmen and kindred workers, n.e.c.	.08	.05	.00
Production foremen	.00	.04	.00
Electronics service and repair workers	.07	.11	.07
Printers and related workers	.11	.11	.03
Locomotive operators	.00	.00	.00
Electricians	.06	.04	.05
Tailors and related workers	.37	.38	.19
Vehicle mechanics	.04	.04	.03
Blacksmiths and machinists	.11	.12	.03
Jewelers, opticians, and precious metal workers	.17	.18	.11
Plumbers and pipe-fitters	.07	.05	.07
Cabinetmakers	.29	.38	.10
Bakers	.23	.21	.06
Welders and related metal workers	.06	.03	.00
Painters	.17	.17	.12
Butchers	.25	.20	.06
Stationary engine operators	.02	.02	.00
Bricklayers, carpenters, and related construction workers	.10	.09	.08
Heavy machine operators	.02	.00	.00
Truck drivers	.01	.03	.03
Chemical processors	.03	.04	.03
Miners and related workers	.01	.03	.02
Longshoremen and freight handlers	.01	.01	.00
Textile workers	.06	.07	.04
Sawyers and lumber inspectors	.11	.11	.03

Micro-class origins	A, Pre-transition	A, Tran-sition	A, Post-transition
Metal processors	.03	.01	.02
Operatives and kindred workers, n.e.c.	.02	.02	.01
Forestry workers	.04	.05	.02
Policeman, firefighters, and members of the armed forces	.00	.00	.00
Transport conductors	.00	.03	.00
Guards and watchmen	.00	.00	.00
Food service workers	.09	.10	.09
Mass transportation operators	.01	.05	.03
Service workers, n.e.c.	.11	.11	.04
Hairdressers	.51	.46	.39
Housekeeping workers	.11	.04	.00
Janitors and cleaners	.00	.01	.00
Farmers and farm managers	.90	.73	.13
Farm laborers	.16	.04	.02

Notes: Autonomy (A) is the percentage of self-employed in an occupation. Capital (C) is the percentage of incumbents in an occupation with above-median earnings. Power (P) is the percentage of incumbents in occupation who were CP party members during the socialist era.

Appendix D

Channels and barriers effects from the PEACH model

Table D.1: Channels and barriers effects from the PEACH model

	Pre-transition	**Transition**	**Post-transition**
Male: Agriculture–Education	−1.43***	−1.29***	−.65***
	(.19)	(.19)	(.17)
Female: Agriculture–Education	−2.66***	−1.11***	−.82***
	(.22)	(.15)	(.15)
Male: Agriculture–Autonomy	−1.61*	−2.10***	−2.73***
	(.79)	(.37)	(.37)
Female: Agriculture–Autonomy	.41	−.29	.01
	(.81)	(.34)	(.34)
Male: Agriculture–Education sector	.80**	.61	.38
	(.30)	(.32)	(.36)
Female: Agriculture–Education sector	1.54***	.49**	.54**
	(.20)	(.17)	(.21)
Male: Education–Education sector	−.98*	−.36	.51*
	(.40)	(.25)	(.23)
Female: Education–Education sector	−.93***	−.86***	−.52***
	(.27)	(.17)	(.14)
Male: Agriculture–Construction	1.28***	1.04***	.96**
	(.22)	(.23)	(.31)
Female: Agriculture–Construction	−.55	.57	−.62
	(.74)	(.93)	(1.44)
Male: Construction–Agriculture	1.53***	.15	−.58
	(.33)	(.37)	(.44)
Female: Construction–Agriculture	1.49***	1.61***	.55
	(.34)	(.39)	(.65)
Male: Machine industry–Agriculture	−1.62*	−1.23*	−1.08*
	(.63)	(.60)	(.48)
Female: Machine industry–Agriculture	−1.09	.05	−.91
	(.66)	(.70)	(.78)

Notes: model estimated on data sets listed in Table 6.2), and include period- and gender-specific marginals. Other effects and fit statistics are listed in Table 6.6). Asymptotic standard errors are in parenthesis.* =p < .05, ** = p < .01, *** = p < .001 (2-sided).

References

Aminzade, R., & Hodson, R. (1982). Social mobility in a mid-nineteenth century French city. *American Sociological Review*, *47*(4), 441–457.

Andorka, R. (1980). Long-term social development of Hungary, measured by social indicators. *Social Indicators Research*, *8*(1), 1–13.

Andorka, R. (1982). *A társadalmi mobilitás változásai Magyarországon [Changes in social mobility in Hungary]*. Budapest: Gondolat.

Andorka, R. (1992). Hungarian Social Mobility and Life History Survey. Hungarian Central Statistical Office. Documentation and machine readable dataset.

Andorka, R. (1994). The historical demography of a proper Hungarian village: Átány in the eighteenth and nineteenth centuries. *Journal of Family History*, *19*(4), 311–331.

Andorka, R., & Balázs-Kovács, S. (1986). The social demography of Hungarian villages in the eighteenth and nineteenth centuries (with special attention to Sárpilis, 1792-1804). *Journal of Family History*, *11*(2), 169–192.

Atkinson, A. B., & Micklewright, J. (1992). *Economic Transformation in Eastern Europe and the Distribution of Income*. Cambridge, MA: Cambridge University Press.

Baron, J. (1984). Organizational perspectives in stratification. *Annual Review of Sociology*, *10*, 37–69.

Baron, J., & Bielby, W. T. (1980). Bringing the firms back in: Stratification, segmentation, and the organization of work. *American Sociological Review*, *45*, 737–65.

Bauer, T. (1978). Investment cycles in planned economies. *Acta Oeconomica*, *21*(3), 243–260.

Becker, G. S. (1993). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education.*. Chicago: University of Chicago Press, 3rd ed.

Beller, E. (2009). Bringing intergenerational social mobility research into the twenty-first century: Why mothers matter. *American Sociological Review*, *74*(4), 507–528.

Beller, E., & Hout, M. (2006). Welfare states and social mobility: How educational and social policy may affect cross-national differences in the association between occupational origins and destinations. *Research in Social Stratification and Mobility*, *24*(4), 353–365.

Beluszky, P. (2001). The spatial differences of modernization in Hungary at the beginning of the 20th century. No. 37 in Centre for Regional Studies of Hungarian Academy of Sciences Discussion Papers. Pécs: Centre for Regional Studies of Hungarian Academy of Sciences.

Beluszky, P., & Győri, R. (2005). The Hungarian urban network in the beginning of the 20th century. No. 46 in Centre for Regional Studies of Hungarian Academy of Sciences Discussion Papers. Pécs: Centre for Regional Studies of Hungarian Academy of Sciences.

Berend, I. T. (1998). *Decades of crisis: Central and Eastern Europe before World War II*. Berkeley: University of California Press.

Berend, I. T. (2003). *History Derailed: Central And Eastern Europe in the Long Nineteenth Century*. Berkeley: University of California Press.

Berend, I. T., & Ránki, G. (1974). *Hungary. A Century of Economic Development*. New York: Barnes & Noble Books.

Berend, I. T., Ránki, G., & Pálmai, v. (1982). *The European Periphery and Industrialization, 1780-1914*. Cambridge: Cambridge University Press.

Bernstein, B. (1975). Class and pedagogies: Visible and invisible. *Educational Studies*, *1*(1), 23–41.

Bian, Y., & Logan, J. R. (1996). Market transition and the persistence of power: the changing stratification system in urban China. *American Sociological Review*, *61*(5), 739–758.

Blau, P. M., & Duncan, O. D. (1967). *The American Occupational Structure*. New York: Wiley.

Borjas, G. J. (1988). Self-selection and the earnings of immigrants. Working Paper 2248, National Bureau of Economic Research.

Borjas, G. J. (1992). The intergenerational mobility of immigrants. Working Paper 3972, National Bureau of Economic Research.

Borjas, G. J., Bronars, S. G., & Trejo, S. J. (1992). Self-selection and internal migration in the United States. *Journal of Urban Economics*, *32*(2), 159–185.

Bourdieu, J., Ferrie, J. P., & Kesztenbaum, L. (2009). Vive la différence? intergenerational mobility in France and the United States during the nineteenth and twentieth centuries. *Journal of Interdisciplinary History*, *39*(4), 523–557.

Bourdieu, P. (1984). *Distinction: A Social Critique of the Judgement of Taste*. London: Routledge &. Kegan Paul.

Bourdieu, P., & Passeron, J.-C. (1990). *Reproduction in Education, Society and Culture*. London: Sage.

Breen, R. (1994). Individual level models for mobility tables and other cross-classifications. *Sociological Methods & Research*, *23*(2), 147–173.

Breen, R. (2004). *Social mobility in Europe*. Oxford: Oxford University Press.

Breen, R. (2010). Educational expansion and social mobility in the 20th century. *Social Forces*, *89*(2), 365–388.

Breen, R., & Jonsson, J. (2007). Explaining change in social fluidity: Educational equalization and educational expansion in 20th century Sweden. *American Journal of Sociology*, *112*(6), 1775–1810.

Breen, R., & Jonsson, J. O. (2005). Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility. *Annual Review of Sociology*, *31*, 223–243.

Bukodi, E. (2010). Social stratification and cultural participation in hungary: a post-communist pattern of consumption? In T. W. Chan (Ed.) *Social status and cultural consumption*. Cambridge: Cambridge University Press.

Bukodi, E., & Goldthorpe, J. H. (2009). Market versus meritocracy: Hungary as a critical case. *European Sociological Review*, *26*(6), 1–20.

Bukodi, E., & Róbert, P. (2006). Men´s career mobility in hungary during the 1990s. In H.-P. Blossfeld, M. Mills, & F. Bernardi (Eds.) *Globalization, uncertainty, and men´s careers*, (pp. 203–239). Cheltenham: Edward Elgar.

Cantrell, S., & Clark, R. (1982). Individual mobility, population growth and labor force participation. *Demography*, *19*(2), 147–159.

Cao, Y., & Nee, V. G. (2000). Comment: Controversies and evidence in the market transition debate. *American Journal of Sociology*, *105*(4), 1175–1189.

Chan, T. W., & Goldthorpe, J. H. (2007). Class and status: The conceptual distinction and its empirical relevance. *American Sociological Review*, *72*(4), 512–532.

Chiswick, B. R. (1999). Are immigrants favorably self-selected? *American Economic Review*, *89*(2), 181–185.

Chiswick, B. R., Lee, Y. L., & Miller, P. W. (2003). Patterns of immigrant occupational attainment in a longitudinal survey. *International Migration*, *41*(4), 47–69.

Chiswick, B. R., Lee, Y. L., & Miller, P. W. (2005). A longitudinal analysis of immigrant occupational mobility: A test of the immigrant assimilation hypothesis. *International Migration Review*, *39*(2), 332–353.

Clogg, C. C., & Eliason, S. R. (1987). Some common problems in log-linear analysis. *Sociological Methods & Research*, *16*(1), 8–44.

Cochran, W. G. (1977). *Sampling techniques*. New York: Wiley and Sons.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, (pp. S95–S120).

Coleman, J. S. (1990). *Foundations of Social Theory*. Cambridge, MA: Belknap.

Collins, R. (1971). Functional and conflict theories of educational stratification. *American Sociological Review*, *36*(6), 1002–1019.

Collins, R. (1975). *Conflict sociology*. New York: Academic Press.

Collins, R. (1979). *The Credential Society: n Historical Sociology of Education and Stratification*. New York: Academic Press.

Dahrendorf, R. (1959). *Class and Class Conflict in Industrial Society.*. Palo Alto, CA: Stanford University Press.

Dányi, D. (1964). Az írás-olvasás elterjedése Magyarországon [The diffusion of litearcy in Hungary]. *Demográfia*, *7*(2), 310–313.

Dányi, D. (1998). Regionális vándorlás, urbanizáció a XIX. század végén [Interregional migration and urbanization in Hungary at the end of the 19th century]. In S. Illés, & P. P. Tót (Eds.) *Migráció [Migration]*, (pp. 87–115). Budapest: KSH Népességtudományi Kutató Intézet.

Davis, K. (1962). The role of class mobility in economic development. *Population Review*, *6*, 67–73.

de Tocqueville, A. (2000 [1835]). *Democracy in America*. Chicago: University of Chicago Press.

Delger, H., & Kok, J. (1998). Bridegrooms and biases: A critical look at the study of intergenerational mobility on the basis of marriage certificates. *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, *31*(3), 113–121.

DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of US high school students. *American Sociological Review*, *47*(2), 189–201.

DiMaggio, P., & Mohr, J. (1985). Cultural capital, educational attainment, and marital selection. *American journal of Sociology*, (pp. 1231–1261).

DiPrete, T. A., & Grusky, D. B. (1990). Structure and trend in the process of stratification for american men and women. *American Journal of Sociology*, *96*(1), 107–143.

Djilas, M. (1957). *The New Class: An Analysis of the Communist System*. New York: Praeger.

Domański, H. (2000). *On the Verge of Convergence. Social Stratification in Eastern Europe*. Budapest: Central European University Press.

Domański, H. (2005). Between state socialism and markets: Effect of education on income in 27 countries. *European Societies*, *7*(2), 197–218.

Domhoff, G. W. (1998). *Who Rules America? Power and Politics in the Year 2000*. New York: Mayfield.

Don, Y., & Karády, V. (1990). *A Social and Economic History of Central European Jewery*. New Brunswick: Transaction Publishers.

Dribe, M., Campbell, C., & Van Bavel, J. (2012). Social mobility and demographic behaviour: Long term perspectives. *Demographic Research*, *26*, 173–190.

Dribe, M., & Svensson, P. (2008). Social mobility in nineteenth century rural Sweden–A micro level analysis. *Scandinavian Economic History Review*, *56*(2), 122–141.

Eddie, S. (1989). Economic policy and economic development in Austria-Hungary, 1867-1913. *The Cambridge Economic History of Europe*, *8*, 814–886.

Elder Jr, G. H. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly*, *57*(1), 4–15.

Elder Jr, G. H. (1999). *Children of the Great Depression: Social Change in Life Experience.*. Boulder, CA: Westview Press.

Erdei, F. (1980 [1954]). A magyar társadalom a két világháború között [The Hungarian society during the interwar years]. In K. Kulcsár (Ed.) *A magyar társadalomról [The Hungarian Society]*. Budapest: Akadémia.

Erikson, R., & Goldthorpe, J. H. (1992). *The Constant Flux: A Study of Class Mobility in Industrial Societies*. Oxford: Clarendon Press.

Erikson, R., Goldthorpe, J. H., & Hällsten, M. (2012). No way back up from ratcheting down? a critique of the 'microclass' approach to the analysis of social mobility. *Acta Sociologica*, *55*(3), 211–229.

Erikson, R., Goldthorpe, J. H., & Portacarero, L. (1979). Intergenerational class mobility in three West European societies England, France, and Sweden. *British Journal of Sociology*, *30*, 415–31.

Erikson, R., Goldthorpe, J. H., & Portocarero, L. (1982). Social fluidity in industrial nations: England, France and Sweden. *British Journal of Sociology*, *33*(1), 1–34.

Falussy, B., & Harcsa, I. (2000). Way of Life and Time Use Survey. Hungarian Central Statistical Office. Documentation and machine readable dataset.

Featherman, D. L., Jones, F. L., & Hauser, R. M. (1975). Assumptions of social mobility research in the United States: The case of occupational status. *Social Science Research*, *4*, 329–360.

Ferge, Z. (1980). *A Society in the Making: Hungarian Social and Societal Policy 1945-1975*. New York: White Plains.

Fielding, A. J. (1992). Migration and social mobility: South East England as an escalator region. *Regional Studies*, *26*(1), 1–15.

Firth, D., & Turner, H. (2005). Generalized non-linear models (GNM) for R, version 1.0-2.

Flora, P., & Heidenheimer, A. J. (1981). *The development of welfare states in Europe and America*. New Brunswick: Transaction Books.

Fukumoto, I. K., & Grusky, D. B. (1993). Social mobility and class structure in early industrial France. In A. Miles, & D. Vincent (Eds.) *Building European society: occupational change and social mobility in Europe 1840-1940*, (p. 40–67). Manchester: Manchester University Press.

Gábor, I. R. (1989). Second economy and socialism: The Hungarian experience. In E. L. Feige (Ed.) *The Underground Economies: Tax Evasion and Information Distortion*. Cambridge: Cambridge University Press.

Galasi, P., & Gábor, I. R. (1981). *A "második gazdaság". Tények és hipotézisek. [The Second Economy. Facts and hypotheses]*. Budapest.: Közgazdasági és Jogi Könyvkiadó.

Ganzeboom, H. B. G., De Graaf, P. M., & Róbert, P. (1990). Reproduction theory on socialist ground: intergenerational transmission of inequalities in Hungary. *Research in Social Stratification and Mobility*, *9*, 79–104.

Ganzeboom, H. B. G., Luijkx, R., & Treiman, D. J. (1989). Intergenerational class mobility in comparative perspective. *Research in Social Stratification and Mobility*, *8*, 3–84.

Ganzeboom, H. B. G., Treiman, D. J., & Ultee, W. C. (1991). Comparative intergenerational stratification research: Three generations and beyond. *Annual Review of Sociology*, *17*(1), 277–302.

Gerber, T. (2006). Getting paid: Wage arrears and stratification in Russia. *American Journal of Sociology*, *111*(6), 1816–1870.

Gerber, T. P. (2000a). Educational stratification in contemporary Russia: Stability and change in the face of economic and institutional crisis. *Sociology of Education*, (pp. 219–246).

Gerber, T. P. (2000b). Membership benefits or selection effects? Why former Communist party members do better in Post-Soviet Russia. *Social Science Research*, *29*(1), 25–50.

Gerber, T. P. (2001). The selection theory of persisting party advantages in Russia: More evidence and implications. *Social Science Research*, *30*(4), 653–671.

Gerber, T. P. (2002). Structural change and post-socialist stratification: Labor market transitions in contemporary Russia. *American Sociological Review*, (pp. 629–659).

Gerber, T. P. (2007). Russia: Stratification in postsecondary education since the Second World War. In Y. Shavit, R. Arum, & A. Gamoran (Eds.) *Stratification in Higher Education: A Comparative Study*, (pp. 294–320). Stanford, CA: Stanford University Press.

Gerber, T. P. (2012). The structural perspective on postsocialist inequality: Job loss in Russia. *Research in Social Stratification and Mobility*, *30*, 17–31.

Gerber, T. P., & Hout, M. (1998). More shock than therapy: Market transition, employment, and income in Russia, 1991-1995 1. *American Journal of Sociology*, *104*(1), 1–50.

Gerber, T. P., & Hout, M. (2004). Tightening up: declining class mobility during Russia's market transition. *American Sociological Review*, *69*(5), 677–703.

Gerber, T. P., & Mayorova, O. (2010). Getting personal: Networks and stratification in the Russian labor market, 1985–20011. *American Journal of Sociology*, *116*(3), 855–908.

Glass, D. V. (1954). *Social Mobility in Great Britain*. London: Routledge & Kegan.

Goldthorpe, J. H. (1985). On economic development and social mobility. *British Journal of Sociology*, *36*(4), 549–573.

Goldthorpe, J. H. (2007). *On Sociology*, vol. 1&2. Stanford, CA: Stanford University Press.

Goldthorpe, J. H., & McKnight, A. (2006). The economic basis of social class. In S. L. Morgan, D. B. Grusky, & G. S. Fields (Eds.) *Mobility and*

inequality: frontiers of research in sociology and economics. Stanford: Stanford University Press.

Good, D. F. (1984). *The economic rise of the Habsburg Empire, 1750-1914*. Berkeley: University of California Press.

Goodman, L. A. (1979a). Multiplicative models for the analysis of occupational mobility tables and other kinds of cross-classification tables. *The American Journal of Sociology*, *84*(4), 804–819.

Goodman, L. A. (1979b). Simple models for the analysis of association in cross-classifications having ordered categories. *Journal of the American Statistical Association*, *74*(367), 537–552.

Goodman, L. A., & Magdison, J. (1978). *Analyzing Qualitative/categorical Data: Log-linear Models and Latent-structure Analysis*. Cambridge, MA: Abt Books.

Grant, O. (2005). *Migration and Inequality in Germany 1870-1913*. Oxford: Oxford University Press.

Griffen, C. (1978). *Natives and Newcomers: The Ordering of Opportunity in Mid-Nineteenth-Century Poughkeepsie*. Chicago: Harvard University Press.

Grusky, D. B. (1983). Industrialization and the status attainment process: The thesis of industrialism reconsidered. *American Sociological Review*, *48*(4), 494–506.

Grusky, D. B., & Fukumoto, I. K. (1989). Social history update: A sociological approach to historical social mobility. *Journal of Social History*, *23*(1), 221–232.

Grusky, D. B., & Galescu, G. (2005). Foundations of a neo-durkheimian class analysis. In E. O. Wright (Ed.) *Approaches to Class Analysis*, (p. 51–81). Cambridge MA: Cambridge University Press.

Grusky, D. B., & Hauser, R. M. (1984). Comparative social mobility revisited: Models of convergence and divergence in 16 countries. *American Sociological Review*, *49*(1), 19–38.

Grusky, D. B., & Weeden, K. A. (2001). Decomposition without death: A research agenda for a new class analysis. *Acta Sociologica*, *44*(3), 203–218.

Guest, A. M. (2005). Frontier and urban-industrial explanations of US occupational mobility in the late 1800s. *Social Science Research*, *34*(1), 140–164.

Guest, A. M., Landale, N. S., & McCann, J. C. (1989). Intergenerational occupational mobility in the late 19th century United States. *Social Forces*, *68*(2), 351–378.

Gyáni, G. (1981). Házicselédek [Domestic servants]. *História*, (2).

Gyáni, G. (2009). Társadalmi nemek a munkaerőpiacon a polgári magyarországon [Gender and labor force in Hungary before WWII]. *Rubicon*, (4).

Haberman, S. J. (1974). Log-linear models for frequency tables with ordered classifications. *Biometrics*, *30*(4), 589–600.

Hajnal, J. (1953). Age at marriage and proportions marrying. *Population studies*, *7*(2), 111–136.

Hajnal, J. (1965). European marriage patterns in perspective. In D. V. Glass, & D. E. C. Eversley (Eds.) *Population in History. Essays in Historical Demography*. London: Edward Arnold Publishers.

Hanák, P., Takács, P., & Harmat, P. (1992). *Polgárosodás és modernizáció a Monarchiában [Embourgeoisement and modernization in the Monarchy]*. Győr: Hazánk Könyvkiadó.

Hanley, E., & McKeever, M. (1997). The persistence of educational inequalities in state-socialist Hungary: trajectory-maintenance versus counterselection. *Sociology of Education*, *70*(1), 1–18.

Harasymiw, B. (1984). *Political Elite Recruitment in the Soviet Union*. New York: St. Martin's Press.

Hardy, M. A. (1989). Estimating selection effects in occupational mobility in a 19th-century city. *American Sociological Review*, *54*(5), 834–843.

Hauser, R. M. (1978). A structural model of the mobility table. *Social Forces*, *56*(3), 919–953.

Hauser, R. M., & Grusky, D. B. (1988). Cross-national variation in occupational distributions, relative mobility chances, and intergenerational shifts in occupational distributions. *American Sociological Review*, *53*(5), 723–741.

Hauser, R. M., & Warren, J. R. (1997). Socioeconomic indexes for occupations: A review, update, and critique. *Sociological Methodology*, *27*, 177–298.

Hazelrigg, L. E., & Garnier, M. A. (1976). Occupational mobility in industrial societies: A comparative analysis of differential access to occupational ranks in seventeen countries. *American Sociological Review*, *41*(3), 498–511.

HCSO (2005). European Union Statistics on Income and Living Conditions. Intergenerational Transmission of Poverty. Hungarian Central Statistical Office. Documentation and machine readable dataset.

HCSO (2007). Regional atlas - Hungary's territorial breakdown by statistical micro-regions for regional development. Hungarian Central Statistical Office.

Hendrickx, J., & Ganzeboom, H. B. G. (1998). Occupational status attainment in the Netherlands, 1920-1990 a multinomial logistic analysis. *European Sociological Review*, *14*(4), 387.

Higgins, J., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine*, *21*(11), 1539–1558.

Higgins, J., Thompson, S. G., & Spiegelhalter, D. J. (2009). A re-evaluation of random-effects meta-analysis. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, *172*(1), 137–159.

Hochstadt, S. L. (1999). *Mobility and Modernity: Migration in Germany, 1820-1989*. Ann Arbor MI: University of Michigan Press.

Hoddinott, J. (1994). A model of migration and remittances applied to Western Kenya. *Oxford Economic Papers*, *46*(3), 459–476.

Hout, M. (1983). *Mobility tables*. No. 31 in Quantitative Applications in the Social Sciences. Beverly Hills: Sage.

Hout, M. (1984). Status, autonomy, and training in occupational mobility. *American Journal of Sociology*, *89*(6), 1379–1409.

Hout, M. (1988). More universalism, less structural mobility: The American occupational structure in the 1980s. *American Journal of sociology*, *93*(6), 1358–1400.

Hout, M., & DiPrete, T. A. (2006). What we have learned: RC28's contributions to knowledge about social stratification. *Research in Social Stratification and Mobility*, *24*(1), 1–20.

Hout, M., & Hauser, R. M. (1992). Symmetry and hierarchy in social mobility: a methodological analysis of the CASMIN model of class mobility. *European Sociological Review*, *8*(3), 239–266.

Hout, M., & Rosen, H. S. (2000). Self-employment, family background, and race. *Journal of Human Resources*, *35*(4), 670–692.

Hubai, L. (2000). A politikai irányzatok választási eredményeinek kontinuitása 1920-1947 [The continuity in election results of political movements between 1920 and 1947]. In P. Levente, T. Lajos, & V. Tibor (Eds.) *Politika, gazdaság és társadalom a XX. századi magyar történelemben II. [Politics, economy, and society in the 20th Century in Hungary II.]*. Debrecen: KLTE Történelmi Intézet új- és legújabbkori Magyar Történelmi Tanszéke.

Hubai, L. (2001). *A Map of Hungarian Parliamentary Elections in the Twentieth Century, 1920-2000*. Budapest: Napvilág.

Hundley, G. (2006). Family background and the propensity for Self-Employment. *Industrial Relations: A Journal of Economy and Society*, *45*(3), 377–392.

IMF (2013). IMF World Economic Outlook Database. Accessed online August 2013.
URL `http://www.imf.org/external/pubs/ft/weo/2013/02/weodata/index.aspx`

Ishida, H. (2001). Industrialization, class structure, and social mobility in postwar Japan. *British Journal of Sociology*, *52*(4), 579–604.

Ishida, H., Goldthorpe, J. H., & Erikson, R. (1991). Intergenerational class mobility in postwar Japan. *American Journal of Sociology*, *96*(4), 954–992.

Ishida, H., Müller, W., & Ridge, J. M. (1995). Class origin, class destination, and education: A cross-national study of ten industrial nations. *American Journal of Sociology*, *101*(1), 145–193.

Jackson, D., White, I. R., & Thompson, S. G. (2010). Extending DerSimonian and Laird's methodology to perform multivariate random effects meta-analyses. *Statistics in Medicine*, *29*(12), 1282–1297.

Jonsson, J., Grusky, D., Di Carlo, M., Pollak, R., & Brinton, M. (2009). Microclass mobility: Social reproduction in four countries. *American Journal of Sociology*, *114*(4), 977–1036.

Jonsson, J. O., Grusky, D., Sato, Y., Miwa, S., Di Carlo, M., Pollak, R., & Brinton, M. C. (2008). Social mobility in japan: A new approach to modeling trend in mobility. In W. Tsutomu (Ed.) *Intergenerational Mobility and Intragenerational Mobility*. 2005 SSM Research Project Series, Volume III.

Kaelble, H. (1983). *Social mobility in the 19th and 20th Centuries. Europe and America in Comparative Perspective*. Lemington Spa: Berg.

Karlson, K. B., & Holm, A. (2011). Decomposing primary and secondary effects: a new decomposition method. *Research in Social Stratification and Mobility*, *29*(2), 221–237.

Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit a new method. *Sociological Methodology*, *42*(1), 286–313.

Keister, L. L., & Borelli, E. P. (2012). Market transition: An assessment of the state of the field. *Sociological Perspectives*, *55*(2), 267–294.

Kerr, C. (1983). *The Future of Industrial Societies: Convergence or Continuing Diversity?*. Cambridge: Harvard U.P.

Keyfitz, N. (1973). Individual mobility in a stationary population. *Population Studies*, *27*(2), 335–352.

Klinger, A., & Kepecs, J. (1990). *A magyar népszámlálások előkészítése és publikációi, 1869-1990 [Collection and Publication of the Hungarian Censuses 1869-1990]*. Budapest: KSH.

Knigge, A., Maas, I., van Leeuwen, M. H. D., & Mandemakers, K. (forthcoming). Status attainment of siblings during modernization. *American Sociological Review*.

Kocsis, K., & Bottlik, Z. (2009). *A népesség változó etnikai arculata Magyarország mai területén [The changing ethnic profile of present-day Hungary]*. Budapest: Hungarian Academy of Sciences Institute of Geosciences.

Kohn, M. (1969). *Class and Conformity: A Study in Values*. Homewood, Il.: Dorsey.

Kohn, M. L., Slomczynski, K. M., & Schoenbach, C. (1986). Social stratification and the transmission of values in the family: A cross-national assessment. *Sociological Forum*, *1*(1), 73–102.

Köllő, J. (1995). Unemployment and the prospects for employment policy in Hungary. In M. R. Jackson, J. Koltay, & W. Biesbrouck (Eds.) *Unemployment and evolving labor markets in Central and Eastern Europe*. Aldershot: Avebury.

Kolosi, T. (1986). General Social Survey. Documentation and machine readable dataset.

Kolosi, T. (1988). Stratification and social structure in Hungary. *Annual Review of Sociology*, (pp. 405–419).

Kolosi, T., & Sági, M. (1998). Top entrepreneurs and their social environment. *Acta Oeconomica*, *49*(3-4), 335–364.

Kornai, J. (1992). *The Socialist System: The Political Economy of Communism: The Political Economy of Communism*. Oxford: Oxford University Press.

Kövér, G., & Gyáni, G. (1998). *Magyarország társadalomtörténete [Social history of Hungary]*. Budapest: Osiris.

Kuha, J. (2004). AIC and BIC: comparisons of assumptions and performance. *Sociological Methods & Research*, *33*(2), 188–229.

Kulcsár, R., & Harcsa, I. (1983). Hungarian Social Mobility and Life History Survey. Documentation and machine readable dataset.

Laband, D. N., & Lentz, B. F. (1983a). Like father, like son: Toward an economic theory of occupational following. *Southern Economic Journal*, *50*(2), 474–493.

Laband, D. N., & Lentz, B. F. (1983b). Occupational inheritance in agriculture. *American Journal of Agricultural Economics*, *65*(2), 311–314.

Laband, D. N., & Lentz, B. F. (1992). Self-recruitment in the legal profession. *Journal of Labor Economics*, *10*(2), 182–201.

Lambert, P., Prandy, K., & Bottero, W. (2007). By slow degrees: two centuries of social reproduction and mobility in Britain. *Sociological Research Online*, *12*(1).

Landes, D. S. (1969). *The Unbounded Prometheus*. Cambrdige: Cambridge University Press.

Li, B., & Walder, A. G. (2001). Career advancement as party patronage: Sponsored mobility into the Chinese administrative elite, 1949-1996. *American Journal of Sociology*, *106*(5), 1371–1408.

Lin, G., & Christiadi (2006). Examining geographic and occupational mobility: A loglinear modelling approach. *Papers in Regional Science*, *85*(4), 505–522.

Lippényi, Z., Maas, I., & van Leeuwen, M. H. (2013a). Intergenerational class mobility in Hungary between 1865 and 1950: Testing models of change in social openness. *Research in Social Stratification and Mobility*, *33*(September), 40–55.

Lippényi, Z., Maas, I., & van Leeuwen, M. H. D. (2013b). Creating the Hungarian Historical Social Mobility File: Historical social structure

and mobility beyond the Leitha. *Istoritcheskaya Informatika [Historical Informatics]*, *4*(2), 3–24.

Lipset, S. M., & Zetterberg, H. L. (1959). Social mobility in industrial societies. In S. M. Lipset, & R. Bendix (Eds.) *Social Mobility in Industrial Society*, (pp. 11–75). Berkeley: University of California Press.

Lohr, S. L. (2008). Coverage and sampling. In E. de Leeuw, J. J. Hox, & D. A. Dillman (Eds.) *International Handbook of Survey Methodology*. New York; London: Lawrence Erlbaum Associates.

Long, J. (2008). Social mobility within and across generations in Britain since 1851. *Journal of Economic History*, *68*, 613–613.

Long, J., & Ferrie, J. (2005). A tale of two labor markets: Intergenerational occupational mobility in Britain and the US since 1850.

Long, J., & Ferrie, J. (2007). The path to convergence: Intergenerational occupational mobility in Britain and the US in three eras. *The Economic Journal*, *117*(519), C61–C71.

Luijkx, R., Róbert, P., De Graaf, P. M., & Ganzeboom, H. B. G. (2002). Changes in status attainment in Hungary between 1910 and 1989. *European Societies*, *4*(1), 107–140.

Maas, I., Van Leeuwen, M. H., Pélissier, J.-P., & Rébaudo, D. (2011). Economic development and parental status homogamy: A study of 19th century France. *The History of the Family*, *16*(4), 371–386.

Maas, I., & Van Leeuwen, M. H. D. (2002). Industrialization and intergenerational mobility in Sweden. *Acta Sociologica*, *45*(3), 179–194.

Maddison, A. (2001). *The World Economy: A Millennial Perspective*. Paris: OECD.

Mandemakers, K. (2000). Historical sample of the Netherlands. In P. K. Hall et al. (Ed.) *Handbook of international historical microdata for population research*, (pp. 149–177). Minneapolis: Minnesota Population Center.

Marsh, H. W., Lüdtke, O., Trautwein, U., & Morin, A. J. S. (2009). Classical latent profile analysis of academic self-concept dimensions: Synergy of person-and variable-centered approaches to theoretical models of self-concept. *Structural Equation Modeling: A Multidisciplinary Journal*, *16*(2), 191–225.

Matějů, P. (1993). Who won and who lost in a socialist redistribution in Czechoslovakia. In Y. Shavit, & H.-P. Blossfeld (Eds.) *Persistent Inequality: Changing Educational Attainment in Thirteen Countries*, (pp. 251–273). Boulder, CO: Westview Press.

Matolcsy, M. (1938). *A magyarországi jövedelem és adótehermegoszlás [The Hungarian income and tax distribution]*. Budapest: Universitas könyvkiadó részvénytársaság.

Matthews, M. (1978). *Privilege in the Soviet Union: a study of elite lifestyles under communism*. London: G. Allen & Unwin.

McCutcheon, A. L. (1987). *Latent Class Analysis*. Quantitative Applications in the Social Sciences. London: Sage.

Miles, A. (1994). How open was nineteenth-century British society? social mobility and equality of opportunity, 1839-1914. In A. Miles, & D. Vincent (Eds.) *Building European Society: Occupational change and social mobility in Europe 1840-1940*, (pp. 18–39). Manchester: Manchester University Press.

Mills, C. W. (1956). *The Power Elite*. New York: Oxford University Press.

Mitch, D., Brown, J., & Van Leeuwen, M. H. D. (Eds.) (2004). *Origins of the Modern Career*. Aldershot: Ashgate.

MKKSH (1935). *Az 1930. évi népszámlálás, 1. és 2. kötet [The 1930 Hungarian census Vol.1 & 2]*. Magyar Statisztikai Közlemények 94. Budapest: Magyar Királyi Központi Statisztikai Hivatal [Hungarian Royal Central Bureau of Statistics].

Morris, R. T., & Murphy, R. J. (1959). The situs dimension in occupational structure. *American Sociological Review*, *24*(2), 231–239.

Mulder, C. H., & van Ham, M. (2005). Migration histories and occupational achievement. *Population, Space and Place*, *11*(3), 173–186.

Müller, W., & Pollak, R. (2004). Social mobility in West Germany: The long arms of history discovered. In R. Breen (Ed.) *Social Mobility in Europe*, (pp. 77–113). Oxford: Oxford University Press.

Nee, V. (1989). A theory of market transition: From redistribution to markets in state socialism. *American Sociological Review*, *54*(5), 663–81.

Nee, V. (1991). Social inequalities in reforming state socialism: Between redistribution and markets in China. *American Sociological Review*, *56*(3), 267–282.

Nee, V. (1996). The emergence of a market society: Changing mechanisms of stratification in China. *American Journal of Sociology*, *101*(4), 908–49.

Nee, V., & Cao, Y. (2005). Market transition and the firm: Institutional change and income inequality in urban China. *Management and Organization Review*, *1*(1), 23–56.

Nee, V., & Opper, S. (2010). Political capital in a market economy. *Social Forces*, *88*(5), 2105–2132.

Parkin, F. (1971). *Class Inequality and Political Order: Social Stratification in Capitalist and Communist Societies*. London: MacGibbon & Kee London.

Parsons, T. (1967). *Structure and Process in Modern Societies*, vol. 6th print. New York: Free Press.

Pooley, C., & Turnbull, J. (1998). *Migration and Mobility in Britain since the Eighteenth Century*. London: Routledge.

Raftery, A. E. (1995). Bayesian model selection in social research. *Sociological Methodology*, *25*, 111–164.

Ringdal, K. (1994). Intergenerational class mobility in post-war Norway: A weakening of vertical barriers? *European Sociological Review*, *10*(3), 273–288.

Róna-Tas, Á. (1994). The first shall be last? Entrepreneurship and communist cadres in the transition from socialism. *American Journal of Sociology*, *100*(1), 40–69.

Róna-Tas, Á., & Guseva, A. (2001). The privileges of past communist party membership in Russia and endogenous switching regression. *Social Science Research*, *30*(4), 641–652.

Róbert, P., & Bukodi, E. (2004a). Changes in intergenerational class mobility in Hungary, 1973-2000. In R. Breen (Ed.) *Social Mobility in Europe*. Oxford University Press.

Róbert, P., & Bukodi, E. (2004b). Winners or losers? Entry and exit into self-employment in Hungary: 1980s and 1990s. In R. Arum (Ed.) *The Reemergence of Self-Employment. A Comparative Study of Self-Employment Dynamics and Social Inequality*, (pp. 245–276). Princeton, NJ: Princeton University Press.

Róbert, P., & Bukodi, E. (2006). The effects of the globalization process on the transition to adulthood in Hungary. In H.-P. Blossfeld, E. Klijzing, M. Mills, & K. Kurz (Eds.) *Globalization, Uncertainty, and Youth in Society*. London: Routledge.

Romsics, I. (1999). *Magyarország a XX. században [Hungary in the twentieth century]*. Budapest: Corvina.

Rudas, T. (1997). *Odds Ratios in the Analysis of Contingency Tables*. New York: Sage.

Ruggles, S. (2007). The decline of intergenerational coresidence in the United States, 1850 to 2000. *American Sociological Review*, *72*(6), 964–989.

Saar, E. (2009). Changes in intergenerational mobility and educational inequality in Estonia: Comparative analysis of cohorts born between 1930 and 1974. *European Sociological Review*, *26*(3), 367–383.

Schofer, E., & Meyer, J. W. (2005). The worldwide expansion of higher education in the twentieth century. *American Sociological Review*, *70*(6), 898–920.

Schulz, W. (2013). *Careers of Men and Women in the 19th and 20th Centuries*. Doctoral dissertation, ICS/Utrecht University, Utrecht.

Simkus, A. (1981). Historical changes in occupational inheritance under socialism: Hungary 1930-1973. *Research in Social Stratification and Mobility*, *1*, 171–203.

Simkus, A. (1984). Structural transformation and social mobility: Hungary 1938-1973. *American Sociological Review*, *49*(3), 291–307.

Simkus, A., & Andorka, R. (1982). Inequalities in educational attainment in Hungary, 1923-1973. *American Sociological Review*, *47*(6), 740–751.

Simmel, G. (1990 [1907]). *The Philosophy of Money*. London: Routledge, 2nd enlarged edition ed.

Simonova, N. (2003). The evolution of educational inequalities in the Czech Republic after 1989. *British Journal of Sociology of Education*, *24*, 471–85.

Sjaastad, L. A. (1962). The costs and returns of human migration. *Journal of Political Economy*, *70*(5), 80–93.

Solt, F. (2009). Standardizing the world income inequality database. *Social Science Quarterly*, *90*(2), 231–242.

Sorokin, P. A. (1959 [1927]). *Social and Cultural Mobility*. New York: The Free Press.

Sørensen, J. B. (2007). Bureaucracy and entrepreneurship: Workplace effects on entrepreneurial entry. *Administrative Science Quarterly*, *52*(3), 387–412.

Stark, D. (1994). Path dependence and privatization strategies in East Central Europe. In J. M. Kovács (Ed.) *Transition to Capitalism?: The Communist Legacy in Eastern Europe*, (p. 63–101). New Brunswick NJ: Transaction Publishers.

Stark, O., & Taylor, J. E. (1991). Migration incentives, migration types - the role of relative deprivation. *The Economic Journal*, *101*(408), 1163–1178.

Swain, N. (1992). *Hungary Before Socialist Industrialization*. University of Liverpool: CCEES Rural transition series.

Szelényi, I. (1978). Social inequalities in state socialist redistributive economies. *International journal of comparative sociology*, *19*(1-2), 63–87.

Szelényi, I. (1983). *Urban Inequalities under State Socialism*. Oxford: Oxford University Press.

Szelényi, I. (1988). *Socialist Entrepreneurs: Embourgeoisement in Rural Hungary*. Madison: University of Wisconsin Press.

Szelényi, S., Aschaffenburg, K., Chang, M. L., & Poster, W. (1998). *Equality by Design: The Grand Experiment in Destratification in Socialist Hungary*. Stanford CA: Stanford University Press.

Thernstrom, S. (1973). *The Other Bostonians: Poverty and Progress in the American Metropolis, 1880-1970*. Cambridge: Cambridge University Press.

Torche, F. (2005). Unequal but fluid: Social mobility in Chile in comparative perspective. *American Sociological Review*, *70*(3), 422–450.

Trapido, D. (2007). Gendered transition: Post-soviet trends in gender wage inequality and young full-time workers. *European Sociological Review*, *23*(2), 223–237.

Treiman, D. J. (1970). Industrialization and social stratification. In E. O. Laumann (Ed.) *Social Stratification: Research and Theory for the 1970s*, (pp. 207–235). Indianapolis: Bobbs-Merrill.

Treiman, D. J. (1977). *Occupational Prestige in Comparative Perspective*. New York: Academic Press.

Treiman, D. J., & Ganzeboom, H. B. G. (2000). The fourth generation of comparative stratification research. In S. Quah, & A. Sales (Eds.) *The International Handbook of Sociology*, (pp. 123–150). Thousand Oaks, CA: Sage.

Treiman, D. J., & Szelényi, I. (1993). Social Stratification in Eastern Europe after 1989. Hungarian general population sample. Documentation and machine readable dataset.

Treiman, D. J., & Yip, K.-b. (1989). Educational and occupational attainment in 21 countries. In M. L. Kohn (Ed.) *Cross-national Research in Sociology (ASA Presidential Series)*, (pp. 373–394). Newbury Park, CA: Sage.

Tyree, A., Semyonov, M., & Hodge, R. W. (1979). Gaps and glissandos: inequality, economic development, and social mobility in 24 countries. *American Sociological Review*, *44*(3), 410–424.

Vallet, L.-A. (2004). Change in intergenerational class mobility in France from the 1970s to the 1990s and its explanation: An analysis following the CASMIN approach. In R. Breen (Ed.) *Social mobility in Europe*, (p. 287–314). Oxford: Oxford University Press.

Van Leeuwen, M. H. D., & Maas, I. (1997). Social mobility in a Dutch province, Utrecht 1850-1940. *Journal of Social History*, *30*(3), 619–645.

Van Leeuwen, M. H. D., & Maas, I. (2010). Historical studies of social mobility and stratification. *Annual Review of Sociology*, *36*, 429–451.

Van Leeuwen, M. H. D., & Maas, I. (2011). *HISCLASS: A Historical International Social Class Scheme.* Leuven: Leuven University Press.

Van Leeuwen, M. H. D., Maas, I., & Miles, A. (2002). *Historical International Classification of Occupations (HISCO).* Leuven: Leuven University Press.

Van Poppel, F., & Van Gaalen, R. (2008). Sociale klasse, sociale mobiliteit en sterfte in Nederland, 1850-2007 [social class, social mobility, and mortality in the Netherlands, 1850-2007]. In I. Maas, M. H. D. van Leeuwen, & K. Mandemakers (Eds.) *Honderdvijftig jaar levenslopen: De Historische Steekproef Nederlandse bevolking [150 years of careers: The Historical Sample of the Dutch Population]*, (p. 203–236). Amsterdam: Amsterdam University Press.

Verhoeven, W.-J., Flap, H., Dessens, J., & Jansen, W. (2008). Income advantages of communist party members before and during the transformation process. *European Societies*, *10*(3), 379–402.

Verhoeven, W.-J., Jansen, W., & Dessens, J. (2005). Income attainment during transformation processes a meta-analysis of the market transition theory. *European Sociological Review*, *21*(3), 201–226.

Vermunt, J. K., & Magidson, J. (2002). Latent class cluster analysis. In J. A. Hagenaars, & A. L. McCutcheon (Eds.) *Applied Latent Class Analysis*, (p. 89–106). Cambridge MA: Cambridge University Press.

Walder, A., & Hu, S. (2009). Revolution, reform, and status inheritance: Urban China, 1949–1996. *American Journal of Sociology*, *114*(5), 1395–1427.

Walder, A. G. (1995). Career mobility and the communist political order. *American Sociological Review*, *60*(3), 309–328.

Walder, A. G. (1996). Markets and income inequality in rural China: Political advantage in an expanding economy. *American Sociological Review*, *67*(2), 231–253.

Walder, A. G. (2002). Income determination and market opportunity in rural China, 1978–1996. *Journal of Comparative Economics*, *30*(2), 354–375.

Walder, A. G. (2003). Elite opportunity in transitional economies. *American Sociological Review*, *68*(6), 899–916.

Walder, A. G., Li, B., & Treiman, D. J. (2000). Politics and life chances in a state socialist regime: Dual career paths into the urban Chinese elite, 1949 to 1996. *American Sociological Review*, *65*(2), 191–209.

Weber, M. (1978 [1922]). *Economy and Society. An Outline of Interpretive Sociology*. Berkeley: University of California Press.

Weeden, K. A. (2002). Why do some occupations pay more than others? social closure and earnings inequality in the united states. *American Journal of Sociology*, *108*(1), 55–101.

Weeden, K. A., & Grusky, D. B. (2012). The three worlds of inequality. *American Journal of Sociology*, *117*(6), 1723–1785.

Whelan, C. T., & Layte, R. (2002). Late industrialization and the increased merit selection hypothesis. Ireland as a test case. *European Sociological Review*, *18*(1), 35–50.

White, I. R. (2011). Multivariate random-effects meta-regression: updates to mvmeta. *Stata Journal*, *11*(2), 255–270.

Wong, R. S.-K. (1990). Understanding cross-national variation in occupational mobility. *American Sociological Review*, *55*(4), 560–573.

Wong, R. S.-K. (1995a). Extensions in the use of log-multiplicative scaled association models in multiway contingency tables. *Sociological Methods & Research*, *23*(4), 507–538.

Wong, R. S.-K. (1995b). Socialist stratification and mobility: Cross-national and gender differences in Czechoslovakia, Hungary, and Poland. *Social Science Research*, *24*(3), 302–328.

Wong, R. S.-K. (1998). Multidimensional influences of family environment in education: The case of socialist Czechoslovakia. *Sociology of Education*, *71*(1), 1–22.

Wong, R. S.-K. (2010). *Association Models*, vol. 164. New York: Sage.

Wong, R. S.-K., & Hauser, R. M. (1992). Trends in occupational mobility in Hungary under socialism. *Social Science Research*, *21*(4), 419–444.

Wright, E. O. (1985). *Classes*. Lodon: Verso.

Wu, X. (2006). Communist cadres and market opportunities: Entry into self-employment in China, 1978–1996. *Social Forces*, *85*(1), 389–411.

Wu, X. (2010). Economic transition, school expansion and educational inequality in China, 1990-2000. *Research in Social Stratification and Mobility*, *28*(1), 91–108.

Wu, X., & Treiman, D. J. (2007). Inequality and equality under Chinese Socialism: The hukou system and intergenerational occupational mobility. *American Journal of Sociology*, *113*(2), 415–445.

Wu, X., & Xie, Y. (2003). Does the market pay off? earnings returns to education in urban China. *American Sociological Review*, *68*(3), 425–442.

Xie, Y. (1992). The log-multiplicative layer effect model for comparing mobility tables. *American Sociological Review*, *57*(3), 380–395.

Xie, Y., & Hannum, E. (1996). Regional variation in earnings inequality in reform-era urban China. *American Journal of Sociology*, *101*(4), 950–92.

Xie, Y., & Killewald, A. (2010). Historical trends in social mobility: Data, methods, and farming. In *Annual Meeting of International Sociological Association Research Committee*, vol. 28.

Yaish, M. (2004). *Class Mobility Trends in Israeli Society, 1974-1991*. Lewinston: Edwin Mellen Press.

Zhao, W., & Zhou, X. (2002). Institutional transformation and returns to education in urban China: An empirical assessment. *Research in Social Stratification and Mobility*, *19*, 377–415.

Zhou, X. (2000). Economic transformation and income inequality in urban China: evidence from panel data. *American Journal of Sociology*, *105*(4), 1135–1174.

Zhou, X., Tuma, N. B., & Moen, P. (1997). Institutional change and job-shift patterns in urban China, 1949 to 1994. *American Sociological Review*, *62*(3), 339–365.

Zijdeman, R. (2010). *Status Attainment in the Netherlands, 1811-1941*. Doctoral dissertation, ICS/Utrecht University, Utrecht.

Zijdeman, R. L. (2009). Like my father before me: intergenerational occupational status transfer during industrialization (Zeeland, 1811–1915). *Continuity and Change*, *24*(03), 455–486.

Samenvatting

Probleemstelling en onderzoeksvragen

Één van de oudste onderzoeksgebieden binnen de empirische sociologie betreft de mate van sociale mobiliteit van en ongelijkheid tussen klassen alsmede de vraag naar de determinanten daarvan. Dit proefschrift draagt bij aan dit onderzoeksgebied door de ontwikkeling in intergenerationele beroepsmobiliteit tijdens twee historische transities in Hongarije te bestuderen. Deze twee transities betreffen de modernisering en industrialisatie in de laat 19de en vroeg 20ste eeuw en de transitie naar een kapitalistische economie na de val van het communisme in de jaren '80 en '90 van de 20ste eeuw. In de inleiding van dit boek (Hoofdstuk 1) heb ik twee onderzoeksvragen geformuleerd. De eerste vraag luidt: werd de Hongaarse samenleving in de loop van de tijd steeds gelijker, en zo ja, welke periodes worden door een hoger niveau van relatieve sociale mobiliteit gekenmerkt? De tweede vraag sluit daarop aan: hoe is de variatie in sociale openheid in Hongarije te verklaren?

Hoofdstuk 2: De Hongaarse Historische Sociale Mobiliteitsfile

Om sociale mobiliteit in de 19de eeuw te kunnen onderzoeken is uit Hongaarse kerkregisters een grootschalige, representatieve steekproef getrokken van huwelijksaktes over de periode 1850 tot 1950. De Hongaarse Historische Sociale Mobiliteits-file (HHSMF) bestaat uit meer dan 80.000 huwelijken op het huidige grondgebied van Hongarije en is daarmee de eerste grootschalige dataset die historische mobiliteit en stratificatie van een Centraal-Oost-Europees land in kaart brengt. De HHSMF is ontworpen om veranderingen op lange termijn in sociale mobiliteit en homogamie, zowel op landelijk, regionaal als gemeenteniveau, te bestuderen. De huwe-

lijksaktes voorzien in gegevens over de beroepen van bruiden, bruidegoms, hun vaders, en de getuigen van het echtpaar. Voor dit onderzoek werd alleen gebruik gemaakt van de beroepen van bruidegoms en hun vaders uit de HHSMF, omdat vrouwen in deze periode zich nog nauwelijks op de arbeidsmarkt begaven. In Hoofdstuk 2 wordt uitgebreide informatie gegeven over de data. In dat hoofdstuk geven we enkele oplossingen voor veelvoorkomende problemen met het werken met historische huwelijksaktes, zoals, de ontbrekende gegevens over beroepen van de vader, de veranderende leeftijdscompositie van huwelijkscohorten, en de wisselvallige kwaliteit van de informatie over beroepen. De analyses laten zien dat in de HHSMF deze veelvoorkomende problemen tot een minimum beperkt zijn en dat ze in ieder geval de uitkomsten over veranderingen in intergenerationele mobiliteit in Hongarije sinds 1865 niet lijken te vertekenen.

Hoofdstuk 3: Tijdsveranderingen in totale en relatieve mobiliteit 1865-1950

Uit verschillende eerdere sociologische mobiliteitsstudies over Hongarije blijkt dat de sociale openheid al is toegenomen voordat het communisme tijdperk zicht aandient. Dat is opmerkelijk, aangezien historische studies over de sociale structuur vóór het communisme als rigide omschrijven waar weinig intergenerationele mobiliteit plaatshad. Politieke veranderingen in Hongarije waren dermate gering dat ze de toename in sociale mobiliteit niet goed kunnen verklaren. Zo werden er bijvoorbeeld noch in Oostenrijk-Hongarije (1867-1918) noch in het onafhankelijke Koninkrijk van Hongarije, onder het bestuur van admiraal Horthy (1919-1946), vrije verkiezingen gehouden. Ook ontbrak er in de politiek een brede vertegenwoordiging van de samenleving. Economische en sociale modernisering bieden wellicht betere verklaringen voor de toename in sociale openheid. Hongarije moderniseerde in de late 19de en vroege 20ste eeuw in meerdere opzichten. Ten eerste maakte de Hongaarse economie – voornamelijk in de tussen 1890 en de start van de Eerste Wereldoorlog in 1914 – een periode van grote industrialisering en groei door (zie meer in Hoofdstuk 1). Ten tweede steeg het aandeel van de bevolking dat basisonderwijs genoot gedurende deze periode. Ten slotte werd het Hongaarse spoorwegnet vanaf het einde van de 19de eeuw zeer snel uitgebreid wat de geografische mobiliteit van veel Hongaren bevorderde. Het aantal inwoners in steden is mede hierdoor

sterk toegenomen. In 1870 woonde ongeveer 20 procent van de bevolking in steden en dit liep op tot 30 procent vóór de Eerste Wereldoorlog en tot 35 procent in 1930.

In Hoofdstuk 3 beantwoorden we de eerste onderzoeksvraag – of de Hongaarse samenleving opener werd – door de veranderingen in de sociale mobiliteit in Hongarije tussen 1865 tot 1950 te bestuderen. Met de HHSMF waren wij in staat om ook de periode vóór de Eerste Wereldoorlog te onderzoeken. Deze periode is nog niet bestudeerd in eerder onderzoek. Op basis van de moderniseringstheorie verwachtten wij dat de sociale openheid geleidelijk zou toenemen in Hongarije. Deze theorie stelt dat naarmate een samenleving moderner wordt, onderwijs en de arbeidsmarkt steeds meritocratischer worden waardoor het belang van sociale afkomst afneemt. Op basis van de status reproductietheorie formuleerden wij ook een tegenhypothese. De status reproductietheorie gaat er namelijk van uit dat mensen uit de hogere klassen compenserende strategieën kiezen, om ervoor te zorgen dat ze hun voordelige statuspositie blijven behouden. Zo kunnen ze bijvoorbeeld hun kinderen extra-curriculair onderwijs laten volgen zodat zij een voorsprong behouden op kinderen uit de lagere klassen. Op basis van deze theorie zouden we dan ook geen algemene trend in de mate van ongelijkheid van beroepskansen vinden, maar slechts schommelingen waarbij het verschil tussen hogere en lagere klassen ongeveer gelijk blijft. Verder toetsten we of een eventuele toename in sociale openheid door een 'industriële sprong' kwam. Industrialisatie van productie in Hongarije kwam voor het eerst op gang vóór de Eerste Wereldoorlog. Na de Eerste Wereldoorlog is deze groei door het verliezen van de oorlog gestopt. Ten slotte hebben we getoetst of de Eerste Wereldoorlog, de grote economische recessie in de jaren 30, de Tweede Wereldoorlog, en de korte periode van democratisering in Hongarije de openheid van de Hongaarse samenleving beïnvloedden.

De agrarische klassen waren in Hongarije gedurende de laat 19de en vroeg 20ste eeuw de grootste klassen, hoewel er in die periode wel verschuivingen plaatsvonden in de beroepsstructuur. Zo kwamen er steeds meer niet-agrarische manuele en niet-manuele beroepen in de plaats van agrarische beroepen. Het percentage zonen dat steeg of daalde op de sociale ladder nam toe in deze periode. Echter, deze bevinding betekent niet dat gelijkheid in beroepskansen ook toenam. Tijdsverschillen in de mate

van mobiliteit zijn voor een deel 'gedwongen' door veranderingen in de beroepsstructuur tussen de generatie van zonen en vaders. Het percentage mobiele zonen is dus een minder geschikte maat om klassenongelijkheid in mobiliteitskansen te vergelijken tussen perioden. Om een beter beeld vormen over ongelijkheid hebben wij daarom op basis van *log-lineaire* en *log-multiplicative* modellen *odds ratios* berekend, die onafhankelijk zijn van verschuivingen in de beroepsstructuur.

In overeenstemming met de moderniseringstheorie blijkt uit deze analyses dat Hongarije geleidelijk opener werd in de periode 1865-1950. De toenemende openheid valt af te lezen aan de afnemende samenhang tussen de beroepsklasse van de vader en de zoon op de diagonaal van de mobiliteitstabel. Dit betekent dat zonen makkelijker de beroepsklasse van hun vaders konden verlaten en dat hun mobiliteit bovendien niet gedwongen was door veranderingen in de beroepsstructuur. Het feit dat zonen mobieler werden, betekende echter niet dat ze in dezelfde mate elk gewenste hogere klasse konden bereiken. Sterker, vóór 1905 vond er zelfs een lichte toename plaats van de ongelijkheid onder mobiele zonen in de mate waarin ze hogere of lagere klassen konden bereiken. Hoewel na 1905 deze klassenverschillen weer iets afnamen, werden over de hele periode de kansen niet significant gelijker voor zonen die hun vaders' beroepsklasse verlieten. De verandering in klassenongelijkheid in Hongarije was geleidelijk. Er vond relatief meer mobiliteit plaats, maar de uitwisseling voltrok zich vooral tussen klassen die over vergelijkbare posities beschikten in de klassenhiërarchie.

Hoofdstuk 4: Modernisering van contexten en relatieve mobiliteit

Tussen 1865 en 1950 bestonden er in Hongarije grote verschillen in de mate van modernisering en industrialisering tussen plaatsen. Hoofdstuk 4 is gericht op de vraag of contextuele verschillen – gedefinieerd op basis van huwelijkscohorten in Hongaarse gemeentes tussen 1870 en 1950 – in sociale openheid verklaard kunnen worden door contextuele verschillen in de mate en het type van modernisering. De industrialiseringstheorie stelt dat in het bijzonder de toename van onderwijskansen, industrialisering, modernisering van het vervoer en verstedelijking bijdragen aan een grotere openheid van de samenleving. We belichten deze mechanismen in Hoofd-

stuk 4 en leiden daar vervolgens verschillende hypotheses uit af. Om deze hypotheses empirisch te toetsen, gebruiken we allereerst een methode die de relatieve mobiliteit schat op basis van mobiliteitstabellen voor elke context (huwelijkscohorten in gemeentes). Net zoals in Hoofdstuk 3 modelleren we de samenhang tussen de klasse van vaders en die van zonen op de diagonale cellen (immobiliteit) en buiten de diagonaal van de mobiliteitstabel afzonderlijk. De metingen van sociale openheid uit deze log-lineaire analyses hebben we vervolgens gecombineerd met moderniseringsindicatoren om een meta-regressieanalyse uit te voeren.

Uit die analyses blijkt dat industrialisering en de toename van transportmogelijkheden de belangrijkste determinanten zijn voor grotere sociale openheid van Hongaarse contexten. Deze bevindingen bevestigen de hypotheses van de industrialiseringstheorie. Onderwijsexpansie (van voornamelijk het basisonderwijs) beïnvloedde de immobiliteit van de geschoolde arbeidersklasse. Het was eenvoudiger om deze beroepsklasse te betreden en te verlaten in contexten met meer onderwijsmogelijkheden. De hypothesen van de industrialiseringstheorie worden echter niet helemaal gesteund. De moderniseringsprocessen beïnvloedden namelijk niet de mate van uitwisseling tussen klassen, en ook niet de mate van immobiliteit van de hoogste klasse. Deze bevindingen zouden naar de al eerder benoemde status reproductie strategieën kunnen wijzen. Door deze strategieën toe te passen kunnen de hoogste klassen hun voordelige klasseposities aan hun kinderen blijven overdragen.

Hoofdstuk 5: Interne migratie, urbanisering en tijdsveranderingen in relatieve mobiliteit

De industrialiseringstheorie stelt dat interne migratie en urbanisering twee mogelijke oorzaken zijn van de toename in sociale mobiliteit. Er zijn echter ook theorieën die juist beweren dat migratie en de groei van het inwonertal van steden sociale ongelijkheid en uitsluiting vergroten. Hoofdstuk 5 richt zich op de vraag of relatieve mobiliteit groter is onder migranten en onder stedelijke bewoners; en of de toename in het aandeel migranten en stedelijke bewoners de toename in sociale openheid in Hongarije kunnen verklaren. Op basis van de theorie van menselijk kapitaal leid ik de hypothese af dat relatieve mobiliteit onder migranten groter is. Door de onzekerheden en de kosten die gepaard gaan met migratie zouden mensen

met een hogere verwachte productiviteit migreren, omdat voor hen de baten van het migreren groter zijn dan de kosten. Aangezien hulpbronnen vanuit het ouderlijk huis de kosten en onzekerheden van het migreren verlagen, zou hierdoor een nog sterkere selectie op basis van productiviteit plaats kunnen vinden onder migranten met minder hulpbronnen. Als deze selectiemechanismen daadwerkelijk plaatsvonden, zouden we dus verwachten dat onder migranten de lagere sociale afkomst vaker samenvalt met hogere productiviteit dan onder niet-migranten waardoor de beroepsklasse van de ouders de klasse van de zoon minder sterk zou moeten bepalen dan onder niet-migranten. Onder migranten die op grotere afstand van hun plaats van herkomst migreren en onder stedelijke migranten zou de beroepsklasse van de ouders een nog kleinere rol spelen.

Log-lineaire analyses bevestigen de hypotheses dat relatieve mobiliteit onder migranten groter is en dat onder langeafstand- en stedelijke migranten de beroepsklasse van de ouders een kleinere rol speelt. Voor de hypothese dat relatieve mobiliteit groter is onder stedelingen vinden we echter weinig empirisch bewijs. Om te toetsen of migratie en verstedelijking de toename in sociale openheid kunnen verklaren, heb ik de tijdsveranderingen in relatieve mobiliteit geschat via een model dat controleert voor verschillen in relatieve mobiliteit onder migranten en stedelingen. Deze schatting heb ik vervolgens vergeleken met een schatting op basis van een model dat niet controleert voor migratie en verstedelijking. Het model dat controleert voor migratie en urbanisering laat een minder sterke toename in diagonale associatie zien. Interne migratie en in mindere mate urbanisering verklaren dus deels de tijdsverandering in sociale openheid. Tijdsveranderingen in de diagonale associatie van de agrarische klassen worden echter niet verklaard door migratie en toename van stedelijke populatie.

De belangrijkste bevindingen

De eerste vier hoofdstukken van dit boek namen relatieve mobiliteit in Hongarije in de eerste periode van modernisering onder de loep. Deze studie laat zien dat de ongelijkheid tussen klassen in beroepskansen is afgenomen in Hongarije in de periode van vroege modernisering (1865-1950). Relatieve mobiliteit was groter in industriële arbeidsmarkten en in contexten met meer transport- en onderwijsmogelijkheden. Interne migratie verklaarde deels waarom ongelijkheid in beroepskansen afnam in Hongarije

in de periode van vroege modernisering. Er waren echter verschillen tussen klassen in de mate waarin hun mobiliteit door modernisering en migratie werd beïnvloed, en in het bijzonder was de mobiliteit van de hoge klasse 'bestand' tegen deze invloeden.

Hoofdstuk 6: intergenerationele beroepsmobiliteit tijdens de markt transitie in Hongarije

Politieke transities kunnen leiden tot fundamentele veranderingen in maatschappelijke instellingen die de processen van sociale ongelijkheid kunnen beïnvloeden. Hoofdstuk 6 bestudeert of en hoe de Hongaarse transitie van socialisme naar kapitalisme in de jaren '90 van de 20ste eeuw de mechanismen van intergenerationele beroepsmobiliteit heeft veranderd. Dit hoofdstuk stelt een nieuw theoretisch model op om de mechanismen en de mate van veranderingen van sociale mobiliteit gedurende deze transitie te beschrijven. Dit 'PEACH' model kent vier verticale dimensies en een horizontale dimensie. De verticale dimensies betreffen hulpbronnen van beroepen – politieke macht, onderwijs, autonomie en kapitaal – die bepalen in hoeverre er tussen lage en hoge beroepen mobiliteit plaatsvindt. De horizontale dimensie beschrijft de mate van intergenerationele mobiliteit tussen beroepen in dezelfde economische sector.

We verwachten dat politieke macht een veel sterker effect zou hebben op intergenerationele mobiliteit tijdens de communistische periode dan daarna. Vanuit de Markt Transitie theorie leiden we de hypothese af dat autonomie en kapitaal een grotere rol zouden spelen na de transitie dan ervoor. Ook verwachten we dat de sterkte van horizontale samenhang tussen beroepen zou verminderen door de marktshervormingen, maar niet helemaal zouden verdwijnen.

Voor de empirische analyses zijn de verticale en de horizontale dimensies op beroepsniveau (micro-klasse) gemeten. In de log-lineaire analyse zijn deze dimensies opgenomen om de intergenerationele samenhang te modelleren. Op basis van de veranderingen in de sterkte van de dimensies kunnen wij de theoretische verwachtingen toetsen. Survey datasets zijn gebruikt vóór de transitie en in de vroege en latere periode tijdens de transitie. De bevindingen bevestigen de theoretische verwachtingen: politieke macht was een belangrijke dimensie van intergenerationele beroepsmobiliteit onder het communisme, maar deze dimensie boette sterk

aan kracht in toen Hongarije de transitie maakte naar een kapitalistische markteconomie. Intergenerationele horizontale verbanden tussen beroepen in dezelfde economische sector boetten ook aan belang in gedurende de transitie. De invloed van kapitaal en autonomie was toegenomen zoals de Markt Transitie theorie voorspelde.

Uit de bevindingen van dit hoofdstuk kunnen we concluderen dat communistische samenlevingen een uniek geïnstitutionaliseerd mechanisme van beroepsmobiliteit kenden. Eerdere mobiliteitsmodellen die op markteconomieën waren gebaseerd, waren niet in staat om dit te laten zien. Het model dat we in dit hoofdstuk ontwikkelden kan in vervolgonderzoek ook worden toegepast om intergenerationele mobiliteit te bestuderen in andere communistische of postcommunistische landen. Zo zou China een zeer interessante context zijn voor toekomstig onderzoek omdat daar hervormingen van de markt niet gepaard gingen met politieke democratisering, zoals dat in Hongarije het geval was.

Összefoglalás

Kutatási kérdések

Az empirikus szociológia régi kérdése, hogy mi határozza meg a generációk közötti társadalmi mobilitás és a mobilitási lehetőségek egyenlőtlenségének mértékét. A jelen doktori disszertáció a generációk közötti foglalkozási mobilitást vizsgálja a magyar társadalom két történeti időszakában, a 19. század végétől a 20. század elejéig, illetve a rendszerváltás előtti és utáni időszakban. A disszertáció első fejezetében két kutatási kérdést fogalmazok meg. Az első kutatási kérdés, hogy a magyar társadalom nyitottabbá vált-e, és hogy mely történeti szakaszokat jellemzi a foglalkozási mobilitási lehetőségek nagyobb mértékű egyenlősége, vagyis a *relatív* társadalmi mobilitás. A második kutatási kérdés, hogy mi magyarázza a relatív mobilitás mértékének időbeli és térbeli változásait Magyarországon.

2. fejezet: A Magyar Történeti Mobilitási adatbázis

A 19. századi társadalmi mobilitás tanulmányozásához egy nagymintás adatbázist gyűjtöttünk a mai Magyarország területén található egyházközségek 1850 és 1950 közötti házassági anyakönyveiből. A több mint 80 ezer házasságot tartalmazó Magyar Történeti Mobilitási Adatbázis (MTMA) az első olyan nagyméretű adatbázis Kelet-Közép-Európában, mellyel foglalkozási mobilitási és rétegződési folyamatok hosszútávú történeti változásait tudjuk vizsgálni. Az adatbázis megtervezésekor, melyről a második fejezet részletesen beszámol, azt tűztük ki célul, hogy a társadalmi mobilitás időbeli és térbeli változásait mind országos, mind regionális és települési szinten tanulmányozhassuk.

A házassági anyakönyvek a házasulandók, szüleik és a tanúk foglalkozási adatait tartalmazzák, melyből a doktori kutatásomhoz csak a vőlegé-

nyek és édesapjuk foglalkozási adatait használtam fel. A nők generációk közötti foglalkozási mobilitását az 19. század és 20. század elején nem tárgyalja ez a disszertáció. Házas nők ebben az időszakban a munkaerőpiacon még kis számban voltak jelen, és az adatbázis sem tartalmaz kellő mennyiségű adatot a foglalkozásukról, ami elegendő lenne nagy elemszámot igénylő mobilitási modellek számításához. A második fejezetben megvizsgáljuk, hogy a történeti mobilitási adatfájlokkal kapcsolatban felmerülő problémák milyen mértékben befolyásolhatják a kutatás empirikus eredményeit. Ezek a problémák az édesapa hiányzó adatai, a házasodási életkor változása, és az anyakönyvi foglalkozási bejegyzések változó minősége. Elemzések során kimutatjuk, hogy ezek a problémák az MTMA kapcsán nem nagymértékűek, illetve hogy a foglalkozási mobilitás változásaival kapcsolatos empirikus eredményeket nem torzítják.

3. fejezet: A relatív és abszolút intergenerációs mobilitás változásai 1865 és 1950 között

A magyarországi társadalmi mobilitással foglalkozó empirikus szociológiai szakirodalom egyik érdekes eredménye, hogy a magyar társadalom már az államszocializmus periódusát megelőző évtizedekben nyitottabbá vált, tehát a szülők foglalkozási osztálya időben csökkenő mértékben határozta meg a férfiak foglalkozási osztályát. A növekvő társadalmi nyitottság némiképp meglepő annak tükrében, hogy a társadalomtörténeti irodalom egy jelentős része a dualizmus és Horthy-korszak társadalmi osztályszerkezetét alapvetően merevnek írja le és a társadalmi mobilitás hiányáról számol be. Bár a dualizmus és a Horthy-korszak lényeges intézményi különbségeket mutatnak, a politika zártsága és titkos és szabad választások hiánya miatt nem valószínű, hogy ebben az időszakban a demokratikus politika érdekérvényesítési mechanizmusain keresztül csökkent volna a társadalmi egyenlőtlenség mértéke. A társadalmi és gazdasági modernizáció más folyamatai között kell keresni az okokat.

A magyar gazdaság és társadalom a 19. század végén és a 20. század elején több lényeges modernizációs folyamaton ment keresztül, melyekről az első fejezet részletesebben beszámol. A magyar gazdaság iparosodottsága és a termelés gépesítettsége az első világháborút megelőző időszakban nagy ütemben nőtt, bár fontos megjegyezni, hogy a gazdaság legfontosabb ágazata a mezőgazdaság maradt. Az írástudás mértéke, részben a népis-

kolai hálózat kiterjedésének köszönhetően, jelentős mértékben megnőtt a 19 század közepéhez képest. A vasúthálózat a 19. század végén rohamos gyorsasággal épült ki, mely összeköttetésbe hozta az ország településeit és elősegítette a modern társadalmakra jellemző térbeli mobilitást. Részben ennek is köszönhető, hogy a városok lélekszáma erősen megnövekedett. Amíg 1870-ben a lakosság csak közel 20 százaléka, addig az első világháború előtt 30, és 1930-ban már 35 százaléka élt városokban.

A könyv harmadik fejezetében arra keressük a választ, hogy a magyar társadalom nyitottabbá vált-e az 1950-es évek előtt, illetve hogy a relatív mobilitási időbeli változásai igazolják-e a mobilitási elméletek feltevéseit. A generációk közötti társadalmi mobilitást 1865 és 1950 között tanulmányoztuk. Erre az időszakra nem nyúlnak vissza a korábbi kutatásokban használt mobilitási adatbázisok. Az MTMA-t felhasználva ez a tanulmány tehát elsőként tudja vizsgálni a társadalmi mobilitás mértékét az első világháborút megelőző évtizedekben Magyarországon.

A modernizáció elmélete (*modernization theory*) alapján azt a hipotézist fogalmazzuk meg, hogy a társadalom relatív mobilitásának mértéke az idő során fokozatosan növekedett. Az elmélet kiindulópontja, hogy a társadalmi és gazdasági modernizáció folyamán a munkaerőpiac és az oktatás egyre inkább teljesítményközpontúvá vált, és emiatt a társadalmi származás fontossága a foglalkozási életútra csökkent.

Más elméletek szerint a társadalom relatív mobilitásának mértéke főképp az iparosodás időszakában ugrott meg és azt követően nem változott. Magyarországon az első világháború utáni területi, gazdasági és emberi veszteségek, illetve a gazdasági válság hosszú távon visszavetette a gazdaság és ipar modernizációjának lendületét. Azt várnánk tehát, hogy főképpen az első világháború előtt nőtt meg a társadalmi mobilitás mértéke, és utána nem változott jelentősen.

A státuszreprodukció elmélete (*status reproduction theory*) alapján az eddigiekkel ellentétes hipotézist is megfogalmazunk. Ezen elmélet szerint a magas státuszú társadalmi osztályok, ha státuszpozíciójuk veszélybe kerül olyan stratégiákat választanak, melyek biztosítják gyerekeik számára is a magas társadalmi státusszal járó foglalkozásokat. Ezen stratégiák gyakran emlegetett példája a nappali oktatás keretein kívüli különórák, melyek elősegítik az iskolai karriert és közvetetten utat nyitnak a magas státuszú foglalkozások felé. A státuszreprodukció elmélete alapján tehát azt a hipo-

tézist fogalmazzuk meg, hogy a mobilitási esélyek egyenlősége hosszú távon nem növekszik, csak növekedés és csökkenés időszakai követik egymást.

A 19. század végén és 20. század elején a magyar társadalom két legnépesebb foglalkozási osztálya a termőfölddel rendelkező földművesek illetve az azzal nem rendelkező mezőgazdasági munkások, illetve napszámosok voltak. A társadalom változatlan agrárjellege mellett a foglalkozási szerkezet fontos változásokat mutatott. A mezőgazdasági foglalkozásokat a munkaerőpiacon növekvő mértékben nem mezőgazdasági fizikai munka és nem fizikai munka váltották. A foglalkozási osztályok közötti intergenerációs mobilitás mértéke is megnőtt ebben az időszakban. Ez utóbbi eredmény még nem tekinthető a mobilitási esélyek egyenlőségével kapcsolatban megfogalmazott hipotézisek próbájának, mivel a foglalkozási osztályok mobilitást részben a gazdaságszerkezet időbeli változásai kényszerítették ki. A foglalkozási esélyek egyenlőtlenségével kapcsolatos hipotéziseinket ezért olyan statisztikai modellekkel teszteljük, melyek a mobilitási esélyek egyenlőtlenségének mértékét a gazdaságszerkezet változásaitól függetlenül mutatják.

A magyar társadalom 1865 és 1950 között fokozatosan nyitottabbá vált, ami alátámasztja a modernizációs elméletet. Az esélyek egyenlőségének növekedése a foglalkozási osztályok relatív immobilitásának csökkenéséből fakad. A foglalkozási szerkezet változásaiból fakadó mobilitáson felül is egyre nagyobb mértékben választottak tehát az egymást követő generációkban a fiúk az apáktól eltérő foglalkozási osztályt. A társadalom növekedő nyitottsága azonban nem jelentette azt, hogy a fiúk generációjában minden társadalmi osztályt növekvő eséllyel lehetett elérni. 1905 előtt ennek éppen az ellenkezőjét látjuk, a magas és alacsony státuszó foglalkozási osztályokba való mobilitási esélyek egyenlőtlensége növekedett. Habár 1905 után ezek a mobilitásbeli egyenlőtlenségek valamelyest csökkentek, összességében nem nőtt meg az 1865 és 1950 közötti időszakban az apjuk társadalmi osztályát elhagyók körében a mobilitási esélyek egyenlősége. A magyar társadalom fokozatosan és apró léptékben vált nyitottabbá az államszocializmus időszakát megelőző majdnem száz évben. A foglalkozási mobilitás esélye megnőtt, de a társadalmi osztályok közötti intergenerációs 'csere' a foglalkozásszerkezetben hasonló státuszú osztályok között zajlott le.

4. fejezet: Települési kontextus, modernizáció és relatív mobilitás

A 19. század második felétől megnövekedtek Magyarországon a települések közötti modernizációs és iparosodásbeli különbségek. A negyedik fejezetben azt a kérdést vizsgáljuk a mobilitás esélyek egyenlőtlenségét mennyiben határozta meg a települési kontextus modernizációja. A települési kontextusokat időben (házasodási kohorsz) és térben (település) határozzunk meg.

Az iparosodás elmélete (*theory of industrialization*) a modernizációs folyamatok közül az iskolázottság lehetőségek növekedését, a termelés iparosodását, a közlekedés fejlődését és a városok növekedését jelöli meg a foglalkozási mobilitási esélyek növekedésének lehetséges okaiként. A modernizációs folyamatok mobilitásra gyakorolt hatásának mechanizmusait és hipotéziseinket a negyedik fejezet bővebben taglalja.

A fejezet eredményei azt mutatják, hogy a települési kontextus iparosodottsága és a települési közlekedési lehetőségek voltak Magyarországon a 19. század végén és 20. század elején a relatív mobilitás legfontosabb meghatározói. A tanulási lehetőségek bővülése, ami ebben az időszakban főképp az elemi oktatásban zajlott le, a foglalkozási osztályok között a képzettebb nem mezőgazdasági munkások osztályának relatív mobilitását határozták meg. Azokban a települési kontextusokban, ahol az iskolázottsági lehetőségek mértéke nagyobb volt, a fiúk generációja nagyobb eséllyel hagyta el, illetve lépett be ebbe a foglalkozási osztályba. A modernizációs folyamatok azonban nem befolyásolták a társadalmi osztályukat elhagyók közötti mobilitási esélyeket, illetve a legmagasabb státuszú foglalkozási osztály relatív mobilitását. Ezen eredmények alapján azt a feltételezést fogalmazzuk meg, hogy a magas státuszpozíciójú osztály a korábban már említett reprodukciós stratégiák segítségével még a mobilitási esélyek egyenlőségét elősegítő települési kontextusokban is biztosítani tudta az előnyöket a következő generáció számára.

5. fejezet: Belső vándorlás, a városi lakosság növekedése és relatív mobilitás Magyarországon

A mobilitással foglalkozó irodalom vitatott kérdése, hogy az országhatáro-

kon belüli vándorlás és a városi lakosság növekedése elősegítik-e a mobilitási esélyek egyenlőségét. Ebben a fejezetben azt a kérdést vizsgálom, hogy a relatív foglalkozási mobilitás magasabb mértékű-e a születési helyükről elvándoroltak körében, illetve a városokban, illetve, hogy a vándorlás és a városi lakosság növekedése 1860 és 1950 között magyarázatot adnak-e a relatív mobilitás harmadik fejezetben megállapított növekedésére.

Azt a hipotézist fogalmazom meg tehát ebben a fejezetben, hogy az elvándoroltak körében nagyobb mértékű a relatív mobilitás mint a születési helyükön maradottak között. A humántőke-elméletek szerint a születési helyről történő elvándorlás költségei miatt az elvándoroltak munkaerőpiaci teljesítménye és várt termelékenysége nagyobb, mint a születési helyükön maradottaké. Az elvándorlás költségeit és bizonytalanságát csökkenti a szülők magasabb társadalmi státusa. Az alacsony foglalkozási státuszú családokból származóak körében tehát a foglalkozási teljesítményen alapuló migrációs szelekciós folyamatok erősebbek, mint a magas státuszú családokból származók körében. Mivel a magasabb teljesítmény várhatóan elősegíti a foglalkozási mobilitást, az alacsony státuszú szülői osztályból származó elvándoroltak körében a szülői foglalkozási osztály kisebb mértékben határozza meg a foglalkozást, mint a születési helyükön maradottak körében. Az előző fejezetben kifejtett iparosodáselmélet alapján pedig azt a hipotézist állítom fel, hogy a városias jellegű településeken nagyobb mértékű a relatív mobilitás, mint a falvakban és az agrárvárosokban.

A fejezet elemzései nagyrészt alátámasztják ezeket az elméletei feltevéseket. Magyarországon 1860 és 1950 között az elvándoroltak relatív foglalkozási mobilitásának mértéke magasabb volt, mint a születési helyükön maradottaké. A nagyobb távolságra és a városias jellegű településekre vándoroltak körében határozta meg a szülői foglalkozási osztálya a legkisebb mértékben a foglalkozási osztályt. Várakozásaimmal ellentétesen a városias jellegű településeken élők relatív mobilitásának mértéke nem volt nagyobb, mint a falvakban és agrárvárosokban élőké. A városok társadalma tehát önmagában nem volt nyitottabb a falvak társadalmánál, csak a nagyobb mértékű bevándorlás miatt tapasztaltuk a foglalkozási mobilitási esélyek nagyobb mértékű egyenlőségét a városias településeken.

A fejezet második kutatási kérdésére a relatív mobilitás időbeli változásainak különböző log-lineáris modelleken keresztül történő vizsgálatával adok választ. A növekvő országon belüli vándorlás részben megmagyarázza

a magyarországi relatív mobilitás növekvő mértékét a nem mezőgazdasági osztályok esetében. A mezőgazdasági osztályok növekvő relatív mobilitására azonban a születési helyről való elvándorlás nem ad magyarázatot.

Fontosabb eredmények

A disszertáció első négy fejezete a relatív mobilitást vizsgálja Magyarországon az 1950 előtti időszakban. A mobilitási esélyek egyenlőtlensége csökkent ebben az időszakban. Az egyenlőtlenségek kisebbek voltak az iparosodottabb, iskolázottsági és közlekedési lehetőségeket nagyobb mértékben biztosító települési kontextusokban. Az országon belüli migráció megnövekedett mértéke részben megmagyarázza a relatív mobilitás időbeli növekedését.

A foglalkozási osztályok között azonban különbségeket tapasztalunk aszerint, hogy milyen mértékben hatottak a modernizációs folyamatok az osztályba irányuló és az osztályból kimenő generációk közötti mobilitásra. Leginkább a magas státuszú osztályok álltak ellen ezeknek a hatásoknak.

6. fejezet: Generációk közötti foglalkozási mobilitás és a piaci átmenet időszaka Magyarországon

Politikai rendszerváltások során a társadalom intézményei alapvetően megváltozhatnak, és ezek a változások a társadalmi egyenlőtlenségek mechanizmusait is befolyásolhatják. A hatodik fejezet azt vizsgálja, hogy a magyarországi rendszerváltás és az államszocialista gazdaságról a piacgazdaságra való áttérés során milyen mértékben változott meg a generációk közötti foglalkozási mobilitás mechanizmusai.

Egy új elméleti makro-modellt állítunk fel ebben a fejezetben, mely a társadalmi átmenet időszakának foglalkozási mobilitási egyenlőtlenségeit írja le. A PIAJ (angol eredetiben: PEACH) egy többdimenziós mobilitási modell, melyben vertikális és horizontális dimenziók határozzák meg a foglalkozások közötti intergenerációs mobilitás mértékét. A függőleges dimenziók a foglalkozások különböző erőforrásait jelképezik. Ezek az erőforrások a foglalkozásokban akkumulált *p*olitikai tőke, *i*skolázottság, foglalkozási *a*utonómia, és a *j*övedelem. A modell horizontális tengelye a foglalkozások gazdasági ágazati (például nehézipar, oktatás, vagy egészségügy) helyét jelzi. A PIAJ modell alapján nagyobb mértékű mobilitást

várunk a hasonló erőforrásokkal rendelkező foglalkozások között, illetve az azonos gazdasági ágazatban helyet foglaló foglalkozások között.

Legfőbb hipotézisünk, hogy a vertikális dimenziók között a politikai tőke a rendszerváltás előtt jobban meghatározta a társadalmi mobilitás csatornáit, mint a rendszerváltás után. A piaci átmenet elmélete (*market transition theory*) alapján azt feltételezzük, hogy a foglalkozási autonómia és jövedelem a rendszerváltást követően erősebb hatást gyakorolnak a generációk közötti mobilitásra, mint azelőtt. Hasonló változásokat nem feltételezünk az iskolázottság dimenziójával kapcsolatban, mivel korábbi kutatások szerint az iskolai végzettség már a rendszerváltás előtt is jelentős mértékben meghatározta a generációk közötti foglalkozási mobilitást. Végezetül azt feltételezzük, hogy a foglalkozási ágazatok generációk közötti foglalkozási mobilitásra gyakorolt hatása a gazdaság piacosodása következtében csökken a rendszerváltást követően.

Az elméleti hipotézisek teszteléséhez az 1980-as évektől gyűjtött mobilitási adatbázisokat használunk. Az eredmények alapvetően alátámasztják az elméleti feltevéseinket. A politikai tőke a generációk közötti mobilitás fontos meghatározója volt a rendszerváltás előtt és ezen szerepét elveszítette a rendszerváltás után. A foglalkozási ágazatok is kisebb szerepet játszottak a rendszerváltást követő társadalmi mobilitásban. A piaci átmenet elméletét alátámasztja az az eredmény, hogy a foglalkozási autonómia és jövedelem hatása a foglalkozási mobilitásra növekedett a rendszerváltást követően.

A fejezet fő tanulsága, hogy az államszocialista és a piacgazdasággal rendelkező társadalmak foglalkozási mobilitási mechanizmusai eltérnek. Korábbi mobilitási modellek, melyek fejlett piacgazdaságok társadalmán alapulnak, ezeket a különbségeket nem mutatták ki. Az ebben a fejezetben ismertetett PIAJ mobilitási modell más államszocialista, vagy piacgazdaságra való átmenetet megtapasztaló társadalmakra is alkalmazható. Kína társadalmi mobilitásának változása különösen érdekes kérdés, mivel Kínában a gazdasági változások, Magyarországgal ellentétben, nem párosultak a parlamentáris demokráciára való áttéréssel.

Acknowledgements

This book is about transitions in Hungarian history and how those transitions have influenced social mobility across generations. Most of the discussion in the chapters revolves around change, yet it was the unwavering persistence of colleagues, friends and family that made this work possible. I am grateful to a number of people for supporting me during my personal 'transition' toward a doctoral degree.

First, I would like to mention my supervisors, Ineke Maas and Marco H.D. van Leeuwen, for initially providing me with the opportunity to conduct this research within the ERC Advanced Grant project, 'Towards Open Societies'. I feel privileged to have been part of this path-breaking research project examining the historical patterns and driving forces of intergenerational social mobility. Ineke and Marco - I would like to thank you both for trusting me with the large-scale data collection project of the Hungarian Historical Social Mobility File, and for generously allocating resources and providing advice during the months of data collection. I am proud of what we have contributed to stratification sociology and I also enjoyed the many the hours we spent working together, attending conferences, and at our TOS-dinners.

Ineke, your enthusiasm for research and devotion to your students and colleagues continued to motivate me throughout the project. I could not have imagined a better day-to-day supervisor. You were always approachable and open to questions and ideas and if I got stuck with a methodological problem or had difficulties communicating ideas, you were able to steer my work in the right direction. Your detailed and insightful feedback greatly improved the chapters and helped me develop as a researcher.

Marco, my work benefitted enormously from your deep knowledge of history and I am very grateful to you for your comments that helped me to

balance historical 'reality' and sociological 'abstraction' in my writing. I would also like to thank you for all those cups of coffee at Café Gutenberg while you lent me a friendly ear – often a great help at difficult times. I remain particularly grateful for your support following the loss of my father in July 2012. And thank you too for your suggestions for conferences and your help and advice in organizing sessions at the European Social Science History conference.

In fall 2012 I was fortunate indeed to spend two months at the University of Wisconsin-Madison and to work with Theodore P. Gerber there. Dear Ted - thank you for being such a generous host and for allocating so much time to work on our paper. I have learnt so much from our discussions on mobility and methods, and I particularly enjoyed our modelling sessions, the highlight of which probably came when we found the 'best fitting model' for our paper during an extended intercontinental Skype talk.

Between 2009 and 2011 I was in charge of data collection for the Hungarian Historical Social Mobility file. I am most grateful to the research coordinator, Linda Margittai, for the remarkable work she did, with a reliability and attention to detail which were pivotal to the success of the data collection effort. The dedicated work of many research assistants deserves special mention as well, and I would like to thank all of you but in particular Ádám Stefkovics, Krisztina Czímer, and Melinda Minkó, who participated in the project from the very beginning.

I am indebted to the Hungarian National Archive, the Diocesan Archives of Kalocsa, Győr, Veszprém, Vác and Pécs, the Hungarian Jewish Archive, and all Hungarian parishes for so kindly providing access to church books and microfilms. I would like to thank Zoltán Garadnai, Balázs Karlinszky, Herold Petrik, Gábor Nemes, Tibor László Varga and Ádám Vajk in particular for the invaluable support they gave our assistants. I am grateful to Andor Lakatos who generously allowed me to use the Kalocsa marriage records database. Tamás Faragó, Róbert Győri, Viktor Karády, and Tibor Péter Nagy all helped enormously with their advice on the sampling plan, and János Székely, Mária Székelyi, the National Archive of the Hungarian Lutheran Church, and The Archives of the Hungarian Reformed Church provided written recommendations for our project.

This work benefitted greatly from ideas and suggestions from colleagues

at MASS and ISOL seminars, at ICS Forum days, and at the Cambridge Social Stratification and RC28 meetings. Megan Andrew, Richard Breen, John Goldthorpe, Dave Griffith, Reinhard Pollak, Edwin Poppe, and Wout Ultee deserve much recognition for their detailed comments on chapters, as indeed do the members of the reading committee, Hilde Bras, Harry Ganzeboom, Herbert Hoijtink, Jan O. Jonsson, and Péter Róbert. I thank them all for the time and effort they gave to assessing the manuscript. I am especially grateful to Harry Ganzeboom for his several useful suggestions, and for sharing with me his Hungarian mobility data files and recode jobs. Finally, I must mention my former professors in Hungary, Mária Székelyi, Antal Örkény, and Tamás Rudas, for they were the ones who encouraged me to become a sociologist, and I humbly appreciate their continuing interest in my work.

The Sociology department in Utrecht provided not only an inspiring work environment, but also a great and supportive community during the last four years. I would like to thank all former colleagues from whom I gleaned so much in our brief but serious talks during many visits to the coffee machines and daily lunches, and with whom I also variously ran for 'Team Sociologie' at the Batavierenrace, the USOCIA sports day, and enjoyed the 'uitjes', guessing the identity of the 'Mol', and preparing poems and 'suprises' for Sinterklaas. Anja, Anne, Dominik, Eva, Jesper, Leonard, Lieselotte, Marcel, Mariska, Nynke, Petra, Sabrina, Sander, Sanne, Sara, Sarah, Sigrid, Susanne, Ozan, Vincent, Vincenz, and Wouter, thank you all for those moments. Esther, Lieselotte, Mariëlle, Tanja, and Wike, your personal support was such a major help to me at important moments. Bärbel, Dave, Marjet, Miranda, Pim, and Tineke, without your help at the department none of this would have been possible; and Ellen handled the finances during the TOS project.

Wiebke and Richard, thank you both for the many useful tips and the great example on how to write a dissertation in historical sociology. Antonie, I am glad to have had you as a friend since setting out on the academic path together at the SaSR master program. Your intellect and thoughtful approach to life is inspiring. We had great fun together going out in Gothenburg, and Glasgow, and I enjoyed the sightseeing in Hong Kong.

Dear Tim, we were friends from the moment we shared the same office.

I thoroughly enjoyed our discussions about teaching the classics of sociology, Dutch and international politics, and career choices in academia. Special thanks to you for your help with the Dutch summary.

The Netherlands has truly felt like home in the past few years, both in and out of the rowing boat! To Anne, Alex, Arthur, Bouke, David, Djimmer, Emmeke, Frank, Guus, Iris, Mathijs, Maykel, Max, Rosanne, Samir, Shafi, and Sterre, and all my other teammates, coaches, and choackindjes at the ORCA, you made those years special. Alex, you are an excellent designer, thank you for the fabulous cover and your encouragement in the final stages of finishing the dissertation.

Many friends from Hungary watched with great interest as my life evolved in the Netherlands and it was good to know they were following my fortunes. Thank you for your many visits to the Netherlands, and somememorable moments back in Hungary. Drága Ancsa, Attila, Bali, Dalma, Dugó, Dóri, Dávid, Geri, Grenya, Ildi, Juli, Julcsi, Kata, Nóri, Mesi, Péter, Reni, Rita, Zsolti, Zsuzsi, I am indebted to you for your friendship and support. And Ancsa; thank you for your great comments on the Hungarian summary.

Beste Robbe en Watse, ik ben erg gelukkig jullie tot mijn vrienden te kunnen rekenen. Onze vakantie in Hongarije is onvergetelijk. We hebben een waar ORCA huis opgericht, en ik heb erg veel genoten van het samen roeien, naar de bios gaan en de lange gesprekken hoe we het roeien en de wereld konden verbeteren.

Drága Dóri és Miki, testvéri szeretetek a távolban rengeteget jelentett. Nagyon örülök a sikereiteknek, és kívánok nektek és családotoknak, Gergőnek, Szonjának, Kolosnak, illetve Xéniának sok-sok boldogságot. Édes Nagyikám, alkalmazkodóképességed és odaadásod példát mutat számomra. Drága Mama, nincsenek arra szavak, hogy mennyire szeretlek és hogy mennyit köszönhetek neked. Papa büszkén és boldogan figyel minket a felhők tetejéről.

Zoltán Lippényi
Bristol, March 2014

Curriculum Vitae

Zoltán Lippényi was born in Budapest, Hungary, on November 20, 1984. He studied Sociology (5-year diploma) at Eötvös Loránd University in Budapest, Hungary. He entered the Sociology and Social Research Master program at Utrecht University, obtaining his Master's degree cum laude in 2009. In September 2009 he started working as a PhD student at the *Interuniversity Center for Social Science Theory and Methodology* (ICS) at the Department of Sociology at Utrecht University, resulting in the present dissertation. As part of his PhD trajectory he conducted a two-month research traineeship at the University of Wisconsin-Madison in 2012. Currently, he is employed as a postdoctoral researcher at the Department of Social and Policy Sciences at the University of Bath in the United Kingdom.

ICS Dissertation series

The ICS-series presents dissertations of the Interuniversity Center for Social Science Theory and Methodology. Each of these studies aims at integrating explicit theory formation with state-of-the-art empirical research or at the development of advanced methods for empirical research. The ICS was founded in 1986 as a cooperative effort of the universities of Groningen and Utrecht. Since 1992, the ICS expanded to the University of Nijmegen. Most of the projects are financed by the participating universities or by the Netherlands Organization for Scientific Research (NWO). The international composition of the ICS graduate students is mirrored in the increasing international orientation of the projects and thus of the ICS-series itself.

1. C. van Liere. (1990). *Lastige leerlingen. Een empirisch onderzoek naar sociale oorzaken van probleemgedrag op basisscholen.* Amsterdam: Thesis Publishers.
2. Marco H.D. van Leeuwen. (1990). *Bijstand in Amsterdam, ca. 1800–1850. Armenzorg als beheersings- en overlevingsstrategie.* ICS-dissertation, Utrecht.
3. I. Maas. (1990). *Deelname aan podiumkunsten via de podia, de media en actieve beoefening. Substitutie of leereffecten?.* Amsterdam: Thesis Publishers.
4. M.I. Broese van Groenou. (1991). *Gescheiden netwerken. De relaties met vrienden en verwanten na echtscheiding.* Amsterdam: Thesis Publishers.
5. Jan M.M. van den Bos. (1991). *Dutch EC policy making. A model-guided approach to coordination and negotiation.* Amsterdam: Thesis Publishers.
6. Karin Sanders. (1991). *Vrouwelijke pioniers. Vrouwen en mannen met een 'mannelijke' hogere beroepsopleiding aan het begin van hun loopbaan.* Amsterdam: Thesis Publishers.
7. Sjerp de Vries. (1991). *Egoism, altruism, and social justice. Theory and experiments on cooperation in social dilemmas.* Amsterdam: Thesis Publishers.
8. Ronald S. Batenburg. (1991). *Automatisering in bedrijf.* Amsterdam: Thesis Publishers.
9. Rudi Wielers. (1991). *Selectie en allocatie op de arbeidsmarkt. Een uitwerking voor de informele en geïnstitutionaliseerde kinderopvang.* Amsterdam: Thesis Publishers.
10. Gert P. Westert. (1991). *Verschillen in ziekenhuisgebruik.* ICS-dissertation, Groningen.

11. Hanneke Hermsen. (1992). *Votes and policy preferences. Equilibria in party systems.* Amsterdam: Thesis Publishers.
12. Cora J.M. Maas. (1992). *Probleemleerlingen in het basisonderwijs.* Amsterdam: Thesis Publishers.
13. Ed A.W. Boxman. (1992). *Contacten en carrière. Een empirisch-theoretisch onderzoek naar de relatie tussen sociale netwerken en arbeidsmarktposities.* Amsterdam: Thesis Publishers.
14. Conny G.J. Taes. (1992). *Kijken naar banen. Een onderzoek naar de inschatting van arbeidsmarktkansen bij schoolverlaters uit het middelbaar beroepsonderwijs.* Amsterdam: Thesis Publishers.
15. Peter van Roozendaal. (1992). *Cabinets in multi-party democracies. The effect of dominant and central parties on cabinet composition and durability.* Amsterdam: Thesis Publishers.
16. Marcel van Dam. (1992). *Regio zonder regie. Verschillen in en effectiviteit van gemeentelijk arbeidsmarktbeleid.* Amsterdam: Thesis Publishers.
17. Tanja van der Lippe. (1993). *Arbeidsverdeling tussen mannen en vrouwen.* Amsterdam: Thesis Publishers.
18. Marc A. Jacobs. (1993). *Software: Kopen of kopiëren? Een sociaal-wetenschappelijk onderzoek onder PC-gebruikers.* Amsterdam: Thesis Publishers.
19. Peter van der Meer. (1993). *Verdringing op de Nederlandse arbeidsmarkt. Sector- en sekseverschillen.* Amsterdam: Thesis Publishers.
20. Gerbert Kraaykamp. (1993). *Over lezen gesproken. Een studie naar sociale differentiatie in leesgedrag.* Amsterdam: Thesis Publishers.
21. Evelien Zeggelink. (1993). *Strangers into friends. The evolution of friendship networks using an individual oriented modeling approach.* Amsterdam: Thesis Publishers.
22. Jaco Berveling. (1994). *Het stempel op de besluitvorming. Macht, invloed en besluitvorming op twee Amsterdamse beleidsterreinen.* Amsterdam: Thesis Publishers.
23. Wim Bernasco. (1994). *Coupled careers. The effects of spouse's resources on success at work.* Amsterdam: Thesis Publishers.
24. Liset van Dijk. (1994). *Choices in child care. The distribution of child care among mothers, fathers and non-parental care providers.* Amsterdam: Thesis Publishers.
25. Jos de Haan. (1994). *Research groups in Dutch sociology.* Amsterdam: Thesis Publishers.
26. K. Boahene. (1995). *Innovation adoption as a socio-economic process. The case of the Ghanaian cocoa industry.* Amsterdam: Thesis Publishers.
27. Paul E.M. Ligthart. (1995). *Solidarity in economic transactions. An experimental study of framing effects in bargaining and contracting.* Amsterdam: Thesis Publishers.
28. Roger Th. A.J. Leenders. (1995). *Structure and influence. Statistical models for the dynamics of actor attributes, network structure, and their interdependence.* Amsterdam: Thesis Publishers.

29. Beate Völker. (1995). *Should auld acquaintance be forgot...? Institutions of communism, the transition to capitalism and personal networks: The case of East Germany.* Amsterdam: Thesis Publishers.
30. A. Cancrinus-Matthijsse. (1995). *Tussen hulpverlening en ondernemerschap. Beroepsuitoefening en taakopvattingen van openbare apothekers in een aantal West-Europese landen.* Amsterdam: Thesis Publishers.
31. Nardi Steverink. (1996). *Zo lang mogelijk zelfstandig. Naar een verklaring van verschillen in oriëntatie ten aanzien van opname in een verzorgingstehuis onder fysiek kwetsbare ouderen.* Amsterdam: Thesis Publishers.
32. Ellen Lindeman. (1996). *Participatie in vrijwilligerswerk.* Amsterdam: Thesis Publishers.
33. Chris Snijders. (1996). *Trust and commitments.* Amsterdam: Thesis Publishers.
34. Koos Postma. (1996). *Changing prejudice in Hungary. A study on the collapse of state socialism and its impact on prejudice against gypsies and Jews.* Amsterdam: Thesis Publishers.
35. Jooske T. van Busschbach. (1996). *Uit het oog, uit het hart? Stabiliteit en verandering in persoonlijke relaties.* Amsterdam: Thesis Publishers.
36. René Torenvlied. (1996). *Besluiten in uitvoering. Theorieën over beleidsuitvoering modelmatig getoetst op sociale vernieuwing in drie gemeenten.* Amsterdam: Thesis Publishers.
37. Andreas Flache. (1996). *The Double edge of networks. An analysis of the effect of informal networks on cooperation in social dilemmas.* Amsterdam: Thesis Publishers.
38. Kees van Veen. (1997). *Inside an internal labor market: Formal rules, flexibility and career lines in a Dutch manufacturing company.* Amsterdam: Thesis Publishers.
39. Lucienne van Eijk. (1997). *Activity and well-being in the elderly.* Amsterdam: Thesis Publishers.
40. Róbert Gál. (1997). *Unreliability. Contract discipline and contract governance under economic transition.* Amsterdam: Thesis Publishers.
41. Anne-Geerte van de Goor. (1997). *Effects of regulation on disability duration.* ICS-dissertation, Utrecht.
42. Boris Blumberg. (1997). *Das Management von Technologiekooperationen. Partnersuche und Verhandlungen mit dem Partner aus Empirisch-Theoretischer Perspektive.* ICS-dissertation, Utrecht.
43. Marijke von Bergh. (1997). *Loopbanen van oudere werknemers.* Amsterdam: Thesis Publishers.
44. Anna Petra Nieboer. (1997). *Life-events and well-being: A prospective study on changes in well-being of elderly people due to a serious illness event or death of the spouse.* Amsterdam: Thesis Publishers.
45. Jacques Niehof. (1997). *Resources and social reproduction: The effects of cultural and material resources on educational and occupational careers in industrial nations at the end of the twentieth century.* ICS-dissertation, Nijmegen.

46. Ariana Need. (1997). *The kindred vote. Individual and family effects of social class and religion on electoral change in the Netherlands, 1956–1994.* ICS-dissertation, Nijmegen.
47. Jim Allen. (1997). *Sector composition and the effect of education on wages: An international comparison.* Amsterdam: Thesis Publishers.
48. Jack B.F. Hutten. (1998). *Workload and provision of care in general practice. An empirical study of the relation between workload of Dutch general practitioners and the content and quality of their care.* ICS-dissertation, Utrecht.
49. Per B. Kropp. (1998). *Berufserfolg im Transformationsprozeß, Eine theoretisch-empirische Studie über die Gewinner und Verlierer der Wende in Ostdeutschland.* ICS-dissertation, Utrecht.
50. Maarten H.J. Wolbers. (1998). *Diploma-inflatie en verdringing op de arbeidsmarkt. Een studie naar ontwikkelingen in de opbrengsten van diploma's in Nederland.* ICS-dissertation, Nijmegen.
51. Wilma Smeenk. (1998). *Opportunity and marriage. The impact of individual resources and marriage market structure on first marriage timing and partner choice in the Netherlands.* ICS-dissertation, Nijmegen.
52. Marinus Spreen. (1999). *Sampling personal network structures: Statistical inference in ego-graphs.* ICS-dissertation, Groningen.
53. Vincent Buskens. (1999). *Social networks and trust.* ICS-dissertation, Utrecht.
54. Susanne Rijken. (1999). *Educational expansion and status attainment. A cross-national and over-time comparison.* ICS-dissertation, Utrecht.
55. Mérove Gijsberts. (1999). *The legitimation of inequality in state-socialist and market societies, 1987–1996.* ICS-dissertation, Utrecht.
56. Gerhard G. Van de Bunt. (1999). *Friends by choice. An actor-oriented statistical network model for friendship networks through time.* ICS-dissertation, Groningen.
57. Robert Thomson. (1999). *The party mandate: Election pledges and government actions in the Netherlands, 1986–1998.* Amsterdam: Thela Thesis.
58. Corine Baarda. (1999). *Politieke besluiten en boeren beslissingen. Het draagvlak van het mestbeleid tot 2000.* ICS-dissertation, Groningen.
59. Rafael Wittek. (1999). *Interdependence and informal control in organizations.* ICS-dissertation, Groningen.
60. Diane Payne. (1999). *Policy making in the European Union: An analysis of the impact of the reform of the structural funds in Ireland.* ICS-dissertation, Groningen.
61. René Veenstra. (1999). *Leerlingen – klassen – scholen. Prestaties en vorderingen van leerlingen in het voortgezet onderwijs.* Amsterdam: Thela Thesis.
62. Marjolein Achterkamp. (1999). *Influence strategies in collective decision making. A comparison of two models.* ICS-dissertation, Groningen.
63. Peter Mühlau. (2000). *The governance of the employment relation. A relational signaling perspective.* ICS-dissertation, Groningen.
64. Agnes Akkerman. (2000). *Verdeelde vakbeweging en stakingen. Concurrentie om leden.* ICS-dissertation, Groningen.

65. Sandra van Thiel. (2000). *Quangocratization: Trends, causes and consequences.* ICS-dissertation, Utrecht.
66. Rudi Turksema. (2000). *Supply of day care.* ICS-dissertation, Utrecht.
67. Sylvia E. Korupp (2000). *Mothers and the process of social stratification.* ICS-dissertation, Utrecht.
68. Bernard A. Nijstad (2000). *How the group affects the mind: Effects of communication in idea generating groups.* ICS-dissertation, Utrecht.
69. Inge F. de Wolf (2000). *Opleidingsspecialisatie en arbeidsmarktsucces van sociale wetenschappers.* ICS-dissertation, Utrecht.
70. Jan Kratzer (2001). *Communication and performance: An empirical study in innovation teams.* ICS-dissertation, Groningen.
71. Madelon Kroneman (2001). *Healthcare systems and hospital bed use.* ICS/NIVEL-dissertation, Utrecht.
72. Herman van de Werfhorst (2001). *Field of study and social inequality. Four types of educational resources in the process of stratification in the Netherlands.* ICS-dissertation, Nijmegen.
73. Tamás Bartus (2001). *Social capital and earnings inequalities. The role of informal job search in Hungary.* ICS-dissertation, Groningen.
74. Hester Moerbeek (2001). *Friends and foes in the occupational career. The influence of sweet and sour social capital on the labour market.* ICS-dissertation, Nijmegen.
75. Marcel van Assen (2001). *Essays on actor perspectives in exchange networks and social dilemmas.* ICS-dissertation, Groningen.
76. Inge Sieben (2001). *Sibling similarities and social stratification. The impact of family background across countries and cohorts.* ICS-dissertation, Nijmegen.
77. Alinda van Bruggen (2001). *Individual production of social well-being. An exploratory study.* ICS-dissertation, Groningen.
78. Marcel Coenders (2001). *Nationalistic attitudes and ethnic exclusionism in a comparative perspective: An empirical study of attitudes toward the country and ethnic immigrants in 22 countries.* ICS-dissertation, Nijmegen.
79. Marcel Lubbers (2001). *Exclusionistic electorates. Extreme right-wing voting in Western Europe.* ICS-dissertation, Nijmegen.
80. Uwe Matzat (2001). *Social networks and cooperation in electronic communities. A theoretical-empirical analysis of academic communication and internet discussion groups.* ICS-dissertation, Groningen.
81. Jacques P.G. Janssen (2002). *Do opposites attract divorce? Dimensions of mixed marriage and the risk of divorce in the Netherlands.* ICS-dissertation, Nijmegen.
82. Miranda Jansen (2002). *Waardenoriëntaties en partnerrelaties. Een panelstudie naar wederzijdse invloeden.* ICS-dissertation, Utrecht.
83. Anne Rigt Poortman (2002). *Socioeconomic causes and consequences of divorce.* ICS-dissertation, Utrecht.
84. Alexander Gattig (2002). *Intertemporal decision making.* ICS-dissertation, Groningen.

85. Gerrit Rooks (2002). *Contract en conflict: Strategisch management van inkooptransacties.* ICS-dissertation, Utrecht.
86. Károly Takács (2002). *Social networks and intergroup conflict.* ICS-dissertation, Groningen.
87. Thomas Gautschi (2002). *Trust and exchange, effects of temporal embeddedness and network embeddedness on providing and dividing a surplus.* ICS-dissertation, Utrecht.
88. Hilde Bras (2002). *Zeeuwse meiden. Dienen in de levensloop van vrouwen, ca. 1850–1950.* Amsterdam: Aksant Academic Publishers.
89. Merijn Rengers (2002). *Economic lives of artists. Studies into careers and the labour market in the cultural sector.* ICS-dissertation, Utrecht.
90. Annelies Kassenberg (2002). *Wat scholieren bindt. Sociale gemeenschap in scholen.* ICS-dissertation, Groningen
91. Marc Verboord (2003). *Moet de meester dalen of de leerling klimmen? De invloed van literatuuronderwijs en ouders op het lezen van boeken tussen 1975 en 2000.* ICS-dissertation, Utrecht.
92. Marcel van Egmond (2003). *Rain falls on all of us (but some manage to get more wet than others): Political Context and Electoral Participation.* ICS-dissertation, Nijmegen.
93. Justine Horgan (2003). *High performance human resource management in Ireland and the Netherlands: Adoption and effectiveness.* ICS-dissertation, Groningen.
94. Corine Hoeben (2003). *LETS' be a community. Community in local exchange trading systems.* ICS-dissertation, Groningen.
95. Christian Steglich (2003). *The framing of decision situations. Automatic goal selection and rational goal pursuit.* ICS-dissertation, Groningen.
96. Johan van Wilsem (2003). *Crime and context. The impact of individual, neighborhood, city and country characteristics on victimization.* ICS-dissertation, Nijmegen.
97. Christiaan Monden (2003). *Education, inequality and health. The impact of partners and life course.* ICS-dissertation, Nijmegen.
98. Evelyn Hello (2003). *Educational attainment and ethnic attitudes. How to explain their relationship.* ICS-dissertation, Nijmegen.
99. Marnix Croes en Peter Tammes (2004). *Gif laten wij niet voortbestaan. Een onderzoek naar de overlevingskansen van joden in de Nederlandse gemeenten, 1940–1945.* Amsterdam: Aksant Academic Publishers.
100. Ineke Nagel (2004). *Cultuurdeelname in de levensloop.* ICS-dissertation, Utrecht.
101. Marieke van der Wal (2004). *Competencies to participate in life. Measurement and the impact of school.* ICS-dissertation, Groningen.
102. Vivian Meertens (2004). *Depressive symptoms in the general population: A multifactorial social approach.* ICS-dissertation, Nijmegen.
103. Hanneke Schuurmans (2004). *Promoting well-being in frail elderly people. Theory and intervention.* ICS-dissertation, Groningen.

104. Javier Arregui (2004). *Negotiation in legislative decision-making in the European Union.* ICS-dissertation, Groningen.

105. Tamar Fischer (2004). *Parental divorce, conflict and resources. The effects on children's behaviour problems, socioeconomic attainment, and transitions in the demographic career.* ICS-dissertation, Nijmegen.

106. René Bekkers (2004). *Giving and volunteering in the Netherlands: Sociological and psychological perspectives.* ICS-dissertation, Utrecht.

107. Renée van der Hulst (2004). *Gender differences in workplace authority: An empirical study on social networks.* ICS-dissertation, Groningen.

108. Rita Smaniotto (2004). *'You scratch my back and I scratch yours' versus 'Love thy neighbour'. Two Proximate Mechanisms of Reciprocal Altruism.* ICS-dissertation, Groningen.

109. Maurice Gesthuizen (2004). *The life-course of the low-educated in the Netherlands: Social and economic risks.* ICS-dissertation, Nijmegen.

110. Carlijne Philips (2005). *Vakantiegemeenschappen. Kwalitatief en kwantitatief onderzoek naar gelegenheid- en refreshergemeenschap tijdens de vakantie.* ICS-dissertation, Groningen.

111. Esther de Ruijter (2005). *Household outsourcing.* ICS-dissertation, Utrecht.

112. Frank van Tubergen (2005). *The integration of immigrants in cross-national perspective: Origin, destination, and community effects.* ICS-dissertation, Utrecht.

113. Ferry Koster (2005). *For the time being. Accounting for inconclusive findings concerning the effects of temporary employment relationships on solidary behavior of employees.* ICS-dissertation, Groningen.

114. Carolien Klein Haarhuis (2005). *Promoting anti-corruption reforms. Evaluating the implementation of a World Bank anti-corruption program in seven African countries (1999–2001).* ICS-dissertation, Utrecht.

115. Martin van der Gaag (2005). *Measurement of individual social capital.* ICS-dissertation, Groningen.

116. Johan Hansen (2005). *Shaping careers of men and women in organizational contexts.* ICS-dissertation, Utrecht.

117. Davide Barrera (2005). *Trust in embedded settings.* ICS-dissertation, Utrecht.

118. Mattijs Lambooij (2005). *Promoting cooperation. Studies into the effects of long-term and short-term rewards on cooperation of employees.* ICS-dissertation, Utrecht.

119. Lotte Vermeij (2006). *What's cooking? Cultural boundaries among Dutch teenagers of different ethnic origins in the context of school.* ICS-dissertation, Utrecht.

120. Mathilde Strating (2006). *Facing the challenge of rheumatoid arthritis. A 13-year prospective study among patients and cross-sectional study among their partners.* ICS-dissertation, Groningen.

121. Jannes de Vries (2006). *Measurement error in family background variables: The bias in the intergenerational transmission of status, cultural consumption, party preference, and religiosity.* ICS-dissertation, Nijmegen.

122. Stefan Thau (2006). *Workplace deviance: Four studies on employee motives and self-regulation.* ICS-dissertation, Groningen.
123. Mirjam Plantinga (2006). *Employee motivation and employee performance in child care. The effects of the introduction of market forces on employees in the Dutch child-care sector.* ICS-dissertation, Groningen.
124. Helga de Valk (2006). *Pathways into adulthood. A comparative study on family life transitions among migrant and Dutch youth.* ICS-dissertation, Utrecht.
125. Henrike Elzen (2006). *Self-management for chronically ill older people.* ICS-dissertation, Groningen.
126. Ayşe Güveli (2007). *New social classes within the service class in the Netherlands and Britain. Adjusting the EGP class schema for the technocrats and the social and cultural specialists.* ICS-dissertation, Nijmegen.
127. Willem-Jan Verhoeven (2007). *Income attainment in post-communist societies.* ICS-dissertation, Utrecht.
128. Marieke Voorpostel (2007). *Sibling support: The exchange of help among brothers and sisters in the Netherlands.* ICS-dissertation, Utrecht.
129. Jacob Dijkstra (2007). *The effects of externalities on partner choice and payoffs in exchange networks.* ICS-dissertation, Groningen.
130. Patricia van Echtelt (2007). *Time-greedy employment relationships: Four studies on the time claims of post-Fordist work.* ICS-dissertation, Groningen.
131. Sonja Vogt (2007). *Heterogeneity in social dilemmas: The case of social support.* ICS-dissertation, Utrecht.
132. Michael Schweinberger (2007). *Statistical methods for studying the evolution of networks and behavior.* ICS-dissertation, Groningen.
133. István Back (2007). *Commitment and evolution: Connecting emotion and reason in long-term relationships.* ICS-dissertation, Groningen.
134. Ruben van Gaalen (2007). *Solidarity and ambivalence in parent-child relationships.* ICS-dissertation, Utrecht.
135. Jan Reitsma (2007). *Religiosity and solidarity - Dimensions and relationships disentangled and tested.* ICS-dissertation, Nijmegen.
136. Jan Kornelis Dijkstra (2007) *Status and affection among (pre)adolescents and their relation with antisocial and prosocial behavior.* ICS-dissertation, Groningen.
137. Wouter van Gils (2007). *Full-time working couples in the Netherlands. Causes and consequences.* ICS-dissertation, Nijmegen.
138. Djamila Schans (2007). *Ethnic diversity in intergenerational solidarity.* ICS-dissertation, Utrecht.
139. Ruud van der Meulen (2007). *Brug over woelig water: Lidmaatschap van sportverenigingen, vriendschappen, kennissenkringen en veralgemeend vertrouwen.* ICS-dissertation, Nijmegen.
140. Andrea Knecht (2008). *Friendship selection and friends' influence. Dynamics of networks and actor attributes in early adolescence.* ICS-dissertation, Utrecht.
141. Ingrid Doorten (2008). *The division of unpaid work in the household: A stubborn pattern?.* ICS-dissertation, Utrecht.

142. Stijn Ruiter (2008). *Association in context and association as context: Causes and consequences of voluntary association involvement.* ICS-dissertation, Nijmegen.
143. Janneke Joly (2008). *People on our minds: When humanized contexts activate social norms.* ICS-dissertation, Groningen.
144. Margreet Frieling (2008). *'Joint production' als motor voor actief burgerschap in de buurt.* ICS-dissertion, Groningen.
145. Ellen Verbakel (2008). *The partner as resource or restriction? Labour market careers of husbands and wives and the consequences for inequality between couples.* ICS-dissertation, Nijmegen.
146. Gijs van Houten (2008). *Beleidsuitvoering in gelaagde stelsels. De doorwerking van aanbevelingen van de Stichting van de Arbeid in het CAO-overleg.* ICS-dissertation, Utrecht.
147. Eva Jaspers (2008). *Intolerance over time. Macro and micro level questions on attitudes towards euthanasia, homosexuality and ethnic minorities.* ICS-dissertation, Nijmegen.
148. Gijs Weijters (2008). *Youth delinquency in Dutch cities and schools: A multilevel approach.* ICS-dissertation, Nijmegen.
149. Jessica Pass (2009). *The self in social rejection.* ICS-dissertation, Groningen.
150. Gerald Mollenhorst (2009). *Networks in contexts. How meeting opportunities affect personal relationships.* ICS-dissertation, Utrecht.
151. Tom van der Meer (2009). *States of freely associating citizens: Comparative studies into the impact of state institutions on social, civic and political participation.* ICS-dissertation, Nijmegen.
152. Manuela Vieth (2009). *Commitments and reciprocity in trust situations. Experimental studies on obligation, indignation, and self-consistency.* ICS-dissertation, Utrecht.
153. Rense Corten (2009). *Co-evolution of social networks and behavior in social dilemmas: Theoretical and empirical perspectives.* ICS-dissertation, Utrecht.
154. Arieke J. Rijken (2009). *Happy families, high fertility? Childbearing choices in the context of family and partner relationships.* ICS-dissertation, Utrecht.
155. Jochem Tolsma (2009). *Ethnic hostility among ethnic majority and minority groups in the Netherlands. An investigation into the impact of social mobility experiences, the local living environment and educational attainment on ethnic hostility.* ICS-dissertation, Nijmegen.
156. Freek Bucx (2009). *Linked lives: Young adults' life course and relations with parents.* ICS-dissertation, Utrecht.
157. Philip Wotschack (2009). *Household governance and time allocation. Four studies on the combination of work and care.* ICS-dissertation, Groningen.
158. Nienke Moor (2009). *Explaining worldwide religious diversity. The relationship between subsistence technologies and ideas about the unknown in pre-industrial and (post-)industrial societies.* ICS-dissertation, Nijmegen.
159. Lieke ten Brummelhuis (2009). *Family matters at work. Depleting and enriching effects of employees' family lives on work outcomes.* ICS-dissertation, Utrecht.

160. Renske Keizer (2010). *Remaining childless. Causes and consequences from a life course perspective.* ICS-dissertation, Utrecht.
161. Miranda Sentse (2010). *Bridging contexts: The interplay between family, child, and peers in explaining problem behavior in early adolescence.* ICS-dissertation, Groningen.
162. Nicole Tieben (2010). *Transitions, tracks and transformations. Social inequality in transitions into, through and out of secondary education in the Netherlands for cohorts born between 1914 and 1985.* ICS-dissertation, Nijmegen.
163. Birgit Pauksztat (2010). *Speaking up in organizations: Four studies on employee voice.* ICS-dissertation, Groningen.
164. Richard Zijdeman (2010). *Status attainment in the Netherlands, 1811-1941. Spatial and temporal variation before and during industrialization.* ICS-dissertation, Utrecht.
165. Rianne Kloosterman (2010). *Social background and children's educational careers. The primary and secondary effects of social background over transitions and over time in the Netherlands.* ICS-dissertation, Nijmegen.
166. Olav Aarts (2010). *Religious diversity and religious involvement. A study of religious markets in Western societies at the end of the twentieth century.* ICS-dissertation, Nijmegen.
167. Stephanie Wiesmann (2010). *24/7 negotiation in couples transition to parenthood.* ICS-dissertation, Utrecht.
168. Borja Martinovic (2010). *Interethnic contacts: A dynamic analysis of interaction between immigrants and natives in Western countries.* ICS-dissertation, Utrecht.
169. Anne Roeters (2010). *Family life under pressure? Parents' paid work and the quantity and quality of parent-child and family time.* ICS-dissertation, Utrecht.
170. Jelle Sijtsema (2010). *Adolescent aggressive behavior: Status and stimulation goals in relation to the peer context.* ICS-dissertation, Groningen.
171. Kees Keizer (2010). *The spreading of disorder.* ICS-dissertation, Groningen.
172. Michael Mäs (2010). *The diversity puzzle. Explaining clustering and polarization of opinions.* ICS-dissertation, Groningen.
173. Marie-Louise Damen (2010). *Cultuurdeelname en CKV. Studies naar effecten van kunsteducatie op de cultuurdeelname van leerlingen tijdens en na het voortgezet onderwijs.* ICS-dissertation, Utrecht.
174. Marieke van de Rakt (2011). *Two generations of crime: The intergenerational transmission of convictions over the life course.* ICS-dissertation, Nijmegen.
175. Willem Huijnk (2011). *Family life and ethnic attitudes. The role of the family for attitudes towards intermarriage and acculturation among minority and majority groups.* ICS-dissertation, Utrecht.
176. Tim Huijts (2011). *Social ties and health in Europe. Individual associations, cross-national variations, and contextual explanations.* ICS-dissertation, Nijmegen.
177. Wouter Steenbeek (2011). *Social and physical disorder. How community, business presence and entrepreneurs influence disorder in Dutch neighborhoods.* ICS-dissertation, Utrecht.

178. Miranda Vervoort (2011). *Living together apart? Ethnic concentration in the neighborhood and ethnic minorities' social contacts and language practices.* ICS-dissertation, Utrecht.
179. Agnieszka Kanas (2011). *The economic performance of immigrants. The role of human and social capital.* ICS-dissertation, Utrecht.
180. Lea Ellwardt (2011). *Gossip in organizations. A social network study.* ICS-dissertation, Groningen.
181. Annemarije Oosterwaal (2011). *The gap between decision and implementation. Decision making, delegation and compliance in governmental and organizational settings.* ICS-dissertation, Utrecht.
182. Natascha Notten (2011). *Parents and the media. Causes and consequences of parental media socialization.* ICS-dissertation, Nijmegen.
183. Tobias Stark (2011). *Integration in schools. A process perspective on students' interethnic attitudes and interpersonal relationships.* ICS-dissertation, Groningen.
184. Giedo Jansen (2011). *Social cleavages and political choices. Large-scale comparisons of social class, religion and voting behavior in Western democracies.* ICS-dissertation, Nijmegen.
185. Ruud van der Horst (2011). *Network effects on treatment results in a closed forensic psychiatric setting.* ICS-dissertation, Groningen.
186. Mark Levels (2011). *Abortion laws in European countries between 1960 and 2010. Legislative developments and their consequences for women's reproductive decision-making.* ICS-dissertation, Nijmegen.
187. Marieke van Londen (2012). *Exclusion of ethnic minorities in the Netherlands. The effects of individual and situational characteristics on opposition to ethnic policy and ethnically mixed neighbourhoods.* ICS-dissertation, Nijmegen.
188. Sigrid M. Mohnen (2012). *Neighborhood context and health: How neighborhood social capital affects individual health.* ICS-dissertation, Utrecht.
189. Asya Zhelyazkova (2012). *Compliance under controversy: Analysis of the transposition of European directives and their provisions.* ICS-dissertation, Utrecht.
190. Valeska Korff (2012). *Between cause and control: Management in a humanitarian organization.* ICS-dissertation, Groningen.
191. Maike Gieling (2012). *Dealing with diversity: Adolescents' support for civil liberties and immigrant rights.* ICS-dissertation, Utrecht.
192. Katya Ivanova (2012). *From parents to partners: The impact of family on romantic relationships in adolescence and emerging adulthood.* ICS-dissertation, Groningen.
193. Jelmer Schalk (2012). *The performance of public corporate actors: Essays on effects of institutional and network embeddedness in supranational, national, and local collaborative contexts.* ICS-dissertation, Utrecht.
194. Alona Labun (2012). *Social networks and informal power in organizations.* ICS-dissertation, Groningen.
195. Michał Bojanowski (2012). *Essays on social network formation in heterogeneous populations: Models, methods, and empirical analyses.* ICS-dissertation, Utrecht.

196. Anca Minescu (2012). *Relative group position and intergroup attitudes in Russia.* ICS-dissertation, Utrecht.
197. Marieke van Schellen (2012). *Marriage and crime over the life course. The criminal careers of convicts and their spouses.* ICS-dissertation, Utrecht.
198. Mieke Maliepaard (2012). *Religious trends and social integration: Muslim minorities in the Netherlands.* ICS-dissertation, Utrecht.
199. Fransje Smits (2012). *Turks and Moroccans in the Low Countries around the year 2000: determinants of religiosity, trend in religiosity and determinants of the trend.* ICS-dissertation, Nijmegen.
200. Roderick Sluiter (2012). *The diffusion of morality policies among Western European countries between 1960 and 2010. A comparison of temporal and spatial diffusion patterns of six morality and eleven non-morality policies.* ICS-dissertation, Nijmegen.
201. Nicoletta Balbo (2012). *Family, friends and fertility.* ICS-dissertation, Groningen.
202. Anke Munniksma (2013). *Crossing ethnic boundaries: Parental resistance to and consequences of adolescents' cross-ethnic peer relations.* ICS-dissertation, Groningen.
203. Anja Abendroth (2013). *Working women in Europe. How the country, workplace, and family context matter.* ICS-dissertation, Utrecht.
204. Katia Begall (2013). *Occupational hazard? The relationship between working conditions and fertility.* ICS-dissertation, Groningen.
205. Hidde Bekhuis (2013). *The popularity of domestic cultural products: Cross-national differences and the relation to globalization.* ICS-dissertation, Utrecht.
206. Lieselotte Blommaert (2013). *Are Joris and Renske more employable than Rashid and Samira? A study on the prevalence and sources of ethnic discrimination in recruitment in the Netherlands using experimental and survey data.* ICS-dissertation, Utrecht.
207. Wiebke Schulz (2013). *Careers of men and women in the 19th and 20th centuries.* ICS-dissertation, Utrecht.
208. Ozan Aksoy (2013). *Essays on social preferences and beliefs in non-embedded social dilemmas.* ICS-dissertation, Utrecht.
209. Dominik Morbitzer (2013). *Limited farsightedness in network formation.* ICS-dissertation, Utrecht.
210. Thomas de Vroome (2013). *Earning your place: The relation between immigrants' economic and psychological integration in the Netherlands.* ICS-dissertation, Utrecht.
211. Marloes de Lange (2013). *Causes and consequences of employment flexibility among young people. Recent developments in the Netherlands and Europe.* ICS-dissertation, Nijmegen.
212. Roza Meuleman (2014). *Consuming the nation. Domestic cultural consumption: Its stratification and relation with nationalist attitudes.* ICS-dissertation, Utrecht.

213. Esther Havekes (2014). *Putting interethnic attitudes in context. The relationship between neighbourhood characteristics, interethnic attitudes and residential behaviour.* ICS-dissertation, Utrecht.

214. Zoltán Lippényi (2014). *Transitions toward an open society? Intergenerational occupational mobility in Hungary in the 19th and 20th centuries.* ICS-dissertation, Utrecht