



The mediating effects of parental and peer pressure on the migration intentions of university graduates in Nanjing



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ARTICLE INFO

Article history:

Received 16 January 2016

Received in revised form

4 April 2016

Accepted 26 May 2016

Available online 26 July 2016

Keywords:

Migration

Intention

University graduate

Human capital

Subjective perception

Theory of planned behaviour

ABSTRACT

This paper analyses the migration intentions of university graduates using the Theory of Planned Behaviour not just to unravel their intention but also to uncover how subjective perceptions enter the decision-making process. The results suggest that perceived parental and peer pressures have strong direct effects on the formation of the intention, and exert indirect effects by shaping positive attitudes about staying in the city. In terms of behavioural control, the expected difficulty in finding a satisfactory job does not influence the intention. The perceived difficulty in finding affordable housing, however, acts as a barrier to the intention to stay.

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1. Introduction

As part of the national development strategy, China's higher education system has undergone radical transformations. In the 1990s the effort was targeted at improving education in the elite universities included in the '211 Higher Education Development Project'¹ and '985 Project'² (Yeung, 2013; Zhang, 2013). In 1999, the central government made a decision to enlarge the scale of higher education to promote the development and utilization of China's human resources. Since then, the number of college graduates has increased tremendously, from 0.9 million in 1999 to 6.9 million in 2013 (NBSC, 1999, 2013). The large and growing number of college graduates fosters the accumulation of human capital, which has been widely recognized as the driving force behind the growth and the development of creative and high-technology industries (Florida, 2002a, 2002b; Glaeser, 2003; Lucas, 1988; Romer, 1990).

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¹ National key universities/colleges, composed of 112 universities by 2011.

² National top ranking universities, composed of 39 prominent universities by 2011.

However, human capital can be very mobile. Inter-regional flows of human capital are a well-known means by which knowledge can be transferred between regions (Faggian McCann, & Sheppard, 2007a). Local economic growth will therefore depend on the location and relocation of human capital (Faggian & McCann, 2009). Upon graduation, university graduates have to make a decision to migrate or not, to continue their education or to find employment. They may search the labour market in their hometown, the vicinity of their higher educational institution, or they may conduct a broader, national, or even international labour market search. Their selective migration pattern affects the regional distribution of skills, and consequently may cause regional economic imbalances.

The expansion of Chinese higher education is a remarkable achievement in terms of human capital development. Graduate mobility is on the rise (Yue, 2011). Especially, a great number of graduates flow into metropolitan cities, such as Beijing, Shanghai and Guangzhou (Yang, Men, & Ma, 2011). In recent years, however, the economy, despite its robust growth, did not generate sufficient professional jobs to absorb the influx of highly educated young adults (Jacobs, 2010; Ren, Zhu, & Warner, 2011). The term 'Ant Tribe' has been put forward, which refers to millions of young graduates who pursue their dreams in big cities (Lian, 2010). They engage in activities for which they are over-qualified and under

paid, and they gather in colonies, sometimes underground (Lian, 2009). Despite their poor living conditions, many graduates choose to stick to big cities rather than look for opportunities in smaller cities or go back to their hometown, although a new phenomenon 'escaping from Beijing, Shanghai and Guangzhou' occurs (Wang, 2010). Understanding the dynamic migration behaviour of university graduates is essential for policymaking that attempts to achieve reasonable allocation of human resources and balanced development at the national level, as well as attract and retain highly-educated and skilled people at the city or regional level.

Although there are quite a few studies focusing on the migration intentions of rural migrants (Gu & Ma, 2013; Tang, Hao, & Huang, 2016), little in-depth empirical research exists on the migration behaviour of university graduates in China. This article explores the graduates' migration intentions by adopting the Theory of Planned Behaviour (TPB) to unravel their intention, and more importantly to uncover how subjective perceptions enter the decision-making process. A central factor in the TPB is the individual's intention to perform a given behaviour, which is the immediate antecedent of actual migration behaviour. As a general rule, the stronger the intention to engage in certain behaviour, the more likely should be its performance (Coulter, 2013; Lu, 1999). For the explanation of migration behaviour, an understanding of prior intentions is indispensable (Kley, 2011). More importantly, intentions are assumed to capture the motivational factors that indicate to what extent people are willing to try or how much effort they are planning to exert, in order to perform the behaviour (Ajzen, 1991). Using qualitative and quantitative data collected from graduates in Nanjing, the aim of this article is to assess their intention to stay or leave Nanjing and to investigate how socio-demographic factors and subjective perceptions concerning Nanjing influence the formation of their intention.

2. Literature review

2.1. Graduate migration

Research on mobility of educated young people has flourished in the literature. Starting from the assumption that rational individuals tend to locate themselves in a place which has a higher level of perceived utility than other places, the economic attractiveness of the potential destination in comparison with the origin location is found to be the most important factor explaining the movement between regions (Faggian, McCann, & Sheppard, 2007b; Lu, 1998). Neo-classical, 'push-pull' and other place-utility migration theories tend to view migrants as atomistic, utility maximizing individuals and to view migration as a behaviour resulting from interregional disparities in wages and employment (Da Vanzo, 1978; De Haas, 2010; Evans, 1990). Kodrzycki (2001) argued that the regional wage differentials should be adjusted for living costs, since high housing costs discourage in-migration (Gabriel, Janice, & Wascher, 1993). The new economics of labour migration (NELM) approach emphasises that migration decisions are often made at the household level to maximize a household's joint income and status and to minimize risks (Stark, 1991). In addition to economic factors, noneconomic factors, measured by the quality of life which consists of climate, natural, recreational amenities, social amenities, crime, air pollution and health, also have a substantial impact upon the location choice (Hong, 2015; Porell, 1982).

Personal characteristics are also found to be important factors explaining migration propensities (Faggian et al., 2007b; Lu, 1998). The dominant determinant among the personal characteristics is human capital. Individuals with a higher level of human capital, either in the form of the degree achieved or the quality of the university attended, are repeatedly found to be more

geographically mobile (Faggian, McCann, & Sheppard, 2006, 2007a). A correlation has been observed between the prestige of the degree and the size of the destination city: graduates from premier institutions of higher education are flocking to big cities, whereas graduates who have only completed vocational training are more likely to shift to medium- and small-sized cities (China Daily, 2010; Zhu, 2012).

The past migration experience, specifically, whether they have migrated for higher education, has been emphasized to play an influential role in predicting the mobility after graduation. For individuals who choose to study outside their home area, the psychological and emotional costs of mobility are relatively lower (Da Vanzo, 1983). They are thus more likely to conduct a national labour market search, and therefore exhibit higher mobility than the individuals who remain in their home region for higher education (Faggian et al., 2006). Groen (2004) argued that graduates prefer to enter employment in the region where they have attended university/college. The knowledge about the local labour market, the familiarity with the host city and the social contacts established during their stay increase their inclination to stay in the university region instead of venturing elsewhere (Krabel & Flöther, 2014). Furthermore, the university/college location is a revealed preference for climate, lifestyle, distance from friends and family, and so on, (Morgan, 1983), which will be considered when choosing a location after graduation.

Although the factors mentioned above do represent important considerations that affect individuals' destination choice, Mosneaga and Winther (2013) criticized the homogenising and simplistic understanding of mobile talents as rational, career-oriented and profit-optimising brains on the move; they called for a more nuanced understanding of individual preferences and situations. In the micro or behaviourally oriented approach, researchers study perceptions of and attitudes towards the origin location, which mediate the effects of personal and location characteristics on the migration decision (Speare, Kobrin, & Kingkade, 1982). Diverse empirical studies have demonstrated that the intervening attitudinal variables are strongly correlated with migration decisions (Lee, Oropesa, & Kanan, 1994; Lu, 1998). To better understand the complex migration behaviour, objective personal and location characteristics, intervening attitudinal variables and individual situations should be incorporated based on an appropriate theoretical framework.

2.2. Theory of planned behaviour

The Theory of Planned Behaviour (TPB), which was developed from the earlier Theory of Reasoned Action (Ajzen & Fishbein, 1980), has been widely used and validated for the prediction of behavioural intentions and behavioural outcomes in a diverse range of studies, such as leisure choice, job-seeking behaviour of college graduates, health-related behaviours and so on (Ajzen &

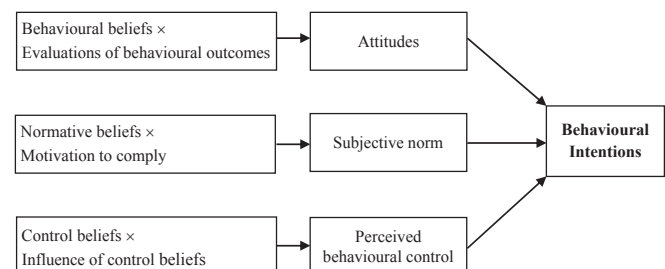


Fig. 1. The theory of planned behaviour (Ajzen, 1991, 2006).

Driver, 1992; Caska, 1998; Hansen, Jensen, & Solgaard, 2004; Pawlak, Malinauskas, & Rivera, 2009). According to the TPB (Ajzen, 2006) (Fig. 1), human action is guided by three kinds of considerations: beliefs about the perceived outcomes of conducting the behaviour (behavioural beliefs) and the evaluations of these outcomes, beliefs about the normative expectations of important referent individuals/groups (normative beliefs) and the motivation to comply with these expectations, and beliefs about the presence or absence of resources/impediments to behavioural performance (control beliefs) and the perceived power of these resources/impediments. In their respective aggregates, behavioural beliefs produce favourable or unfavourable attitudes towards the behaviour; normative beliefs result in perceived social pressure or subjective norms; control beliefs give rise to perceived behavioural control. Attitudes, subjective norms and perceived behavioural control together lead to the formation of a behavioural intention, which is the immediate antecedent of a given behaviour. Generally, the more favourable the attitudes, the more supportive the subjective norms, and the greater the perceived control, the stronger the person's intentions to perform the given behaviour.

Applying behavioural theories to study migration decisions can be traced back to Wolpert's study (1965). The TPB, drawn from behavioural theories, provides a useful framework to study mobility, because the concepts of intentions, values, expectancies, norms, networks and constraints/facilitators are relevant to the study of migration behaviour (De Jong, 1994; Kley, 2011; Lu, 1998, 1999; Van Dalen & Henkens, 2008). With its focus on the relationality and power dimension, the TPB probes into pre-migrate thoughts which are formed in the interaction of agents with the structural context (Lu, 1998). Research on migration tends to emphasize mobility and to treat immobility as the absence of an event rather than as an occurrence worthy of analysis (Hanson, 2005). Adopting the TPB to study the intention to stay will yield new insights about the determinants of immobility, particularly where this might be unexpected given an individual's attributes. The application of the TPB in migration studies is also supported empirically by Coulter, Van Ham, Feijten (2011) work, in which the perceived absence of resources was found to lower individuals' expectation of making a residential move.

The TPB focuses on the relationship between intervening subjective variables (*attitudes, subjective norms and perceived behavioural control*) and behaviour intentions, while migration theory emphasises the effects of personal and location characteristics on migration decision. Understanding individual preferences and perspectives is vital to understand the decision-making process of graduates' migration. At the same time, it is also important to explore how their preferences and perspectives are shaped by their personal characteristics and the locational features. In this paper, we hypothesize that graduates with different socio-demographic features have varied levels of intentions to stay or leave Nanjing after graduation, and the influence of socio-demographic features is mediated by their subjective perceptions: evaluation of the outcomes of staying in Nanjing, the normative expectations of family and peers and the perceived absence/presence of facilitators or barriers towards staying in Nanjing.

3. Research design

3.1. Data collection

The data were drawn from field work in Nanjing. With a total population of 8.16 million (Nanjing Statistical Yearbook, 2013), Nanjing is the second-largest political and commercial centre after Shanghai in the Yangtze River Delta. Nanjing has long been a provincial and national centre for higher education, with over 15

universities, 10 colleges and 17 vocational colleges. This study focuses on university graduates, consisting of bachelor, master and Ph.D. students in their pre-final and final years of their education in Nanjing.³ The field work comprised of two parts: interviews and questionnaires. The interviews with 25 prospective graduates were carried out in January 2013, who were recruited respectively from 14 universities through the snowball method. With respect to the questionnaire, a stratified sampling strategy was adopted. From each of the 14 universities one interviewee was asked to act as a gatekeeper to collect questionnaires in their university. The target population was divided into strata based on their university and degree. The size of the sample in each stratum was taken in proportion to the size of the stratum (see Appendix 1). As seen from Table 1, the samples are quite representative of the whole student population in terms of the distribution of degree and university ranking. Ultimately, the survey generated 514 valid questionnaires.

3.1.1. Stage 1 interviews for eliciting salient beliefs

Beliefs which are assumed to provide the cognitive and affective foundations for *attitudes, subjective norms and perceived behavioural control (PBC)* play a central role in the TPB (Ajzen, 2006). To elicit salient behavioural, normative and control beliefs concerning the behaviour of staying in Nanjing, interviews were conducted. Based on the answers to the open-ended questions, the most frequently stated behavioural outcomes, referents and facilitators/barriers were selected to develop the respective questionnaire items. The perceived gains from continuing their career in Nanjing include enjoying the pleasant cultural and historical atmosphere, living with moderate pace (indicating a better quality of life) and feeling familiar with the environment and having more acquaintances around. The perceived social pressure underlying subjective norms comes from the families/relatives, friends and classmates. The perceived resource that facilitates staying in Nanjing rather than other places is having more interpersonal relations in Nanjing. The perceived impediments and obstacles that may discourage staying in Nanjing include the difficulty of finding a satisfactory job and an affordable dwelling. Besides eliciting salient beliefs underlying the behavioural intention, the interviews narrated individual stories, which help to interpret the quantitative results.

3.1.2. Stage 2 questionnaire

Both the direct and indirect measurements of *attitudes, subjective norms* and *PBC* were adopted in this study. Based on previous applications of the TPB (D'ardenne, Mcmanus, & Hall, 2011; Fishbein & Ajzen, 2010; Francis et al., 2004), statements which directly measure *behavioural intention, attitudes, subjective norms* and *PBC* were tailored to the targeted behaviour (Table 2). The behaviour, normative and control beliefs, which indirectly measure *attitudes, subjective norms* and *PBC*, were derived from the elicitation interviews. Following the guidelines on developing a survey based on the TPB, each belief was paired with a corresponding value statement of that belief. For example, the behavioural belief 'If I stay in Nanjing after graduation, I will enjoy the cultural and historical atmosphere in Nanjing' was paired with a corresponding value statement 'Enjoying the cultural and historical atmosphere is important to me'. In the questionnaire, the different statements assessing a given construct were separated and presented in non-

³ At the time of collecting questionnaires (February to April), it is almost the graduation season (June). We found many final year students (graduating in 2013) were either doing internship outside of universities or search for job in other places, which makes them hardly approachable. Therefore, we decided to also include the pre-final students (graduating in 2014). At that time, they also began to making plans for the graduation.

Table 1
Profile of sampled students.

Category	Characteristics	Mean/share of samples	Mean/share of all students
Demographic & Educational factors	Age (mean)	22.46	
	Gender (male)	54.28%	
	Degree		
	Undergraduate	64.20%	63.91%
	Graduate (Master & Ph.D.)	35.80%	36.09%
	University ranking		
	Project “985”	22.57%	21.38%
	Project “211”	44.55%	42.78%
	Other universities	32.88%	35.84%
	Subject		
	Science	18.48%	
Locational factors	Engineering & Technology	46.89%	
	Humanities & Social science	34.63%	
	Hometown		
	Nanjing	8.75%	
	Jiangsu province	46.11%	
	Other provinces	45.14%	
	Have family/boyfriend/girlfriend in Nanjing	21.01%	
	Duration of higher education in Nanjing (in years)	3.80	
	Leisure activity frequency in Nanjing (per week)	2.53	

Table 2
TPB components in the survey.

Variables	Theoretical range (Min, Max)	Mean score (S.D.)
Intention (Generalized intentions ^a)	(1, 7)	4.26 (1.74)
I expect to stay in Nanjing after graduation.	(1, 7)	4.36 (1.81)
I want to stay in Nanjing after graduation.	(1, 7)	4.28 (1.85)
I intend to stay in Nanjing after graduation.	(1, 7)	4.14 (1.89)
Attitude (Attitude direct)	(1, 7)	4.63 (1.42)
Staying in Nanjing after graduation is good. (A_Direct_1)	(1, 7)	4.69 (1.74)
Staying in Nanjing after graduation is pleasant. (A_Direct_2)	(1, 7)	4.53 (1.66)
Staying in Nanjing after graduation is beneficial. (A_Direct_3)	(1, 7)	4.68 (1.65)
Subjective norm (SN direct)	(1, 7)	3.87 (1.34)
People who are important to me think I should stay in Nanjing. (SN_Direct_1)	(1, 7)	4.16 (1.83)
I feel under social pressure to stay in Nanjing after graduation. (SN_Direct_2)	(1, 7)	3.50 (1.67)
I am expected to stay in Nanjing after graduation. (SN_Direct_3)	(1, 7)	3.95 (1.87)
PBC (PBC direct)	(1, 7)	4.05 (1.58)
For me, staying in Nanjing after graduation is easy. (PBC_Direct_1)	(1, 7)	4.05 (1.58)
Attitude (Attitude indirect: Behavioural beliefs* Outcome evaluations)	(−63, +63)	28.14 (19.03)
If I stay in Nanjing after graduation, I will enjoy the cultural and historical atmosphere in Nanjing. × Enjoying the cultural and historical atmosphere is important for me. ^b (A_Indirect_1)	(−21, +21)	8.05 (8.82)
If I stay in Nanjing after graduation, I will enjoy the moderate life pace here. × Enjoying the moderate life pace is important for me. ^b (A_Indirect_2)	(−21, +21)	9.50 (7.74)
If I stay in Nanjing after graduation, I will enjoy the feeling of being familiar with the environment and interpersonal network. × Familiarity with the city and interacting with friends are important for me. ^b (A_Indirect_3)	(−21, +21)	10.59 (7.06)
Subjective norm (SN indirect: Normative beliefs* Motivation to comply)	(−63, +63)	11.96 (21.07)
^b My family (parents and relatives) supports me to stay in Nanjing after graduation. × My family's support of my staying in Nanjing is important to me. (SN_Indirect_1)	(−21, +21)	5.05 (11.36)
^b My friends think I should stay in Nanjing after graduation. × My friends' opinion about staying in Nanjing or not is important to me. (SN_Indirect_2)	(−21, +21)	4.14 (7.95)
^b My classmates would like to stay in Nanjing after graduation. × My classmates' intention of staying in Nanjing or not will affect me. (SN_Indirect_3)	(−21, +21)	2.77 (5.88)
PBC (PBC indirect: Control beliefs*Power)	(−63, +63)	−0.16 (17.72)
^b If I cannot find a satisfied job, I will leave Nanjing. × I am not confident that I can find a satisfied job in Nanjing after graduation. (PBC_Indirect_1)	(−21, +21)	−3.33 (7.04)
^b If I feel I will not be able to afford a proper house in Nanjing, I will leave Nanjing. × It is difficult for me to afford a proper housing in Nanjing. (PBC_Indirect_2)	(−21, +21)	−2.97 (9.21)
^b My interpersonal relations in Nanjing will be helpful for me to stay in Nanjing. × I have more interpersonal relations in Nanjing than other cities. (PBC_Indirect_3)	(−21, +21)	6.15 (7.36)

^a Note: In this paper, we adopt “generalized intention”, the most commonly used method, using the mean score of the three items “I expect to ...”, “I want to...”, and “I intend to ...” to assess behavioural intention (Ajzen, 2006; Francis et al. 2004). Although there are some literature that discuss the conceptual differences between these three statements (Armitage & Conner, 2001; Coulter, Van Ham, & Feijten, 2011), empirically, there is very considerable response consistency between these items. We have examined the Cronbach's coefficient alpha between them. It is 0.930, which assures adequate internal consistency.

^b Note: These statements are measured using bipolar scoring from −3 to +3.

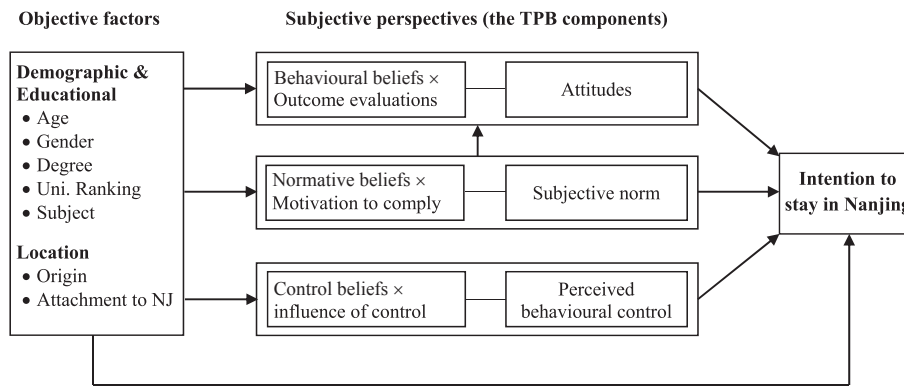


Fig. 2. Modelling structure.

systematic order, interspersed with statements for the other constructs. For some statements scores were reversed in the questionnaire and afterwards re-coded for analysis.

As recommended by Ajzen (1991), a seven-point unipolar rating scale (1 = fully disagree; 7 = fully agree) was used to measure the respondents' level of agreement to these statements. Exceptions were the statements involving positive or negative opinions, then the bipolar scoring (−3 = unlikely; +3 = likely) was employed, with negative numbers representing unfavourable evaluations and positive numbers representing favourable evaluations (see the ^b note in Table 2). The score of direct measures for *attitudes*, *subjective norms* and *PBC* is a mean score for the related statements. The score of indirect measures for *attitudes*, *subjective norms* and *PBC* is the sum of the weighted score for beliefs (multiplying each belief component and its corresponding value statement). Detailed discussion on the way of calculating indirect measures for *attitudes*, *subjective norms* and *PBC* can be found in Ajzen (1991). For both the direct and indirect measures, higher numbers represent more favourable attitudes, more positive subjective norms, or greater control towards the behaviour of staying in Nanjing.

Besides the subjective perspectives (the TPB components), students' objective characteristics that are widely used in migration studies were also collected, including demographic & educational and locational factors. Table 1 presents the profile of the sampled students. Although the samples are relatively homogenous with respect to human capital, there are still two indicators which may signal the level of 'human capital' of a university graduate: degree and the ranking of the attended university. University ranking is widely acknowledged in China, with '985' universities regarded as the first level and '211' universities as the second level. The majority of the graduates (54.86%) are originally from Nanjing or other areas within Jiangsu province, because universities usually allocate a large admission quota to the host city and province. This 'regional selective' university admission system may lead to constrained mobility of students after graduation. In addition to the place of origin, the graduates' attachment to Nanjing is measured by three different aspects: whether one has family/boyfriend/girlfriend in Nanjing, the duration of higher education in Nanjing, and the frequency of leisure activities outside the campus but within Nanjing. We do not include respondents' *hukou*⁴ in the analysis, because our study target are university graduates, who enjoy much freedom of

Table 3
Factor reliability.

Component	Cronbach's alpha	Component	Cronbach's alpha
Attitude direct	0.793	Attitude indirect	0.723
SN direct	0.601	SN indirect	0.734
PBC direct ^a	—	PBC indirect	0.600

^a Note: no need to examine the internal consistency of PBC direct, as it is measured by only one statement.

mobility and can easily obtain the local *hukou* in most destination cities. Also, in the interviews, no interviewee expressed the concern regarding *hukou*'s constraint on their mobility. Even for the floating population (without the local *hukou*), the restrictions of the *hukou* system on their mobility are vanishing (Zhu, 2007).

3.2. Methodology

To investigate how objective demographic, educational and location characteristics influence the formation of *attitudes*, *subjective norms* and *PBC* and thereby giving rise to the intention of staying or leaving after graduation, path analysis was implemented through structural equation models (SEM), which calculate all paths simultaneously and yield an overall goodness-of-fit measure (Garson, 2013). The ultimate dependent variable is the intention to stay in Nanjing after graduation. The objective factors, including demographic, educational and locational characteristics, act as exogenous variables, which are assumed to exert a direct effect on the intention to stay in Nanjing and at the same time to exert an indirect effect on the intention via the subjective perspectives. The subjective perspectives, composed of *attitudes*, *subjective norms* and *PBC*, are mediating variables, which are hypothesized to be shaped by the objective factors and to directly affects the tendency to stay in Nanjing (as illustrated by the causal arrows in Fig. 2). A causal arrow was drawn from a variable within the set of objective factors to a component within the set of subjective perspectives only if they are significantly correlated to reduce model complexity. As suggested by other studies (Hansen et al., 2004), subjective norms may have a direct influence on attitudes. In this case study, the correlation between *subjective norms* and *attitudes* is 0.663 at the significant level of 0.01; thus it will be tested whether the inclusion of a path from *subjective norms* to *attitudes* will improve the predictive power of the model.

As both direct and indirect measures for *attitudes*, *subjective norms* and *PBC* were adopted, two path models using direct and indirect measurements were performed using SPSS's AMOS. There are 16 and 22 parameters respectively in the path models using

⁴ Hukou: a record in the system of household registration, which officially identifies a person as a resident of an area. This registration entitles them to receive social services like healthcare, housing, employment and free public education in their specific registered area.

Table 4

Estimates of path model using direct measures of attitude, subjective norm and PBC.

Variable	Direct	Indirect	Total
Mediator			
Attitude direct	0.411***	—	0.411***
SN direct	0.467***	0.259***(via A)	0.726***
PBC direct	0.012	—	0.012
Personal attributes			
Gender (Female, ref. Male)	0.032	—	0.032
Degree (Graduates, ref. Undergraduate)	0.044	—	0.044
University ranking ('985', ref. Others)	−0.008	0.002 (via PBC)	−0.006
University ranking ('211', ref. Others)	−0.053*	0.000 (via PBC)	−0.053*
Subject (Engineering, ref. Science)	−0.032	0.003 (via PBC)	−0.029
Subject (Social science, ref. Science)	−0.035	0.001 (via PBC)	−0.034
Location characteristics			
Hometown (JS North, ref. Nanjing)	0.059	−0.170** (via A, SN, PBC)	−0.112
Hometown (JS South, ref. Nanjing)	0.009	−0.366*** (via A, SN, PBC)	−0.357***
Hometown (OP Under-developed, ref. NJ)	0.130**	−0.237*** (via A, SN, PBC)	−0.108
Hometown (OP Developed, ref. Nanjing)	0.040	−0.208*** (via A, SN, PBC)	−0.168***
Have family member in Nanjing	0.050	0.121*** (via A, SN, PBC)	0.171***
Duration of higher education in Nanjing	−0.028	0.089*** (via A, SN)	0.061
Leisure activity frequency in Nanjing	−0.023	0.072** (via A, SN, PBC)	0.049

Model fit: CMIN/DF = 3.622, CFI = 0.983, SRMR = 0.0301, RMSEA = 0.071, indicating an adequate model fit.

Significance levels: * < 0.1, ** < 0.05, *** < 0.01

Note: To evaluate the model fit of path analysis/SEM, it is recommended to report at least four goodness-of-fit measures (Kline, 2005). The commonly used ones are chi-square to df ratio (CMIN/DF), comparative fit index (CFI), standardized root mean square residual (SRMR) and root mean square error of approximation (RMSEA). Usually, CMIN/DF < 5, CFI > 0.90, SRMR < 0.08 and RMSEA < 0.08 indicate an adequate model fit (Garson, 2012).

direct and indirect measures (see Tables 4 and 5). According to the rule that the sample size should be 25 times or at least 10 times of the number of parameters (Nachtigall, Kroehne, Funke, & Steyer, 2003), our sample size of 514 is adequate. The usual approach to estimate coefficients in SEM is maximum likelihood (ML) (Garson, 2012). However, it does not report the significance of the mediation effect. Therefore, bootstrap estimation was employed instead to also compute the confidence intervals for the mediation effects (Mackinnon, 2008). Another reason to use bootstrap estimation is that it gives less biased estimates in case of violation of the multivariate normality assumption (the multivariate kurtosis value of the model using indirect measures for *attitudes*, *norms* and *PBC* is greater than 1.96, meaning there is significant non-normality) (Garson, 2012). To check the robustness of this model, *attitude*, *subjective norm*, *PBC* and *migration intention* variables were redefined as ordered categorical rather than interval measurements. Using Bayesian estimation, the coefficients were estimated again, but only slight differences are found, suggesting that the results of bootstrap estimation are robust.

4. Results

4.1. Internal consistency

Attitudes, *subjective norms* and *PBC*, which represent separate underlying dimensions of migration intention, are derived from several corresponding direct/indirect measures (statements in the questionnaire). To secure the internal consistency of the three components, a reliability analysis has been carried out. Cronbach's alpha above 0.6 is usually considered as acceptable, and above 0.7 indicates good internal consistency (Francis et al., 2004). The results in Table 3 demonstrate that the measurement has achieved acceptable reliability for each component.

4.2. Path model – using direct measures

Table 4 presents the results of the path model which uses the direct measures for *attitudes*, *subjective norms* and *PBC*. The standardized coefficients are reported to assess the relative importance

of the various direct and indirect causal paths to the ultimate dependent variable. As shown in Table 4, the goodness-of-fit measures support the adequacy of the model. It has to be noted that these fit measures underestimate goodness-of-fit for large samples (more than 200 is usually considered as large samples in path analysis/SEM) (Fan, Thompson, & Wang, 1999). Thus, in case of this analysis with 514 respondents, the goodness-of-fit is likely to be underestimated. The squared multiple correlation (SMC) for the intention is 0.67, meaning that 67% of the variance in intention is explained by the predictor variables.

Among the intervening subjective variables, model results reveal that *attitudes* and *subjective norms* play significant roles in guiding the mobility of graduates, while *PBC* is not a significant factor. The more positive the attitudes and the more supportive the perceived social pressure, the stronger the intention to stay in Nanjing would be. In addition, *subjective norms* exert significant effects on the *intention* indirectly through *attitudes*. There is an interviewee saying 'My parents' views have a subtle influence on my own opinion'. Ultimately, *subjective norms* exert the greatest impact ($\beta = 0.726$) on predicting graduates' migration intention.

Among the objective factors, the variable Age was dropped from the model due to its high correlation with the variable Degree (0.755 at the significant level of 0.01). The correlations between the remaining objective variables are less than 0.35. Evidently, both direct and indirect effects of demographic and educational characteristics are very limited, whereas the locational variables exert dominant impacts on the post-graduation migration intention. Graduates' geographical provenance is particularly a strong factor. With graduates originally from Nanjing as the reference group, graduates from outside of Nanjing exhibit varying degrees of hesitation to stay in Nanjing. This finding is consistent with earlier findings (Haase & Lautenschläger, 2012; Venhorst, 2013) that the movement to another place to attend college is a strong factor predicting the propensities of post-graduation migration. Graduates from developed areas (Jiangsu South⁵ and other developed

⁵ There are considerable regional differences in terms of economic development level between Jiangsu North and South. Jiangsu North is considered as under-developed areas, whilst Jiangsu South is regarded as developed areas.

Table 5

Estimates of path model using indirect measures of attitude, subjective norm and PBC.

Variable	Direct	Indirect	Total
Mediator			
Attitude_indirect_1	0.059	–	0.059
Attitude_indirect_2	0.108**	–	0.108**
Attitude_indirect_3	0.050	–	0.050
SN_indirect_1	0.320***	–	0.320***
SN_indirect_2	0.303***	–	0.303***
SN_indirect_3	–0.010	–	–0.010
PBC_indirect_1	0.066	–	0.066
PBC_indirect_2	0.206***	–	0.206***
PBC_indirect_3	0.084*	–	0.084*
Personal attributes			
Gender (Female, ref. Male)	–0.006	0.028*** (via A1, A2, A3, SN3)	0.022
Degree (Graduates, ref. Undergraduate)	–0.034	0.096*** (via A1, A3, SN1, SN2, SN3, PBC3)	0.062
University ranking ('985', ref. Others)	–0.002	–0.002 (via PBC2)	–0.004
University ranking ('211', ref. Others)	–0.014	–0.023** (via PBC2)	–0.037
Subject (Engineering, ref. Science)	–0.005	–0.025 (via SN1, PBC3)	–0.030
Subject (Social science, ref. Science)	–0.001	–0.034* (via SN1, PBC3)	–0.036
Location characteristics			
Hometown (JS North, ref. Nanjing)	0.049	–0.170** (via all except A3)	–0.122
Hometown (JS South, ref. Nanjing)	–0.060	–0.343*** (via all except A3)	–0.404***
Hometown (OP Under-developed, ref. NJ)	0.120*	–0.245*** (via all except A3)	–0.125
Hometown (OP Developed, ref. Nanjing)	0.062	–0.253*** (via all except A3)	–0.191***
Have family member in Nanjing	0.100***	0.107*** (via SN1, SN2, PBC1, PBC2, PBC3)	0.207***
Duration of higher education in Nanjing	0.006	0.045 (via A3, SN1, SN2, PBC3)	0.051
Activity frequency in Nanjing	–0.022	0.036** (via SN2, SN3, PBC3)	0.013

Model fit: CMIN/DF = 13.060, CFI = 0.672, SRMR = 0.1160, RMSEA = 0.153.

areas outside of Jiangsu) clearly intend to leave Nanjing. Observed from the interviews, they are inclined to move back to their familiar home regions. In other words, developed areas are more likely to benefit from return flows of graduates. Comparatively, graduates from underdeveloped areas (Jiangsu North and other underdeveloped areas outside of Jiangsu) do not have a strong inclination to go back to home regions. The absence of an alternative destination results in uncertainty regarding staying in Nanjing. In addition to the geographical provenance, the tendency to stay in Nanjing is influenced by the level of attachment to Nanjing, which is measured by three aspects: family members in Nanjing, duration of higher education and the frequency of leisure activities. Among them, having family members in Nanjing significantly strengthens the intention to stay, indicating a prominent path dependency in which family ties facilitate the stay in Nanjing. When splitting the effects of locational factors into direct and indirect ways, it shows that the direct effects are small, whilst the indirect effects are all significant. It suggests that the place of origin and the attachment to Nanjing affect the intention to stay or leave mainly through shaping graduates' attitudes, subjective norms and PBC.

4.3. Path model – using indirect measures

The model results using the disaggregated belief-based measures of attitudes, subjective norms and PBC are presented in Table 5. Although the overall predictive power of this model has dropped (SMC: 0.42), it enables us to gain insights into the underlying cognitive foundation, to assess the importance of specific beliefs underlying attitudes, subjective norms and PBC, and thereby come up with an intervention scheme to guide graduates' mobility.

As stated in the Data Collection section, the perceived outcomes of continuing their career in Nanjing (behavioural beliefs that underlies attitudes) include the enjoyment of cultural and historical atmosphere (*A_Indirect_1*), the moderate life pace (*A_Indirect_2*) and the sense of familiarity (*A_Indirect_3*). Among them, only the belief 'moderate life pace' has a statistically significant impact (0.108**). Especially when compared with the first tier cities, such as Beijing, Shanghai, the moderate life pace could be an important

reason for graduates to choose Nanjing. The enjoyment of cultural and historical atmosphere and the feeling of familiarity are desirable but not given primary consideration. Overall, attitudes measured by beliefs are not explaining much variance in the intention, probably because only including the three most frequently stated behavioural beliefs in the survey does not adequately cover the breadth of the attitudes. In the interviews, a variety of other beliefs were repeatedly mentioned: 'The environment in Nanjing is good'; 'It is quiet and safe in Nanjing'; 'People here are easy to get along with'; 'There are many universities and institutions located in Nanjing, which could provide ample educational resources for children'.

The normative beliefs (that underlie subjective norms) are composed of social pressure implied by graduates' family (*SN_Indirect_1*), friends (*SN_Indirect_2*) and classmates (*SN_Indirect_3*). The opinions from family (0.320***) and friends (0.303***) affect graduates' intention considerably. Chinese society is characterized by close family ties. When choosing a place to settle down, whether it is feasible to take care of parents is often considered as an important factor, especially given the fact that the majority of Chinese families have only one child. An interviewee quoted Confucianism precepts 'While your parents are alive, do not journey afar'. Clearly, the social norm of staying close to parents to take care of them still prevails. It could work the other way around: some parents are quite supportive of the graduates' own opinion regarding where to move to after graduation, as reported by many interviewees, so it turns out that family's opinion is in line with graduates' intention. In addition, it has been found that graduates are vulnerable to peer-pressure. The popularity of moving to the first tier cities or staying in Nanjing among their friends greatly affects their post-graduation decision. An interviewee stated: 'I am quite blind concerning where I should look for a job; I asked for my friends' advices, which had a great influence on me'. However, the impact of classmates' opinions is insignificant. It might be due to the fact that classmates compete for the similar job positions. The classmate and friend groups may partially overlap, whereas most interviewees refer friends as those whom they know before entering the university.

The control beliefs (that underlie *PBC*) concerning the presence of impediments to stay in Nanjing include the difficulty of finding a satisfactory job (*PBC_Indirect_1*) and of finding an affordable dwelling (*PBC_Indirect_2*). The perceived resource that facilitates staying in Nanjing rather than go to other places is having more interpersonal relations in Nanjing (*PBC_Indirect_3*). The difficulty of finding a satisfactory job unexpectedly does not influence graduates' intention to stay in Nanjing, probably because finding a satisfactory job is hard not only specifically in Nanjing but also in other places, especially the competitive metropolitan cities. However, housing affordability is a particular problem in Nanjing. It has been repeatedly pointed out by interviewees: 'The housing prices in Nanjing are pretty high; moreover the salary level is relatively low. So the house price-to-income ratio ranks high'. Hence, confidence in the ability to afford a dwelling in Nanjing considerably affects graduates' intention to stay (0.206***). It is well known that the network of relationships plays a crucial role in Chinese society. In this study, it is also found that interpersonal relations are perceived as a facilitator, and its influence is significant (0.084*). Many interviewees asserted 'I have many friends, classmates and teachers in Nanjing, which makes it easier to exploit local labour market networks and connections, so I am more likely to find a good job in Nanjing than other cities'. Control beliefs explicitly reveal the facilitators and barriers concerning staying in Nanjing, resulting in increased predictive power of the *PBC*.

The total effects of objective factors on the intention to stay basically remain insignificant, but their indirect effects through the subjective perspectives become observable if going deeper into the belief level. Female graduates hold more favourable attitudes towards Nanjing. An interviewee observed that: 'I feel most females around me would like to stay in Nanjing, where life pace is not that fast'. Compared to bachelors, Master and Ph.D. graduates hold more positive attitudes towards staying in Nanjing and perceived more supportive opinions from their family, friends and classmates. A Ph.D. interviewee said: 'I feel there are some differences between bachelor, master and Ph.D. graduates. Bachelor graduates are more likely to go back to the second tier cities located nearby their hometown, where they are quite competitive and can live a better life. Few masters are willing to go back to their home regions. Regarding graduates with Ph.D. degree, most of them aim to find a position in colleges or universities. There are quite a few colleges and universities located in Nanjing, and thus Nanjing could be a good option'. Although we expect that differences in migration intentions would be observed among graduates from different levels of university ranking, this factor's impact is limited. It is probably because personal performance, such as GPA, would be a better indicator for the competitiveness of a graduate, which is influential in the formation of migration intention. Regarding the subjects studied, a previous study in the UK (Faggian, McCann, & Sheppard, 2007a) shows that the graduates who have studied arts are less migratory than graduates who have studied either science or social science. In our study, compared to the graduates who studied science, the graduates who studied social science/humanities do not think their interpersonal relations would be helpful to secure an opportunity to stay in Nanjing, and their parents are less supportive of the idea to stay in Nanjing (Table 5). This may be related to the fact that jobs for social sciences/humanities graduates are less specific and less confined to big cities, such as Nanjing. In general, the impact of the subjects studied is limited, which is largely due to the fact that only 55% of Chinese university graduates engage in jobs related to their major (Ru, Lu, & Li, 2009).

5. Conclusion and discussion

The mobility of university graduates contributes to the

geographical diffusion of knowledge and reshapes the spatial distribution of human capital, which may lead to regional economic imbalances (Miguélez & Moreno, 2012). The empirical study, presented in this paper, integrates the insights from the Theory of Planned Behaviour into migration studies, which gives sufficient analytical room to explore the determinants and motives behind graduates' migration intentions. Results show that the subjective perspectives, which are comprised of *attitudes*, *subjective norms* and *PBC*, exhibit strong predictive power and provide valuable insights in the underlying cognitive foundations of the formation of intentions. Favourable attitudes towards staying in Nanjing, specifically the preference for a moderate life pace, significantly strengthen the tendency to stay. The subjective norms, perceived opinions from family and friends, influence the migration decision making, not only directly, but also indirectly by shaping positive attitudes about living in the city. Underlying the prominent normative expectations of parents is the tradition of staying close to parents to take care of them. The similar effect of family norms on migration behaviour was found in Thailand (De Jong, 2000). The *PBC*, when measured indirectly, is vague and therefore is found to be uninformative. After eliciting the explicit control beliefs, it shows that high house price-to-income ratio discourages graduates' intention to stay in Nanjing. A wide gap in homeownership has been observed between migrants and locals in Nanjing (Cui, Geertman, & Hooimeijer, 2016), so housing affordability has become an essential factor when deciding whether to move or stay. The accumulated interpersonal relations in Nanjing are found to raise the tendency to stay. Surprisingly, the expected difficulty in finding a satisfying job is not related to the intention to stay or to leave, probably because graduates face the risk of underemployment all over China.

Unlike previous studies, in which the personal characteristics, particularly the level of human capital, are found to be important factors explaining the movement between regions (Faggian et al., 2006), in this case study, prospective movers and stayers do not differ significantly in terms of demographic and educational characteristics. This might be because this study only focuses on the behaviour of staying in Nanjing. When making a distinction between upward (to metropolitan cities) and downward (back to home regions) movements, the level of human capital would probably play a role. In line with earlier findings (Haase & Lautenschläger, 2012), graduates' geographical provenance is found to exert a significant influence on their mobility intention. By employing the TPB, we found that the effects of geographical provenance are mainly mediated through the subjective perspectives (*attitudes*, *subjective norms* and *PBC*). Graduates originating from Nanjing are less likely to move away, because they have more positive attitudes, perceive more supportive opinions, more helpful resources and few impediments concerning staying in Nanjing; besides, attending university locally already demonstrates their adherence to Nanjing. Graduates from elsewhere are, in general, more likely to make a migration after graduation, while the degree of the intention to leave varies. Graduates from developed regions have a stronger inclination to leave Nanjing than those from underdeveloped areas. Nevertheless, consideration for economic opportunities hardly enters graduates' subjective perspectives regarding where to move. The higher tendency of graduates from a better area to move back may not be related so much to the economic opportunities, but rather to the network that helps to secure the economic opportunities.

This empirical research using the TPB framework complements existing graduate migration studies by incorporating graduates' subjective perceptions and going beyond economic interpretations. The insights gained from the TPB are crucial in the further development of graduate migration theory which so far has tried to

understand the reasons to move. Our findings do not only support the new economics of labour migration (NELM) theory, which ad-

Appendix 1

Sample distribution–List of universities where respondents are recruited

Name	Ranking	No. Of graduate (2013)	Total graduates Bachelor: master: Ph.D.	Respondents Bachelor: master: Ph.D.
Nanjing University	'985'	8116	3459: 3404: 1253	18: 27: 5
Southeast University	985'	8742	3918: 3758: 1066	31: 29: 6
Nanjing Aeronautics and Astronautics University	'211'	6295	3974: 1974: 347	24: 10: 0
Nanjing University of Science and Technology	'211'	6600 ^a	3830: 2400: 370	31: 15: 3
Nanjing Agricultural University	'211'	6514	4102: 1896: 516	39: 22: 0
Hohai University	'211'	7525	4557: 2526: 442	23: 14: 1
Nanjing Normal University	'211'	6825 ^a	4000: 2600: 225	32: 14: 1
Nanjing University of Technology	Other	4830	3240: 1436: 154	43: 10: 0
Nanjing University of Posts and Telecommunications	Other	4447	3242: 1062: 143	16: 7: 0
Nanjing Forestry University	Other	4818	3731: 966: 121	12: 9: 0
Nanjing University of Information Science and Technology	Other	4564	3956: 608: 0	19: 2: 0
Nanjing Medical University	Other	2010 ^a	1300: 600: 110	13: 7: 1
Nanjing University of Finance and Economics	Other	4051 ^a	3558: 493: 0	6: 1: 0
Nanjing Audit University	Other	3558	3558: 0: 0	23: 0: 0

^a The data about graduates in 2013 is not available. Instead, we present here the numbers of bachelor recruited in 2009, master and Ph.D. recruited in 2010, who are supposed to graduate in 2013.

vocates placing the behaviour of individual migrants in a wider societal context (De Haas, 2010; Stark, 1991), but more importantly adds the considerable influence of parents' opinion suggesting that the NELM, which includes the effect of relevant others on decision making, should be extended by taking the role of parents into account, particularly in the Chinese context given its tradition of filial piety. Lastly, this case study has exemplified the path dependency of migration. An increasing number of graduates settling down in Nanjing can trigger a form of cumulative causation that works to the advantage of Nanjing as future generations of graduates (their offspring) will be more inclined to stay.

Meanwhile, better understanding of the driving forces, especially the subjective perspectives, behind the migration behaviour of university graduates has policy implications in terms of retaining locally educated graduates and attracting out-of-city graduates. In today's knowledge-based economy, city regions that are able to attract, develop and retain valuable human capital have a distinct advantage that is crucial to economic growth (McLean, 2013). Nanjing is a typical second-tier city, having distinctive features from the first-tier cities. The interviewees have labelled Nanjing as a comfortable liveable city with a rich history and culture, moderate life pace and clustering of higher education institutions. To retain university graduates, it could be a good strategy to have these historical and cultural resources well preserved and to support the development of higher education institutions. More importantly, the housing affordability in Nanjing is of particular concern to prospective stayers, resulting in a weakened ability of the city to retain and attract human capital. To respond to the shortage of affordable housing, a sound Social Housing Security System needs to be established, in which recent graduates, (e.g. within 3 years of graduation) should also be taken as a target group by giving the opportunity to apply for low-rent housing. It has been found that quite a few employers in the public sector provide dormitories for their employees, which seems to work well (Cui, Geertman, & Hooimeijer, 2014). The government could also stimulate employers, especially those in the private sector, to provide newly graduated employees with temporary and affordable accommodation, which may ease the difficulties in the beginning phase. Lastly, it appears that improvements in the provision of health, education and welfare services would also enhance the ability of Nanjing to retain and attract highly educated human capital.

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