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Research Paper

Designing for a Living? Income Determinants Among Firm Founders in the Dutch Design Sector

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ABSTRACT Many studies have analysed the role of the creative class in fostering regional development. The focus on regional development neglects the individual differences in success among members in the creative class and among firms within creative industries. We study firm founders in three design sectors (industrial design, graphic design and web design) and analyse the determinants of their personal income. Next to individual factors affecting income differences among designers, we look at the relational and spatial contexts in which designers operate. Hence, we can also assess whether spatial clustering and organisational networking are beneficial for designers. The main result, based on 200 telephonic questionnaires, holds that income is determined mainly by business experience and the use of advanced Information and Communication Technologies (ICTs), while education and spatial clustering have no impact. We argue that policies in the design sector should be oriented towards helping young designers to gain experience as well as towards life-long learning in the use of ICTs.

KEY WORDS: Creative class, creative industries, design, spin-off, localisation economies, ICT

JEL Classification: L84, O3

1. Introduction

During the last decade, few concepts have had a larger impact on academia and policy than Florida's (2002) notion of the creative class. His definition of the creative class refers to a particular sub-set of professions including science, engineering, design, education, arts, music and entertainment. The creative-class thesis holds that new businesses tend to locate where the creative class members are living, as they increasingly source their services or seek to hire them as key employees. Hence, if firms indeed locate where the creative class is living

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(rather than the creative class moving to cities where these businesses are located), urban development policy could focus on attracting the creative class rather than business firms.

Since Florida's (2002) seminal contribution, the main debate has been about the question whether the presence of the creative class spurs urban economic growth (for a recent review, see Marrocu and Paci, 2012). Upon reflection, the focus on urban economic growth may not be too surprising, since Florida's thesis, though novel in its explanatory form, still reasons from the prevailing policy paradigm that urban policy should be aimed to attract new business. Alternatively, from a more general perspective of urban welfare, one may ask how urban policy can support living and working of the creative class itself.

We believe that a shift in focus from the creative class and its impact on economic growth to the members of the creative class and their individual lives is welcomed. Indeed, a problematic aspect of Florida's thesis is the unit of analysis. The notion of class presupposes that heterogeneous individuals can be meaningfully aggregated and that such aggregates can be meaningfully associated with macro-variables such as urban economic growth and productivity. Obviously, aggregations are informative in probing macroeconomic relations and testing macroeconomic theories, yet the underlying class notion is less useful in an urban *social* policy context where problems and opportunities are associated with particular individuals.

Echoing earlier pleas by Markusen (2006) and Scott (2006a) for a critical and nuanced stance towards the creative class thesis, our study aims at furthering our empirical understanding on the income determinants of members of the creative class. Our focus is on self-employed members, and in particular, in the design sector. In contrast to the rather high average income for the creative class more generally (Florida, 2002), the self-employed members of the creative class typically struggle to earn sufficient and stable income (Wenting *et al.*, 2011). This group is particularly important in a social policy context, as policies can be aimed to support self-employed in ways that increase their incomes. The objective of our study was to understand the individual-level and relational determinants of the personal income of the creative class.

From our data, based on 200 telephonic questionnaires with Dutch industrial, graphic and web designers, we analyse the determinants of personal income and derive implications for social and economic policy. Based on our findings, we question the current policy logic of attracting the creative class in the hope that business will follow. Rather, given the large share of self-employed, low-income members of the creative class, we plea for a social policy aimed at supporting those who start and wish to maintain their small business in creative industries.

2. Creative Class and Urban Development

Since Florida (2002) introduced the notion of the creative class, the academic debate has focused on the question whether the presence of the creative class provides a better prediction for urban economic growth than more traditional measures such as human capital. Upon reflection, the focus on urban economic growth may not be too surprising, since Florida's thesis, though novel in its explanatory form, still reasons from the prevailing policy paradigm that urban policy should be aimed to attract new business. Alternatively, from a more general perspective of urban welfare, one may ask how policy can support living and working of the creative class itself.

The empirical debate thus far has concentrated on the question whether the presence of the creative class contributed to urban growth (Florida, 2002) or whether this growth effect can, in fact, be attributed to a more traditional input being high levels of human capital, which

creative class members typically possess (Glaeser, 2005). Separating the two effects in empirical research design is not without difficulty, and there is no consensus whether the creative class, indeed, spurs economic growth on top of the effect of human capital (Florida, 2005; Glaeser, 2005; Marlet and van Woerkens, 2007; Boschma and Fritsch, 2009; Marrocu and Paci, 2012).

However, even if human capital, rather than creativity, spurs economic growth, the Florida policy thesis may still hold in slightly modified form: those cities that are able to attract highly skilled workers will attract businesses and experience growth (Glaeser *et al.*, 2001; Glaeser, 2005). Hence, a second empirical key question holds whether the highly skilled workers, including many members of the creative class, are sensitive to particular urban amenities and atmospheres in the locational choice. Indeed, some have found evidence that such location factors may play a role, though its effects are estimated to be only small (Van Oort *et al.*, 2003; Martin-Brelot *et al.*, 2010; Wenting *et al.*, 2011).

A more recent empirical concern holds whether a rise of the creative class increases inequality in cities. That is, although the presence of the creative class may spur growth, the type of growth may be one that increases inequalities within cities. In particular, Florida and Mellander (2013) find for the USA that wage and income inequality in a city is highly correlated with the share of creative occupations in a city. This resonates with findings that associated income inequality in the US cities with differences in human capital (Glaeser *et al.*, 2009) and income inequality in European regions with higher rates of innovation (Lee and Rodriguez-Pose, 2013).

All these empirical studies treat the creative class as a single category and neglect the heterogeneity within the creative class. Indeed, the whole notion of class presupposes that individuals can be meaningfully aggregated into a particular category. However, there are important socio-economic inequalities among members of the creative class (Eikhof and Warhurst, 2013). With many being self-employed and having little market power, most earn low and unstable incomes, while only few earn high and stable incomes. Hence, the aforementioned local inequality in creative cities may be due to large income differences among members of the creative class. Competition in creative industries is fierce, given the lack of market power of small firms, with most workers being self-employed and earning unstable incomes. At the same time, few firms establish strong reputations and brand values, providing their founders and key employees with excess profits and incomes (Wenting *et al.*, 2011). Social inequalities may be further increased by unfavourable conditions for women and ethnic minorities in creative industries (Eikhof and Warhurst, 2013).

The income inequality among creative class members begs the question of what is driving these differences. Given our empirical focus on designer firms, we are particularly interested in income differences between firm founders in design sectors, thus leaving aside employees in firms. In developing hypotheses regarding their income differences, we will first discuss the specific context of the design sector. We then turn to specific hypotheses regarding income determinants of Dutch designers, which will guide the subsequent empirical analysis.

3. Hypothesis Development

3.1 The Design Sector

Design as a separate profession has only existed for about a century. Traditionally, different kinds of design activities, including engineering and product design, were part of corporate

processes but were not acknowledged as distinct functions. For instance, industrial design started to claim a separate role within manufacturing companies only in the 1930s in the USA and much later in Europe (Walsh, 1996). The emergence of the profession of designer went hand in hand to a process of externalisation, where manufacturing firms recognised the need of design for their activities but chose to outsource design-related processes to external consultants. This trend is reflected in the current occupation of designers: only a minority of designers work in in-house teams at companies, while the vast majority works as free-lance consultants or in specialised design firms (Vanchan and Macpherson, 2008).¹

Several mechanisms can explain the institutionalisation of design as a service sector. From the point of view of the focal firm, these may include the shortage of internal talent (Yasuda, 2005), the possibility that designers offer new types of services that firms do not want to replicate in-house, and the fact that external specialists can sometimes operate and deliver faster (MacPherson, 1997). Also, many manufacturers, especially durable goods producers, face cyclical demand and their need for design consultancy is concentrated in time. From the point of view of the designer, talented designers rarely seek permanent jobs with manufacturing companies (Kalafsky, 2006). This fits with the idea that being 'stuck' in one place hampers the possibility to fully nurture and express creativity. Finally, external consultants might be better able to act as intermediaries between producers and users (Walsh, 1996).

Another feature of design sectors is that it is typically dominated by very small firms. Many designers are self-employed and would only grow to have a couple of other designers working for them. About 80 per cent of UK design firms employ less than 10 people (Design Council, 2011) and a similar percentage applies to the Dutch case (our data, see Section 4). Several reasons may explain this distribution. First, while it is relatively easy to start-up as design firm, the activity of designing does not enjoy clear-cut economies of scale insofar as designs tend to be unique. Furthermore, many designer firms remain small because of the importance of geographical proximity in the designer–client relation. Effective interaction between the two parties requires the exchange of highly tacit knowledge, whose transfer is facilitated by frequent and face-to-face communication. Moreover, firms are strongly associated with the name of the founder and the company reputation almost equates the founder's reputation (Sunley *et al.*, 2008). This poses a barrier to growth in so far as the founder's skills cannot be replicated. Also, the moulding of new recruits to a company style and vision in line with the founder's reputation is challenging because of the natural tendency of designers to cherish their own differences and profile themselves as unique. The same attitude makes it tricky to manage large groups of creative talents under the roof of one large organisation, as large organisations typically need to rely on increasingly formalised routines with less space for individualities.

The design sector shares with other creative industries a reliance on creativity rather than formal education as the key input in production (Florida, 2002; Scott, 2006b). At the same time, the output of the design sector typically needs to have both expressive and functional value (Sunley *et al.*, 2008). Designs incorporate a tangible component (the actual visualisation, either a physical object or a graphics or other) and an intangible one, which is

¹ Design Council (2011) reports that about one-third of UK designers work in in-house teams.

conceptual and artistic. Designers have been defined as mediators between ideas and practice, translating boundless creative inputs into actual realisations constrained by practical requirements (Dodgson *et al.*, 2005). Often, it is the clients that pose the practical constraints, while the designers would strive at expressing their full creativity. Yet, ultimately, the very success of a design relies on compromising and persuading one another.

Designers rely not only on their tacit knowledge base, but on a “symbolic knowledge base” (Asheim and Coenen, 2005; Asheim *et al.*, 2007), whose creation and understanding requires familiarity with unwritten codes of aesthetic and cultural values. The feeling for these symbolic codes is, in turn, based on a tacit understanding nurtured by being located in those urban centres where all other creative people work and live (Grabher, 2004; Scott, 2006b). Nevertheless, some designers might also need to grasp a great deal of technical and scientific knowledge to understand clients’ needs. In general, the ability to translate clients’ requirements has also much to do with tacit knowledge (Rusten and Bryson, 2007). It is learned from accumulating experience more than from formal education. It gets strengthened by working for different types of clients and in diverse contexts (Sunley *et al.*, 2008).

Design firms possess distinctive features that also allow them to classify them as knowledge intensive business services (KIBS). Design firms serve business clients instead of final consumers. They are project-based firms that can only survive by continuously winning new contracts. A designer manager interviewed by Sunley *et al.* (2008) illustratively said: “My designers are business consultants, they just happen to solve problems with graphics, rather than a report or something like that” (p. 684). Similarly to other KIBS activities, the relation of design firms to their clients is crucial. Moreover, there are several reasons for designers to engage in relation-specific investments. First, understanding clients’ needs, especially for complex products and in early stages of the design process, requires frequent face-to-face meetings. In industrial design, it is especially essential to spend time at the production site, to get information about technical details and assess what is practically feasible (Sunley *et al.*, 2008). Second, by building long-term relationships, designers increase their chances of repeat contracts and enjoy significant relational rents (De Clercq and Sapienza, 2001). Designers are professionals and the value of their expert services is difficult to assess beforehand. Clients often base their decisions on the reputation that a designer has accumulated over time but also on their own experience or the experience of related firms with that designer (Sunley *et al.*, 2008). Of course, long-term relations may render design firms stale and this might lead to underperformance of the design firm and even to employee dissatisfaction. In turn, this can act as a trigger for frustrated employees to start their own spin-off, something that reinforces the typical small scale of most design firms.

3.2 Hypotheses

Our study aims to understand the income determinants of Dutch designers. Here, we limited our research to industrial design, graphic design and web design. Fashion design has been already analysed in a similar way (Wenting *et al.*, 2011) and video game design was excluded due to low numbers. Industrial design is concerned with transforming a set of product requirements into a configuration of materials, elements and components with an impact not only on aesthetics, but also on user friendliness, ease and efficiency of

manufacture and functional performance (Gemser and Leenders, 2001). Graphic design can be defined as the process and art of combining text and graphics and communicating an effective message in visual communication. Finally, web design is about delivering content to an end-user through the World Wide Web.

Our dependent variable of interest is the personal income of the founder of a design firm. Thus, in the following, when we speak of a designer, we always refer to the founder of a design firm. We choose to focus on personal income since this indicates both the success of a company (as participating in a creative industry like design) and of the designer herself (as a member of the creative class). Hence, our study can be made relevant both to the discourse on creative industries and that of the creative class. Furthermore, personal income can be considered as a main policy variable of interest from a socio-economic perspective. That is, social policies are generally oriented towards improving personal income.

Traditionally, personal income is explained by socio-demographic variables as well as education-related variables. When considering entrepreneurs in a creative industry, here specifically founders of design firms, a number of additional variables are expected to come into play given the nature of their activity. We distinguish between personal, relational and spatial determinants.

3.3 Personal

3.3.1 Experience. Apart from formal education, experience is expected to play a major role in design, in line with how designers work (Section 3.1). Although formal education teaches one the basic design skills, designers' knowledge remains essentially tacit. It is not only the creative aspect of design that can hardly be codified; equally important is a designer's ability to understand the needs of a client and to translate these into a design that meets these needs. Given that these skills can only be acquired by experience, that is, by having developed different designs and in different client contexts, one expects experience to be a main determinant of income.

Looking at designers who founded their own firm, design experience can be acquired in two ways. First, experience depends on having run one's own business for a prolonged period of time. Second, experience can result from having worked before as an employee in another design firm. As an employee, one gains experience from working at design projects, and especially from working with the lead designer who passes on her experience to other employees in the firm. In this case, one speaks of pre-entry experience held by designers who found their own "spin-off" firm after having worked as a designer for another firm (Klepper, 2002). Previous research found indeed that spin-off companies outperform other companies in the creative industries of fashion design (Wenting *et al.*, 2011) and book publishing (Heebels and Boschma, 2011).

A final source of experience can be entrepreneurial experience. Some founders of design firms may have run a firm before (whatever its activity). This means they have acquired general experience in running an own independent business.

- H1: The higher the age of the firm, the higher the income of a designer
- H2: Pre-entry experience contributes to the income of a designer
- H3: Entrepreneurial experience contributes to the income of a designer

3.3.2 Innovation. Sunley *et al.* (2008) refute the idea, implicit in Florida's thesis, that innovation in the creative sector is essentially serendipitous. Thanks to the continuous supply of stimuli in the environments where creative firms locate, innovations are thought to emerge spontaneously. Instead, Sunley *et al.* (2008) claim that sources for innovation are not so much the generic external environment, but rather the specific client–firm relations and the design firm itself. Design firms deliberately invest in learning, even though their innovation efforts might look quite different from the ones of manufacturing firms. In project-based firms, knowledge and experience are collected from being exposed to diversified projects in a bottom-up way. The challenge for these firms is to extract common lessons that can be codified and reused in new contexts. The textbook example of the company IDEO (Hargadon and Sutton, 1997) shows that design firms can have formalised routines for innovation that sustain creativity.

Design firms can have different business models corresponding to different means of competing. One way of competing is by differentiating the firm from other firms with respect to the designs that are being made. Unique, revolutionary designs and potentially new functions can give a firm competitive advantage, for example, by reputation. Therefore, it is argued that innovating companies likely perform better. Note that every design could be defined as an innovation, since they are all new and unique in some way. For this reason, this study will focus on radically new designs, thus excluding incremental innovation.

H4: Designers who recently introduced a radically new design have higher income

3.3.3 Intellectual Property Rights (IPR). Designers can protect their creations by means of intellectual property rights (IPR). In the first place, copyright protects any kind of artwork, including illustrations, photographs and graphic design (Bureau, 2011). A copyright is defined as the exclusive right to control reproduction and commercial exploitation of creative work. The copyright is a bundle of different exclusive rights, some of them being particularly relevant for designers. First, the copyright gives the right to reproduce. Second, it gives the right to display. Third, it gives the right to make adaptations on one's work. A website is also protected by the copyright law and even complete websites can be copyrighted. Designers can also sell their copyright to their clients, so that the client can use the design more often and even use adjusted versions. Some designers participate in a more open system, in which (parts of) designs are openly shared. The best known is "Creative Commons", which is a system in which creators can share their copyright protected work for certain forms of reuse.

In the case of industrial design, designers can protect their designs by means of the "industrial design right". An industrial design right protects the visual design of objects that are not purely utilitarian. An industrial design consists of the creation of a shape, configuration or composition of pattern or colour, or combination of pattern and colour in three-dimensional form containing aesthetic value (BBIE, 2011). Designs may be protected if they are "novel", that is if no identical design has been made available to the public and if they have "individual character", that is, an "informed user" would judge it as being different from other designs.

Finally, designers can use a trademark to protect their business as a whole. A trademark is defined as a sign, which serves to distinguish the goods and services of one organisation from those of another. The trademark may be a word, several words (such as a

slogan), a design, symbol, graphic or any combination of these elements. Trademarks are the legal counterparts of brands. For design firms, the name of the founder is of particular value because the company's reputation often gets associated with the name of its founder (Sunley *et al.*, 2008) and represents the company's brand.

The advantages of IPR have to be weighed against the time and cost involved in acquiring it, which can be substantial, especially for smaller firms.² Hence, its use may not be widespread. Nevertheless, IPR will help designers to prevent rivals from using their creations. Hence, IPR can be a source of income, either directly when sold or licensed, or indirectly, by reducing competition.

H5: Designers who protect their designs by means of IPR have higher income

3.3.4 ICT skills. A final individual-level determinant of success in the design sector concerns the ability to use advanced ICTs. Indeed, modern design is unthinkable without ICT as most designs are being conceived using design software. It remains true that larger firms have more incentives to invest in formalising and codifying their innovation processes, while smaller firms typically rely on informal knowledge sharing (Sunley *et al.*, 2008). Still, developments in ICT and the use of dedicated software for design is changing the way design firms accumulate, store and access knowledge from projects (Dodgson *et al.*, 2005). Specialised software allows designers to experiment with more options thanks to simulation tools.

Yet, individual designers vary in the software they use with only some adopting the more specialised and advanced software. Such programmes allow them to explore a greater variety of designs and in less time than designers using standard software packages. The more specialised software requires advanced ICT skills, which tend to be scarce and may offer a source of competitive advantage. Also, the use of ICT forces designers to codify more steps in their work routines and shapes how designers share information both internally and with external parties, including clients and users, with an expected positive impact on their performance. Hence, we expect that:

H6: Designers who use specialised design software have higher income

3.4 Relational

Inter-firm collaboration is a ubiquitous phenomenon in design with the nature of collaboration varying in a number of ways (Shrader, 2000). First, useful knowledge exchange about products, services and practices can take place. Second, it can reduce investment costs of an individual firm (e.g. specific tools to process materials). Third, it can reduce uncertainty about doing business in an unfamiliar environment. For example, designers who target a new client group benefit from collaboration with firms who have experience with these clients. Fourth, firms can leverage their competitive advantage as collaboration corresponds with increased size and more combined expertise. Fifth, and

² For example, registering a trademark in Europe costs about 1,000 euro.

particularly relevant in a small firm focused sector, collaboration creates opportunities for new contracts through business referral. Obviously, collaboration is not without risk. Shrader (2000) mentions a risk of knowledge dissemination, increased transaction and communication costs, and potential conflict. For a given project, a firm will thus try to weigh benefits and costs, and only collaborate when benefits are expected to outweigh the costs. Hence, we expect a positive relation, which could also be stemming from the inverse causal relation: the more successful the designer, the more others are willing to collaborate with her.

H7: The more a designer collaborates, the higher the income of its founder

3.5 Spatial

Members of the creative class are highly clustered, typically in the larger cities. Though Florida (2002) suggested that clustering may be due to common locational preferences among creative class members, a more traditional explanation holds that they co-locate to profit from localisation economies. These economies are multiple: designers learn informally through interaction in social networks, they find collaboration partners more easily and they can more easily find (temporary) personnel and professional service providers (Grabher, 2004; Storper and Venables, 2004; Giuliani, 2007). In all cases, one expects the performance of designers to increase as a function of localisation economies, as commonly indicated by the number of firms operating in the same industry and region.

Agglomeration economies may also stem from urbanisation economies, that is, the economies that accrue from being located in large cities. Urbanisation economies stem from specialised service providers (e.g. financial institutions, consultancy, public services) as well as from the larger potential to learn from firms in other (creative) industries. However, and different from localisation economies, urbanisation economies must be weighed against higher rents and congestion levels caused by the co-presence of many industries and services.

H8: Localisation economies contribute to the income of a founder of a design firm

H9: Urbanisation economies contribute to the income of a founder of a design firm

4. Data

This study makes use of data gathered through telephone questionnaires with founders of design firms, conducted in the summer of 2011. As mentioned before, we focused on Dutch design firms, and more specifically on the sectors industrial design, graphic design and web design in the Netherlands. One reason to focus on design is the current emphasis in (Dutch) innovation policy on design sectors (Dutch Ministry of Economic Affairs, Agriculture and Innovation, 2011). Another reason was that design firms are mostly small and run by their founders, meaning that interviewing their founders provides reliable information. Admittedly, we focus on a specific group of designers, the ones that were already able to found their own company. However, founding a company in the Netherlands is a rather simple process and basically only requires a straightforward and not very costly registration at the Chamber of Commerce.

We chose three different design activities representing different degrees of professionalisation and barriers to entry. We actually found that many designers combine two of the three design activities. This can be explained from a demand perspective as matching customers' heterogeneous needs in one-stop shop solutions from one designer. On the other hand, it might also signal economies of scope from utilising skills in related design activities, for instance skills in the use of similar software.

We used the online directory of the Dutch Yellow Pages (<http://www.goudengids.nl>) to search for design firms (and their telephone number). This source has the practical advantage over the data from the Chamber of Commerce that its sectoral classification is more fine-grained (we could not separate the three design activities in the Chamber of Commerce register), misclassification of firms in sectors is much less frequent, extracting information can be done without cost and inactive registered firms are not taken up. The disadvantage holds that only firms are present who deliberately applied for being listed in the Yellow Pages. While in general appearing in the Yellow pages can be thought of as a sign that firms are proactively seeking clients (possibly resulting in a sample biased towards successful firms), for some designers being part of such a generic list could go against their wish to differentiate themselves from the rest (possibly resulting in a bias towards less successful firms). Note that since we rely on the online version of the Yellow Pages, we do not expect that Web-designers would systematically not choose for such a register.

Firms were randomly selected out of the three design categories (industrial, graphic and web design). We checked the representativeness of the sample for the five largest cities (Amsterdam, Rotterdam, The Hague, Utrecht and Eindhoven) and found that the proportions of firms were in line with population density, as reported in the national statistics. In total, 737 different firms were contacted by telephone. Out of these 737 firms, 200 firms responded, 238 firms did not want to participate and 299 firms (repeatedly) did not answer the phone. Though our sample size is 200, the number of observations used in the statistical analysis is only 138 due to missing variables data, particularly, on the dependent variable income.

We opted for a telephone interview for different reasons: they are not only less costly and easier to arrange than face-to-face interviews, but they may also be preferred in case of possibly sensitive questions, such as in our case asking for a respondent's income (Bryman, 2008). Also, we preferred telephone to online questionnaires because the typical response rate is higher, as email invitations to fill in questionnaires are more easily neglected by receivers. Moreover, even though our questionnaire contained clear-cut closed questions, some questions could still be subject to misinterpretation, something that the telephone interviewer could overcome by being available for clarifications.

Appendix A includes details on the questions relevant to our variables, which we discuss in turn in the next sections.

4.1 Dependent Variable: Income

Since most designers are self-employed or run a very small firm, net monthly income is considered a reliable indicator for a designer's success. In creative industries, in particular cultural industries, traditional measures of firm success are problematic. For instance, firm profit figures are not only highly volatile, but also often not exactly known by designers (Wenting *et al.*, 2011). Instead, personal income is typically known to the respondent and

thus provides a more precise proxy of firm success. Moreover, it captures the extent to which designers are able to make a living out of their design firm, in line with the focus of our study.

Respondents were asked to report their net monthly income on a scale with the following categories (in euro): 0–1000, 1000–2000, 2000–3000, 3000–4000, 4000–6000, and 6000 or more. We chose a scale rather than the exact amount, as designers may feel both sensitive and uncertain about reporting their exact income. Notice that respondents were assured that their response would be treated anonymously, so under-reporting for fear of tax scrutiny should be very limited.

4.2 Independent Variables

Table 1 summarises all the variables that are used in this study.

4.2.1 Personal Variables (Hypotheses 1–6). The first three hypotheses regarding the determinants of income concern experience which can be gained through running one's own business for a prolonged period of time, pre-entry experience from having worked as an

Table 1. Overview of the variables

Variable	Type	Description
Income	Dependent	The net monthly income of the founder of the design firm
Founding year	Personal	The year the firm is founded
Pre-entry experience	Personal	Whether the founder has been employed in wage labour in the design sector before founding the firm
Entrepreneurial experience	Personal	Whether the founder has founded a firm before
Radical innovation	Personal	Whether the firm has introduced a radically new design in the last 12 months
IPR	Personal	Whether the firm actively uses IPR in order to protect its designs
ICT	Personal	Whether the firm uses specialised software
Advice networks	Relational	The (log of the) number of other design firms the company has approached for business related advice
Collaboration networks	Relational	The (log of the) number of other design firms the company has collaborated with in the last 12 months
Localisation economies	Spatial	Number of firms in the same design sector in the same and adjacent municipalities
Urbanisation economies	Spatial	The number of inhabitants of the design firm's municipality
Age	Control	The age of the designer
Male	Control	The designer is a male
Firm size	Control	The (log of the) number of fulltime employees within the firm
Higher education	Control	Whether the founder completed a higher education programme
Design-related education	Control	Whether the completed education programme is design related
Industrial design	Control	Whether the designer is active in industrial design
Graphic design	Control	Whether the designer is active in graphic design
Web design	Control	Whether the designer is active in web design

employee for another design firms before, or having run another firm before. We use the *Firm age* to proxy the experience gained from running one's own business: this is calculated starting from the founding year of the firm. We use a dummy variable to indicate whether a founder had *Pre-entry experience* at the time of founding the firm. And we use another dummy variable called *Entrepreneurial experience* to indicate whether the founder had founded other firms in the past.

To measure whether a designer has recently introduced a radical innovation (*Radical innovation*), respondents were asked whether they engaged during the past 12 months in a design activity that was completely new for the company. This could be, among other things, a new functionality, a complete new design style such as 3D-design or a newly used material. Thus, we do not define a radically new design as new for the whole market, but radically new in light of the firm. The new-to-market definition, which is typically used in innovation studies, assumes that respondents are able to evaluate the available competing products/services in the market in a consistent and unbiased way, which is typically not the case, especially for services and even more so for creative services. In practice, it might be very difficult for a designer to identify the market of reference: essentially, designers view their designs as unique and different from the ones offered by other designers, which makes it hard to define competitors in a comparable manner. For these reasons, we opted for asking whether the firms had introduced radical innovation with respect to their typical output. We used the time frame of 12 months because of two main reasons. First, going back further in time may have no effect any more on their performance *casu quo* income, assuming that innovation premium is paid upon delivery. Second, 12 months is a period for which it could be reasonably assumed that respondents can still memorise things accurately.

The *IPR* variable denotes whether a firm actively uses IPRs in order to protect its designs. The reason why this definition states 'actively' is related to copyright. Copyright, for example, exists from the moment a (copyright covered) design is created. Therefore, including ownership of copyrights would mean that everyone (in the web- and graphic design sector) would use IPR, which would make the variable of little value.

The *ICT* variable indicates whether the respondent uses specialised software (different from the industry standard). This variable is important to capture the specific ICT skills of designers that could confer them a comparative advantage with respect to other designers. Given the rapid evolution of ICT, variables measuring formal education are unlikely to reflect such skills. Rather, designers learn by using specialised software themselves or take specialised courses. What is more, ICT skills may well be scarce in supply, thus contributing to the performance of a designer's firm. During the interview, respondents were asked which design software they use for business (open question). As a check, the respondents were specifically asked to indicate whether they also used other (initially) identified design software packages. We identified as specialised software: 3D-max for web designers, Vectorworks, Solidworks, Unigraphics, 3D-max and Autodesk for industrial designers, Solidworks, 3D-max and Rhinoceros for graphic designers.

4.2.2 Relational Variables (Hypothesis 7). In this study, two variables are used to measure collaboration. The first variable is the number of other design firms the company has collaborated with in the last 12 months (*Collaboration networks*). More specifically, in the analyses, the log of this number of firms is used due to diminishing marginal returns on

the number of firms a company collaborates with. Since there are also firms that have not had any collaboration, we define our variable as $\ln(x+1)$ where x is the number of other design firms object of collaboration. We define collaboration as a combined effort, regardless of the business results, and consider three forms of collaboration: working on an assignment in a consortium, outsourcing design work to a fellow designer and joint action in the area of promotion and marketing.

The second variable is the number of other design firms the company has approached for business-related advice (*Advice networks*). This variable has also been log-transformed for the same reasons as mentioned before.

4.2.3 Spatial Variables (Hypotheses 8 and 9). *Localisation economies* are measured by counting the number of firms active in same design sector (industrial design, graphic design or web design) located in the same municipality and the adjacent municipalities. The data about the number of fellow design firms in either industrial design, graphic design or web design are extracted from the Yellow Pages (<http://www.goudengids.nl>). Notice that in case the designer was active in multiple design fields, the number of fellow firms was summed.

Urbanisation economies are measured by taking the number of inhabitants of the corresponding municipality. The argument is that urbanisation economies increase with the number of inhabitants, because more inhabitants will very likely imply more economic activity as well. The data about the number of inhabitants are extracted from the Central Bureau for Statistics in the Netherlands (<http://www.cbs.nl>). It should be noted that the Netherlands, as a country, is highly urbanised. Hence, the advantages of locating in the larger cities over alternative locations may actually be small, as the larger cities can be reached from any location in relatively short time.

4.2.4 Control Variables. As demographic and educational control variables, we used the founder's age (*Age*), gender (*Male*), firm size as measured by the logarithm of the number of full time equivalents (fte) working in the firm (*Firm size*), whether the designer completed higher education (*Higher education*) and whether the designer completed a design-related educational programme (*Design related education*). We also control for whether or not the respondent firm is active in each of the three predefined design sectors is captured by three dummy variables (*Web design*, *Graphic design*, *Industrial design*) as income levels may systematically vary across the three sectors. Given that each designer could be active in more than one sector, we insert all three dummies in our full model, as the information from the third dummy is not redundant. Our sample included 28 designers who were both web and graphic designers, 11 who were graphic and industrial designers and only 1 who was both a web and industrial designer.

5. Analysis

5.1 Methodology

Designers differ substantially on their income. The net monthly income in terms of euros has been divided into six categories: 0–1000, 1000–2000, 2000–3000, 3000–4000, 4000–6000 and > 6000. The income distribution is shown in [Figure 1](#). Of the 200 respondents, 148 have indicated to which category they belong. The other 52 did not want to answer, they

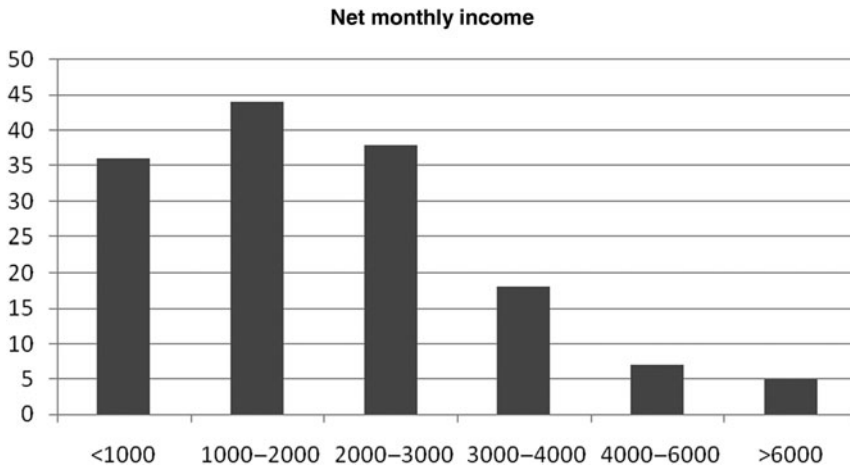


Figure 1. Distribution of net monthly income in euro among founders of design firms

were not able to answer or net monthly income was not applicable (e.g. respondent who has recently started).³

Since our dependent variable (*Income*) is an ordinal variable, we use ordinal regression, an extension of the logistic regression model where the dependent variable varies across more than two categories and is ordinal. Instead of considering the probability of binary events, the models rely on taking the cumulative probabilities (i.e. the probability of that particular score or less) and modelling their logits as linear functions of the independent variables. The ordinal logistic regression model is typically estimated under the assumption of proportional odds, which implies that the slopes of the fitted logistic lines are assumed to be constant, only the intercepts differ (Hosmer and Lemeshow, 2000). Fitting the model, then, returns a single coefficient for each independent variable, which can be interpreted in terms of odds ratios. The model is estimated using maximum likelihood and the goodness of fit in explaining income can be evaluated with a pseudo R^2 such as the Nagelkerke R^2 .

5.2 Descriptive Statistics

Table 2 provides the descriptive statistics for our independent variables. The designers in our sample are predominantly male (70 per cent), highly educated (76 per cent) having mostly completed a design-related education (62 per cent). The majority is at their first entrepreneurial experience (only 18 per cent have founded a firm before), but half of them had already been employed in the design sector before.

³For the respondents who did not want to answer or could not answer, it has been examined whether this answer alternatively is correlated with other variables. This is done to check whether there is a bias towards firms with certain properties. For example, larger firms could be less willing to answer the question, which would lead to a biased sample. However, the correlations with other variables are very low (i.e. around 0.1), indicating that the income distribution is not susceptible to this bias.

Table 2. Descriptive statistics for the independent variables

	Mean	SD	Minimum	Maximum
Firm age	10.19	9.36	0	52
Pre-entry experience	0.52		0	1
Entrepreneurial experience	0.18		0	1
Radical innovation	0.36		0	1
IPR	0.20		0	1
ICT	0.16		0	1
Advice networks	0.37	0.80	0	5.53
Collaboration networks	0.85	0.84	0	4.62
Localisation economies	113.65	167.50	0	838
Urbanisation economies	242.39	270.37	5.40	767.46
Age	42.13	12.62	21	89
Male	0.70		0	1
Firm size	0.15	0.89	-2.3	3.22
Higher education	0.76		0	1
Design-related education	0.62		0	1
Industrial design	0.37		0	1
Graphic design	0.45		0	1
Web design	0.38		0	1

The average number of employees is 1.93, with the largest company having 25 employees. Most firms are one-person firms (69 per cent) and only 3 per cent of the firms have 10 employees or more. This confirms that small firms dominate the design sector. One-person firms are essentially self-employed, consultants and freelancers often working from home. Not all of them work full time, as about a third of them reported working a fraction of *fte*. Given that this group is so dominant in our sample and given that one might suspect that this group has distinct features, also in terms of the ability to generate income, we will run an extra regression by selecting one-person firms only.

An average firm has collaborated with 2.7 design firms in the last 12 months, and has approached 3.1 other design firms for business-related advice (non-logged numbers not appearing in the table). Only one out of five firms makes active use of IPR. The use of basic ICT is widespread, but specialised software packages are used only by a minority of the firms. Finally, slightly more than one-third has introduced a radically new design.

All independent variables included in this study are checked for correlation. We first check all bivariate correlations and we then examine Variance Inflation Factors (VIF's) to judge whether significant multicollinearity pose problems for the estimation of the regression coefficients. A number of our variables are significantly correlated. In particular, the *IPR* and the *ICT* variables are both significantly correlated with all the three design sector dummies. Furthermore, the age of the designer and the age of the company are also strongly correlated (0.620). Localisation and urbanisation economies also turn out to be significantly correlated (0.653). Apparently, the number of design firms operating in the same sub-sector of the focal firm is almost proportional to the number of inhabitants at the firm's location, suggesting that the specific design sub-sectors are not particularly clustered in space.

Whether these correlations pose a problem for the multivariate analysis was examined by means of the tolerance and VIF values. According to Williams (2011), VIF values above 2.5 or tolerance factors below 0.40 can become problematic. Applying this rule of thumb to our results (not shown here), we dropped the dummy for Industrial Design (VIF = 3.451, tolerance = 0.291). After removing this variable, our two spatial variables remained problematic and we eliminated the one with the largest VIF, namely the Urbanisation economies variable. Hence, Hypothesis 9 regarding the performance effect of urbanisation economies could not be tested.

5.3 Regression Results

Table 3 reports the estimated coefficients for the ordinal regression model explaining income. In the Full model, all the independent variables are included. Seven of these variables seem to have a significant relationship with income. One practical issue with respect to this model concerns the number of independent variables. Adding more variables tends to reduce the precision of the estimates (Williams, 2011). A rule of thumb is to have 12 cases per independent variable. As the number of valid cases is 138, the number of independent variables should be 11. We opt for keeping all our theoretically relevant variables and dismiss those control variables, which appear not significant in the full model. Accordingly, we removed *Age*, *Higher education*, *Design-related education* and *Graphic design*. We then fit again an ordinal regression model and we report the results as our Final model. The estimates are very similar to the ones of the Full model, the only difference being that the coefficient for entrepreneurial experience is now statistically significant.

The insignificant results on standard control variables related to age and education are interesting on their own. While these variables are commonly associated with higher incomes levels across economic sectors, age and education appear much less important for the design firms. Rather, income tends to rise with various forms of business experience rather than with life experience (as indicated by age) or formal training (as indicated by the two education variables). These findings underline the aforementioned importance of specific business experience and tacit knowledge for designers, as opposed to more generic working experience and formal education.

We also checked whether we get qualitatively different results for the large group of one-person firms. Given that the number of valid observations drops to 103, we only estimated a reduced model where we further drop *Radical innovation* and *IPR*, which are never significant in the other two models. Finally, note that all models show an acceptable goodness of fit, given that the data were collected through a survey, as indicated by pseudo R^2 between 0.4 and 0.5.

5.4 Hypothesis Testing

5.4.1 Personal-Level Hypothesis

H1: *The higher the age of the firm, the higher the income of a designer.* We find a significant relation between firm age and founder's income. This indicates that those entrepreneurs who have a longer experience in running a firm tend to see their income rising.

Table 3. Estimated coefficients (and standard errors) for the ordinal regression models explaining Income

Variable name	Full model	Final model	One-person firms model
Firm age	0.047* (0.026)	0.052** (0.020)	0.056** (0.024)
Pre-entry experience	1.052*** (0.371)	1.039*** (0.331)	1.199*** (0.437)
Entrepreneurial experience	0.669 (0.458)	0.822** (0.418)	0.654 (0.541)
Radical innovation	0.042 (0.356)	0.040 (0.339)	
IPR	0.445 (0.454)	0.665 (0.434)	
ICT	0.956 (0.619)	1.024* (0.519)	2.189*** (0.789)
Collaboration networks	0.569*** (0.204)	0.511*** (0.194)	0.723** (0.283)
Advice networks	0.124 (0.189)	0.127 (0.184)	0.008 (0.204)
Localisation economies	0.002 (0.001)	0.001 (0.001)	0.001 (0.001)
Age	0.009 (0.019)		
Male	0.903** (0.408)	0.869** (0.386)	0.937** (0.444)
Firm size	0.869*** (0.269)	0.864*** (0.257)	4.437*** (1.030)
Higher education	0.076 (0.470)		
Design-related education	-0.072 (0.427)		
Industrial design	0.456 (0.621)		
Graphic design	0.166 (0.504)		
Web design	1.010** (0.516)	0.857** (0.388)	1.081** (0.388)
N	138	143	103
Nagelkerke R^2	0.415	0.412	0.489

Note: Coefficients in bold are statistically significant, * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

- H2: *Pre-entry experience contributes to the income of a designer.* Pre-entry experience has a highly significant impact on income. Compared to the other dummy variables, the impact is the highest. This finding resonates with earlier findings in the entrepreneurship literature on the importance of pre-entry experience on the success of new firms.
- H3: *Entrepreneurial experience contributes to the income of a designer.* Entrepreneurial experience, as the third and final variable capturing experience, is about the experience with managing a starting and managing a company. This type of experience is also positively and significantly related to income, even though only in the final model. Thus, although design firms can have different business models corresponding to different missions, the general entrepreneurial skills contribute to the success of designers.
- H4: *Designers who recently introduced a radically new design have higher income.* This Hypothesis is to be rejected. The coefficient is far from significant. Radical innovation does not seem to play a major role.
- H5: *Designers who protect their designs by means of IPR have higher income.* Those making use of IPR do not have higher income. Despite the common emphasis on the need for strong IPR in creative industries, design included, our findings suggest

that if IPR is to play a role in improving designers' income, the role would not be substantial.

- H6: *Designers who use specialised design software have higher income.* This variable has the expected sign. We can conclude that ICT plays an important role in that those making use of specialised software for their design activity enjoy an advantage over those who do not. Thus, designers who have the ICT skills required to make use of specialised software have a competitive advantage over their rivals.

5.4.2 Relational

- H7: *The more a firm collaborates, the higher the income of its founder.* We find a significant effect on income for the number of firms that designers collaborate with and we conclude that networking plays a role in contributing to a designer's commercial success. We understand this effect as reflecting the advantages from knowledge exchange among designers and from the temporal expansion of capacity necessary to handle larger design projects. Our second collaboration variable looked at a specific type of inter-organisational relations, the ones related to asking business advice. Since the effect of that variable is not significant, advice networks do not seem to play a major role. Given that the knowledge exchanged in advice relations is more of a codified nature, while the knowledge gained in collaborative projects is more of a tacit nature, the two findings combined emphasise the key role of tacit knowledge in design activity.

5.4.3 Spatial

- H8: *Localisation economies contribute to the income of a founder of a design firm.* The common assertion that clustering benefits those located in the cluster is rejected by our analysis. We do not find any evidence for localisation economies as the number of fellow designers in the vicinity of one's location has no impact on income.⁴ This result is in line with the earlier descriptive finding that design sector is hardly clustered. This is also in line with the absence of correlation between the localisation economies variable and the two network variables (correlation is -0.063 with collaboration networks and 0.025 with advice networks).
- H9: *Urbanisation economies contribute to the income of a founder of a design firm.* This Hypothesis could not be tested as the urbanisation economies variable had to be left out of the analysis due to multicollinearity issues.

5.4.4 Results for One-Person Firms. Most of the results still hold for the model estimated on one-person firms only as provided by the last column in [Table 3](#). The only difference is

⁴Note that this result fits in a growing number of empirical studies, the results of which tend to question that clustering benefit firms (for a recent review, see Frenken *et al.*, 2011).

that *Entrepreneurial experience* turns out to be not significant, which is probably due to the fact that not having employees to manage renders previous managerial experience less valuable. The effect of firm size remains very strong. In this case, the variable basically measures the extent to which the designer invests all her time in the company instead of working only part-time.

6. Conclusions and Discussion

In this study, we analysed the location patterns and income determinants of individuals that founded design firms. Our results call into question the notion of a homogenous creative class. Even when analysing only designers as a single sub-group within the creative class reveals important differences in income and individual traits and networks. Accordingly, our study questions some of the most common arguments in the literature on the creative class.

One of our findings has been that design firms in the Netherlands do not tend to cluster in particular “creative cities”. Rather, the spatial distribution of firms roughly follows the distribution of population suggesting that the location patterns of design firms are similar to traditional service firms locating close to their clients (Wenting *et al.*, 2011). Though this outcome may not seem surprising given the fact that designers have to work closely with their clients, it questions Florida’s (2002) assertion that businesses locate where creative individuals prefer to live; if anything, the spatial patterns we found suggests that designers locate near their clients.

A second finding points to the role of experience in explaining income, while formal education and age do not increase income levels. This result reflects the highly tacit nature of design knowledge which is acquired mainly through experience learning (Rusten and Bryson, 2007). Probably the main tacit competence is to sense a client’s context and to use this understanding into design. This follows from the core business of design being the translational and interactive work involved from a client’s needs into a functional artefact. Hence, close and repeated interaction is necessary to acquire this understanding, which further explains our first finding that designers tend to locate near clients.

We also find evidence that collaboration with other design firms is beneficial for firm success. Interestingly, it is collaboration networks, rather than advice networks that discriminate between more and less successful design firm founders. This can again be understood from the central role of tacit knowledge, which is best transferred through active collaboration (Uzzi, 1997). Moreover, collaborations seem to be particularly relevant for the small firms, in need of referrals from other firms and seeking to tap into other firms’ networks of clients and collaborators. Our results thus seem to suggest that the, mostly small, firms founded by designers enjoy more success when they go beyond their possibly natural inclination to pursue an individual trajectory and instead engage proactively in collaboration projects with other designers to overcome their isolation. On the other hand, designers might only be attractive collaboration partners when they are already successful, which suggests that the relation between collaboration and economic success runs both ways.

Networking in project-industries as design industries has been repeatedly highlighted by others (Grabher, 2004; Whitley, 2006). It is often assumed that the spatial clustering of designers supports such networking activity, as partnering requires face-to-face interaction. However, our analysis did not find networking to be correlated with the spatial concentration

of designers. This finding suggests that network formation is mainly driven by other factors than geographical proximity (Giuliani, 2007).

Our study has not been without limitations. Though our survey method allowed us to ask a broad range of questions, specific personal contexts and firm strategies remain largely out of sight. Furthermore, by focusing on personal income of firm founders, we leave here aside a large set of issues related to personal fulfilment and quality of work life (Ross, 2008). These issues are the focus of a literature where creative individuals are often depicted as struggling between fully expressing their creativity, often involving risk-taking activities, and accepting downgrading and compromises for job security and economic survival (McRobbie, 2002; Leslie and Rantisi, 2012). More comprehensive surveys could include questions about these aspects as well.

Our results can point to a number of policy implications, both recommendations and warnings. These implications hold both for government policies at national and local levels and for sectoral agencies representing the design sector. Most importantly, our study puts into question the creative class logic often mobilised in urban policy discourse. Designers in the Netherlands do not cluster in selected creative cities, but rather follow the overall spatial distribution of the Dutch population. This suggests that their locational preferences are mainly driven by the location of their clients rather than by Florida's (2002) soft factors such as tolerance, cultural amenities or a particular "buzz". And, while networking is found to be important, the co-location of designers does not increase their level of networking. These findings thus suggest that urban policies that aim to attract the creative class hoping business will follow and local partnerships will flourish, may well be ill-guided. Rather, such a policy may only work if, indeed, a strong client base for design activity is present in a region as well.

Another recurrent policy logic is to emphasise potential market failures associated with knowledge spillovers. Government has raised concerns that the underutilisation of IPR by members of the creative class may hamper innovation in their creative industries (Dutch Ministry of Economic Affairs, Agriculture and Innovation, 2011). Indeed, we found that only one-fifth of our respondents declared that they have protected their designs. Only larger firms seem to employ clear IPR strategies to block imitation, especially in industrial design. More strikingly, we also found that designers do not seem to benefit from protecting their intellectual property. What might explain this result is the ambivalence of imitation in creative industries. Success and reputation of designers coincide with being imitated by others, and part of the design process also involves using existing designs in a novel way. If so, the use of IPR by designer firms may not necessarily help them to make a higher return on their investments. Hence, current emphasis in "creative industries" policies emphasising the need for IPR in the design sector seems unfounded (Dutch Ministry of Economic Affairs, Agriculture and Innovation, 2011).

An alternative perspective on urban policy in creative industries is to focus on the welfare of the large group of self-employed individuals, who typically earn low and unstable incomes. Though these less successful members of the creative class may contribute only little to the innovative capacity of a city, supporting their lives and business would be in line with a *social* creative class policy. One specific policy recommendation, then, is to support designers to gain experience as an employee before starting an own business. Only through experience in the design sector can individuals build the necessary tacit knowledge to become competitive in the industry. To have prospective designers gain such experience,

public programmes can fund internships for design students or unemployed as part of their training programme.

A second specific recommendation concerns training in advanced ICTs. Our results showed that those more experienced with the use of ICTs earn a high income. As the tacit design competence is increasingly supplemented with ICT skills, training programmes should also include proper training in design software tools. This does not only hold for the training of design students or unemployed, but also for those already active in the design industry. Given the rapid advances in ICTs in general, and in the design sector in particular, the knowledge gained during formal education will be rapidly become obsolete. Hence, designers should be able to continue to upgrade their ICT skills during their professional careers as in lifelong learning programmes.

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Appendix A: Information on the questionnaire

The questionnaire used for the telephone interviews started with a careful check of the identity of the respondent and of whether the respondent was a valid one for the research. In case the firm founder was not available, a new appointment was made to call back.

Then, a number of questions followed, which took about 20 minutes to answer. These covered not only the subject of this specific study, but also other topics related to designers' locational choices and organisational arrangements. Table A.1 reports a selection of the questions used in this study, translated from Dutch into English.

Table A.1. Formulation of questions relevant for the variables used in this study

Variable	Relevant questions (numbering as in original questionnaire)
Income	13. When we look at a scale of net monthly income, could you indicate to which category you belong? <input type="radio"/> <1000 euro <input type="radio"/> 1000-2000 euro <input type="radio"/> 2000-3000 euro <input type="radio"/> 3000-4000 euro <input type="radio"/> 4000-6000 euro <input type="radio"/> > 6000 euro
Founding year	6. In what year did you found this firm?
Pre-entry experience	14. Have you been employed in wage labor in the design sector before founding this firm? <input type="radio"/> Yes <input type="radio"/> No
Entrepreneurial experience	7. Have you founded a firm before? <input type="radio"/> Yes <input type="radio"/> No
Radical innovation	26. Has your company introduced a radically new design in the last twelve months? <input type="radio"/> Yes <input type="radio"/> No
IPR	19. Do you protect your designs and company by means of intellectual property right such as copyright, design right/ design patents, and trademarks? (more than one answer possible) <input type="radio"/> Copyright <input type="radio"/> Design right <input type="radio"/> Trademark <input type="radio"/> No
ICT	23. Which software packages does your company use? <i>Open answer, with check from interviewers' list</i>
Advice networks	18. In the past twelve months, how many fellow designers have you approached for business related advice? <i>Number:</i>

(Continued)

Table A.1. (Continued)

Collaboration networks	<p>I would like to ask you about collaboration with other designers. We define collaboration as a collective effort, regardless of the business result. This can be the case when you work on a project as a consortium, when you outsource design work to fellow designers, or when u take collective action in the field of promotion and marketing.</p> <p>17a. With how many other design firms have you collaborated in the last twelve months? Number:.....</p> <p>17b. How many collaboration have you had with these companies? Number:.....</p>
Localisation economies	Source: Yellow Pages
Urbanisation economies	Source: CBS (Dutch statistical office)
Age	2. What is your year of birth? 19....
Male	1. Gender as recorded by the phone interviewer.
Firm size	<p>9a. How many employees does your firm count, including yourself?</p> <p>9b. How many fulltime-equivalents do you employ?</p> <p>9c. How many of them have completed a HBO/WO education?</p>
Higher education	<p>5a. What is your highest level education achieved?</p> <p><input type="radio"/> WO (university)</p> <p><input type="radio"/> HBO (professional higher education)</p> <p><input type="radio"/> MBO (technical school)</p> <p><input type="radio"/> Other, namely.....</p>
Design-related education	<p>5b. Did you follow design related education?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
Type of design	<p>0. Is it right that you are active in the design sector?</p> <p>→ <i>If yes</i></p> <p>Is it right that you are active in.....? (more possible)</p> <p><input type="radio"/> Web design</p> <p><input type="radio"/> Graphic design</p> <p><input type="radio"/> Industrial design</p>