



UNIVERSITY OF LEEDS

This is a repository copy of *Urban education differentiation and its socio-economic consequences: An internet–survey-based structural equations modeling analysis of new white collar workers in Nanjing, China.*

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/108740/>

Version: Accepted Version

Article:

Wu, Q, Liu, C and Zhang, HX orcid.org/0000-0002-3397-0949 (2017) Urban education differentiation and its socio-economic consequences: An internet–survey-based structural equations modeling analysis of new white collar workers in Nanjing, China. *Research in Social Stratification and Mobility*, 48. pp. 1-9. ISSN 0276-5624

<https://doi.org/10.1016/j.rssm.2016.11.001>

© 2016 Elsevier Ltd. Licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International
<http://creativecommons.org/licenses/by-nc-nd/4.0/>

Reuse

Unless indicated otherwise, fulltext items are protected by copyright with all rights reserved. The copyright exception in section 29 of the Copyright, Designs and Patents Act 1988 allows the making of a single copy solely for the purpose of non-commercial research or private study within the limits of fair dealing. The publisher or other rights-holder may allow further reproduction and re-use of this version - refer to the White Rose Research Online record for this item. Where records identify the publisher as the copyright holder, users can verify any specific terms of use on the publisher's website.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Accepted Manuscript

Title: Urban education differentiation and its socio-economic consequences: An internet–survey-based structural equations modeling analysis of new white collar workers in Nanjing, China

Author: Qiyao Wu Chunhui Liu Heather Xiaoquan Zhang

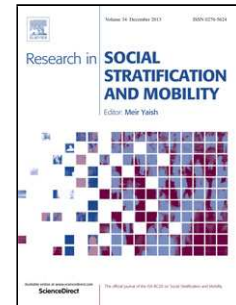
PII: S0276-5624(16)30091-9
DOI: <http://dx.doi.org/doi:10.1016/j.rssm.2016.11.001>
Reference: RSSM 315

To appear in: *Research in Social Stratification and Mobility*

Received date: 9-6-2016
Revised date: 8-11-2016
Accepted date: 14-11-2016

Please cite this article as: Wu, Qiyao., Liu, Chunhui., & Zhang, Heather Xiaoquan., Urban education differentiation and its socio-economic consequences: An internet–survey-based structural equations modeling analysis of new white collar workers in Nanjing, China. *Research in Social Stratification and Mobility* <http://dx.doi.org/10.1016/j.rssm.2016.11.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Urban education differentiation and its socio-economic consequences: An internet–survey-based structural equations modeling analysis of new white collar workers in Nanjing, China

Qiyao Wu^{1,2}

¹. The Center for Modern Chinese City Studies & School of Urban and Regional Science, East China Normal University, Shanghai, China

². Urban Studies Program, Simon Fraser University, Vancouver, BC, Canada

Chunhui Liu³,

³. Geographic and Oceanographic Sciences Department, Nanjing University, Nanjing, China

Heather Xiaoquan Zhang*⁴

⁴ White Rose East Asia Centre, School of Languages, Cultures and Societies, University of Leeds, Leeds, UK

* eashz@leeds.ac.uk

Abstract

Increasing education differentiation and its social consequences, that is, the way in which urban education stratification has shaped the socio-economic outcomes, are an understudied area of research on China's higher education and its relation with social stratification and social mobility. This article examines this relationship by focusing on a specific social group whom we term as "new white collar workers" (NWCWs) in China. Our research reveals a strong correlation between the individuals' position in a stratified educational system on the one hand, and their professional development trajectory, income and social status differentiation on the other. The article argues that educational differentiation has considerably contributed to the varied pathways and profiles of the NWCWs with regard to career development, income levels and living conditions, and that in the market-reform era, young people's education attainment and social advancement have become increasingly determined by their family background, especially parental wealth. The policy implications of the research are discussed.

Keywords: *education; social differentiation; social mobility; structural equations modeling;*

Nanjing; China

1 Introduction

Education and social stratification are a classic research topic in social sciences in all societies

across the world, including China (Buchmann & Hannum, 2001). Education is an important channel for upward social mobility within and across generations, and intergenerational education attainment is regarded as an indicator of relative openness and fluidity of a society. Education differentiation in the context of rapid urbanization refers to stratification of education attainment based on family background, gender, and residential location associated with class, race/ethnicity, and so forth in a capitalist urban society (Bourdieu & Passeron, 1977; Buchmann, et al., 2008). In China, a socialist educational system established after 1949 (but has been gradually eroded since 1979), while stressing egalitarianism and equal access, witnessed a trend whereby an emerging class of state bureaucrats and technocrats, who were, in a way, similar to the ruling classes in a capitalist society, took advantage of government policies to serve their own interests, e.g. the many privileges enjoyed by their families in respect to children's access to better educational quality, resources and opportunities (Wu, et al., 2015; Wu, 2008).

The market-oriented reforms started since the late 1970s have significantly altered China's development pathway. In the area of education, emphasis has been shifted from the socialist egalitarian principles, e.g. redistribution of wealth and investment in social welfare, towards greater neoliberal orientation, including, for example, a new stress on "cost-effectiveness", "competitiveness", individual responsibility, marketization and commodification. This has resulted in increasing differentiation in both access to and attainment of education for young people – a phenomenon that has started drawing academic attention (see Bian, 2002). While the market reform has seen rapid economic growth, industrialization and urban expansion in China, it has also induced many negative effects, including widening inequalities and social-economic

polarization, increasing residential differentiation between the rich and the poor, and greater education stratification. Many factors have contributed to this scenario, including the essentially unequal market forces, specific institutional arrangements (e.g. the *hukou* system¹), global forces of capitalist production and division of labor, and so forth (Wu & Webster, 2010; Wu et al., 2014). While a growing body of literature is paying attention to the neoliberal turn in the development of China's urban education system since the late 1970s, this research tends to focus on analyzing the socio-economic and political dynamics in relation to education, e.g. differentiation between various social groups (class, gender, ethnicity, etc.), and recent policy shifts and their impact on educational attainment and social stratification (see Treiman, 2013). In other words, political processes and dynamics of social stratification are more of its concern than the social consequences of these processes and dynamics, and the ways in which education accessibility has been shaped by diverse factors in specific policy settings. This article, taking the social group of new white collar workers (NWCWs)² as a case study and applying the path analysis technique in the structural equation modeling (see section 3), is to investigate and understand whether and in what way education stratification may have shaped new social-economic

¹ Household registration (or hukou in Chinese) is an institution established in the late 1950s under economic central planning. There are two major types of hukou, i.e. agricultural and non-agricultural hukou. Against a backdrop of an urban-rural divide, agricultural/rural hukou holders were and still are much disadvantaged vis-à-vis non-agricultural urban hukou holders in economic opportunities and life chances, and an individual can only change his/her hukou from the former to the latter under exceptional circumstances, e.g. for the better-off who can purchase urban hukou after it is commodified, those who have served in the army, or been academically successful by passing the university entrance examination and then managed to find a job in the city after graduation. Hukou, in this sense, has determined an individual's socio-economic rights and entitlements, and is spatially associated with his or her place of birth and parental hukou status rather than by his or her actual location of occupation and/or residence (Fu and Ren, 2010).

² See Section 3.1 for a definition and further explanation of the term.

differentiations, including occupation, income and housing disparities in Chinese cities. The article proceeds as follows. Following the introduction, section 2 provides the background of urban educational stratification and social-economic differentiation in the context of China's neoliberal transition. Section 3 explains the methodology and data used in the research. Section 4 analyzes the case of the NWCWs in Nanjing. Section 5 goes on to examine the ways in which education differentiation may have shaped the social-economic pathways of the urban NWCWs. Finally section 6 concludes the article by synthesizing and highlighting the key findings and arguments, as well as discussing the implications for policy and practice.

2 Urban educational stratification and social-economic differentiation in the context of China's neoliberal transition

2.1 Intuitional arrangement for education and its stratification in China during 1949-1979

After the Chinese Communist Party (CCP) took power in 1949, socialist ideology began to guide the formation of social policy, including educational policy. While socialism stresses the egalitarian principles from daily life to political participation, China's education policy during this period was marked by a dilemma and thus shift of emphasis between popularizing and universalizing primary education, especially for socially disadvantaged groups, such as the working class, rural residents and women (Liang & Lee, 2012) on the one hand, and elitism on the other. For example, when the PRC was established, the national illiteracy level was as high as 80%, and the campaign to eradicate illiteracy launched in the 1950s led to a sharp decrease in the

proportion of people who could not read and write (A.N., 2013). Meanwhile, taking pre-college education as an opposite example, in 1952, the Administration Council of the Central People's Government, the predecessor of the State Council, circulated a policy document entitled "The Initiation of Schools for the Children of Cadres", which authorized local governments to direct educational resources to *danwei*-based³ privileged schools designated for the children of government officials (Wu, et al., 2015). This, in a sense, evidenced the argument of Bourdieu and Passeron (1977) that the field of education serves to produce and reproduce social inequality and privilege for those already advantageously positioned in society. In the early years of the PRC when the Chinese government and people aspired for a fairer society underpinned by revolutionary idealism, such an unequal policy was resented (Bian, 2002). This led to the central government's rescinding of this policy and the associated privileges of cadres and their children in 1956 (A.N. 2014). At the same time, in order to nurture a new generation with strong technological expertise and increase the number of scientists required for meeting China's strategic development needs, in 1959 Premier Zhou Enlai declared to the Standing Committee of the National People's Congress the establishment of key schools in Chinese cities in order to optimize the use of limited resources (cited in Shi, 1996). Subsequently, the Ministry of Education issued a series of regulations to emphasize the importance of key schools in supporting the building of a new socialist China, which, however, unwittingly led to an

³ Centered on the urban workplace, *danwei* (work unit) was an important organizational form of economic and social life under socialism in urban China. It was considered the source of employment and social support for the majority of urban citizens, as forms of integrated communities through which most urban residents derived their sense of place and social belonging (Bray, 2005).

orientation towards elitism. The key school program suggested an uneven distribution of educational resources among different social groups, between different geographical regions (e.g. the urban versus rural), and even within a city, which was also witnessed in the field of higher education (see Deng & Treiman, 1997).⁴ This meant that access to quality education, and by extension, education attainment and the career prospect of individuals were differentiated on the basis of their parents' different *danwei* affiliations and status, which also entailed an urban-rural divide as indicated by the *hukou* status (Wu, 2011). It could therefore be argued that the socialist period saw mixed educational policies, resulting in, on the one hand, greater egalitarianism, accessibility and affordability of education at all levels, especially for the socially disadvantaged groups, while on the other hand and paradoxically, an education system that developed towards greater elitism, leading to new patterns of inequality and social differentiation.

2.2 Urban education and its neoliberal marketization since the late 1970s

Urban education and its further stratification have developed in the era of market reforms that involves new education regulations, school catchment policies, and the reforms of the *hukou* and housing register systems. The urban *hukou* holders (particularly the better-off) and more privileged families possess much greater education resources while rural and urban poorer students with disadvantaged educational endowments have to study much harder to compete with their advantaged peers. In this context, inequality in education in China involves two dimensions,

⁴ Except for the period of the Cultural Revolution (1966-1976) when most universities were closed and then reopened to prioritize for entry those with a social background of workers, peasants and soldiers.

namely, education accessibility and education attainment.

In the neoliberal reform era, market forces have increasingly permeated the domain of education, turning it from a public good into a commodity exchangeable in the marketplace (Chan & Mok, 2001). This, combined with the extant institutional arrangement, has led to an emerging phenomenon, whereby access to and affordability of education are increasingly differentiated by class, gender, and/or the urban-rural origin (see Wu, 2011). The opportunity structure in relation to education during the Mao era was largely determined by the socialist egalitarian ideology and the associated policy interventions (Lenski, 1978). Continuing with such a tradition, compulsory education (entailing six-year primary plus three-year lower secondary schooling) and its development in the early years of the reform era were designed to promote equity in education, and narrow the gap between urban and rural areas, and between the new rich and the poor by, for example, phasing out selective education (Zhang & Zhao, 2006). However, the attempt to replace selective schooling with universal enrolment – to be realized with the introduction of a new school catchment policy promulgated in the 1986 Education Law and its later amendment – was often taken advantage of by those who were better positioned in the market, and by city authorities seeking to expand local revenues. Reforms and commoditization of *hukou*, which allowed urban authorities to sell local *hukou* (the so-called “blue-stamp” *hukou*) to non-local or non-urban *hukou* holders concomitant with the emergence of a private housing market starting in the late 1980s and accelerated in the 1990s (Zhang, 2007) further exacerbated the situation: the new urban rich and well-connected families were able to access key primary and secondary schools through buying housing within the key schools’ catchment and changing

their *hukou* accordingly (Wang, 2004). Consequently, emerging urban gentrification featured by hiking property prices surrounding key schools and the social status of the nearby residents has enabled the new rich to enjoy easier access to quality education (Wu, et al. 2015). The previous pattern of education stratification marked by the *danwei*-based institutional hierarchy has been gradually replaced by spatially-based educational disparity with regard to access to and affordability of quality education, and the distribution and control of educational resources. All this has provided the new rich, i.e. the upper/middle class, with the means to shore up a path-dependence pattern of socio-cultural reproduction of wealth and status across generations.

The market reforms have also impacted on education attainment generating new patterns of education differentiation (see Chan & Ngok, 2011). While China's education policy and practice during the socialist era swung between equalitarianism and elitism as discussed above, it has leaned more towards elitism in recent decades. The early 1980s reform did not lead to an immediate reconfiguration of China's existing socialist education system: its negative effects on equity in respect of distribution of and access to resources in primary, secondary and higher education have become visible in an incremental and delayed manner, and the gaps between urban and rural education, and key and non-key schools at the pre-college level in the city were gradually enlarged. In the 1990s, China initiated some strategic projects aimed at nurturing world-class key universities. These are termed "Project 211"⁵, which, introduced in 1990, contains 100 top universities by the turn of the new millennium; and "Project 985"⁶, which,

⁵ "Project 211" means the Chinese government would invest in developing 100 key universities into world-class ones by the 21st century ("21" stands for 21st century, and "1" stands for 100 universities).

⁶ "Project 985" has further directed state resources to invest in a small number of selected core universities (which is broadly

initiated in May 1998, contains 39 top universities, out of a pool of about 2,500 higher education institutions (HEIs) in China. Such a strategy, while strengthening the capacity and global positioning of top Chinese universities, has further stratified the country's HEIs in respect of public investment and resource allocation socially and spatially. For example, researchers have shown that 10 of China's leading universities in project 985 alone received over RMB30-billion (in current price) grants for a period of three years (1998-2001) for quality improvement, and that the top two, i.e. Tsinghua and Peking Universities in the capital alone were granted RMB225 million each over five years (1998-2003), whereas the overwhelming majority of the remainder universities, particularly those outside the large metropolises, obtained much less or even limited investment from the central government (Li, et al., 2011). Furthermore, with increased commodification of higher education, universities have started to charge tuition fees since the early 1990s. As result, many students of disadvantaged family background (e.g. from remote rural or mountainous areas, the urban poor) have to opt for junior college or non-key universities because of the prohibitive tuition fees required by quality universities (Wang, et al., 2013). Differentiation in education attainment of key versus non-key universities is also partly reflected in their graduates' employment rate: in 2009 the employment rate for "211" university graduates were 91.2%, for "non-211" graduates 87.4%, and for junior colleges 82% (Hao & Welch, 2012). The tuition fee-charging (also rising fees) practice has further exacerbated the institution-based education disparity, leading to greater barriers to accessing higher education. This has, in turn,

equivalent to the elite Ivy League universities in the USA, or the prestigious Russell Group universities in the UK). Here "5" stands for May, and "98" stands for 1998.

increased inequality and social stratification, as the rich can purchase and disproportionately control quality educational resources for their children. The combined effect is that graduates from different categories of HEIs are positioned very differently with regard to prestige and societal perceptions of their knowledge base, skills, ability, and employability, thus extending and entrenching inequalities on the basis of individuals' social background. Against this historical and societal backdrop, we now turn to present the case, i.e. the specific social group of "new white collar workers" in Nanjing.

3 Methodology and data

3.1 Defining the "new white-collar workers" (NWCWs)

The term "white collar workers" tends to be used interchangeably with the notion of the "middle class" (Bell, 1976; Doob, 2016). Whilst being considered vague and elusive, it is nevertheless possible to identify a set of criteria for describing the middle class. Sociologists tend to distinguish the group by the educational level and its associated occupational prestige and social status, which separates the middle class/white collar workers from the working class/blue collar workers: the former are believed to be educated to, at least, the tertiary level, in managerial, decision-making positions, having higher income to pursue a lifestyle of comfort with sufficient leisure time, whereas the latter as receiving lower-level education, as semi-skilled or unskilled laborers with much lower income (see Blau & Duncan, 1967; Doob, 2016).

Based on such an understanding, we can establish a connection between individuals'

education, and their later career development and social status, such as occupation, income, living conditions and lifestyle. In this article, we investigate a specific social group of the “white collar workers” in Chinese cities known as the NWCWs (Figure 1). We distinct this group from the conventional “white collar workers” by age cohorts, occupation, income and lifestyle. As will be analyzed below, the NWCWs, in this study, are conceived as university graduates who lived and worked in the city, engaged in non-manual occupations and were aged 22 to 38 during the data collection period of the research (December 2014 to March 2015). Despite holding university degrees (thus conventionally considered as the “white collar”), the NWCWs did not enjoy the kind of “middle class” lifestyle underpinned by high income as traditionally anticipated. On the contrary, they had struggled to find a suitable job and achieve a standard of living in alignment with the expectation. In this article, we explore the ways in which the NWCWs have borne the socio-economic consequences of urban education differentiation in China’s reform era. In order to understand the temporal dynamics and how global forces may have impinged upon local processes, we use the 2008 financial crisis as the demarcation: the NWCWs are further classified into three sub-categories: (1) the post-2008 global financial crisis group who had been in employment for less than five year (graduated after 2010); (2) the group who had been employed for over five but less than ten years during the global financial crisis (graduated between 2005 and 2010); and (3) the pre-crisis subgroup who had been employed for over 10 years (graduated before 2005).

[Fig 1 is about here]

Fig 1 The conceptual class-remake of NWCWs

3.2 The research location and research subject

The empirical data was collected in Nanjing, capital of Jiangsu province in southeastern China. The city has 54 universities with a total of over 800,000 students, and about 2.61 million (31.89%) of the city's 8.18 million permanent residents have an undergraduate degree or above. Nanjing, as such, has been the national center of education, science and technology just next to the capital city of Beijing and the global city of Shanghai. In addition, in 2014 there were over 260,000 university graduates and 200,000 newly-created jobs in Nanjing. Most of these jobs were in the tertiary industry requiring at least an undergraduate degree (Jiangsu Communication Administration, Jiangsu Internet Trade Management Service Center & Jiangsu Internet Association, 2014; Nanjing Municipal Population and Family Planning Commission & Nanjing Bureau of Statistics, 2014). Given these characteristics, Nanjing was selected as an ideal city to carry out this research. We used the Internet survey method, and applied the following criteria when selecting the NWCWs for the online survey: 1) having university education or above, 2) living and working in Nanjing, 3) holding a non-manual occupation, and 4) between 22 and 38 years old when data was collected during December 2014 to March 2015 (see section 3.3 for more details). The selection of this age cohort took into account the topic under study and an individual's life course: it covers the four stages of earlier to mid-adult life in China, i.e. graduation from college, finding a job, getting married, and considering/sending their children to primary school.

3.3 Methodological *approach: Structural equation modeling (SEM) drawing on the internet survey*

This research adopts the Internet survey method to gather primary data. The data was analyzed using a statistical software kit (IBM SPSS AMOS, version 22) to represent multiple relationships among a set of variables (see Bagley & Mokhtarian, 2002; Loehlin, 1998). The quantitative research tool of the structural equation modeling (SEM) was then employed. We designed two SEM models (Fig 2), one is for the whole sample; and the other is for multiple group analysis in measurement weights, whereby the sample is divided into three subgroups: pre-, during and post-global financial crisis of 2008. Within the models, the higher the weighting load, the stronger the correlation (between the cause and the effect) would be.

[FIG 2 IS ABOUT HERE]

The empirical data was collected between December 2014 and March 2015 through an Internet-based survey, a method that is increasingly employed to gather data that measures people's attitudes (McAfee & Brynjolfsson, 2012). However, bias in Internet surveys is one of the limitations, caused primarily by the degree of the Internet coverage across the population and the voluntary nature of the panel participant selection (Couper, 2000). Therefore, weighting procedures based on post-stratification variables is frequently applied in order to overcome this problem (Loosveldt & Sonck, 2008). In this research, we set a tiered survey framework to prevent such bias and then selected the group as the research subject, drawing on and with reference to the *Report on the Internet Development in Jiangsu 2013* (Jiangsu Communications Administration, et al., 2014). This report showed that the Internet users were mainly young (62% were aged 20-39) and better educated (58.3% had an undergraduate degree or above), and that

Nanjing had 8.18 million permanent residents, of whom 2.61 million (31.89%) had an undergraduate degree or above. A total of 54,238 active samples were in our online access panel, of which 83.6% had, at least, a college degree. As such, the sample represented 1.74% of Nanjing's well-educated young residents. The sampling frame for this research was determined by three parameters: (1) having an undergraduate degree or above, (2) holding a full-time or part-time job, and (3) working and living in Nanjing for at least six months. We used the frame to randomly select panelists from our database, and then dispatched 2,168 questionnaires. We received 1,530 completed questionnaires, or a response rate of 70.6%. We then screened out the panelists who were manual workers, or outside the 22-38-year old age cohort, and those who did not provide permanent residential address. We finally had 887 valid questionnaires for this research (see Appendix A for more details of these questionnaires and Appendix B for the Indicators for model fit of the SEM modeling).

4. Findings: The socio-economic consequences of education differentiation for the NWCWs in Nanjing

As Blau and Duncan (1967) articulated, the strong linkages between an individual's family background and status attainment and continuity (or the social reproduction of advantages and privileges) in modern societies could be mediated, to an extent, by educational achievement. Other researchers have shown that the higher education an individual achieves, the less "direct effect" one might experience between his/her earlier disadvantaged social background and

his/her later social status attainment (Breen & Karlson, 2014; Hout, 1988; Mallman, 2015; Mastekaasa, 2011). These studies suggest a high likelihood of an individual's realizing upward (intra-generational) social mobility through education achievement. It could, therefore, be inferred that education differentiation may have significant impact on individuals' social status attainment. Our research verifies such hypotheses (Fig 2). In the following sections, we present statistical descriptions of our survey findings.

4.1 The impact of education differentiation on the occupation of the NWCWs

The SEM (the structural equation modeling) results (Fig 2) demonstrate that education differentiation is positively correlated with the NWCWs' occupation. The higher the prestige of the HEI, from which the NWCW graduated, the better occupation the individual tends to engage in. The SEM modeling of the sample as a whole shows that the factor loading of living conditions to occupation is 0.19 (Fig 2a). Yet this is lower than those of living conditions to income (0.60) and to housing (0.48) (Fig 2a and Tab. 1). Detailed analysis of the varied cohorts indicates that the impact declines slightly in the three subgroups: the factor loading of the latest graduate subgroup is 0.21 (**Fig 2b**), which declines to 0.18 (**Fig 2c**) and 0.19 (**Fig 2d**) for the during and pre-global financial crisis graduate cohorts, respectively (also see **Tab. 2, 3 and 4**). This result suggests that the living conditions of the NWCWs are highly influenced by the occupation that they are engaged in, and that the importance of the occupation is increasing.

[TAB 1 ABOUT HERE]

[TAB 2 ABOUT HERE]

[TAB 3 ABOUT HERE]

[TAB 4 ABOUT HERE]

Furthermore, differentiated higher education attainment associated with the different kinds of HEIs also shapes differences in the employment rates. While it is reported that university graduates across the world have been faced with challenging employment situations since the start of the new millennium (Bai, 2006; ILO, 2012, 2014), the employment rate of Chinese graduates had been relatively high given the dynamics of China's economy and thus the job market until the 2008 global financial crisis. The negative effect on university graduates' employment, however, is differentiated by the organizational hierarchy of universities and colleges. As documented by other researchers and indicated in our findings, in 2009, the graduates' employment rates from "211 universities", "non-211 universities" and independent colleges were 91.2%, 85.2% and 82.8%, respectively (Mycos Institute, 2010). The total full-time employment rate of college graduates decreased from 83.7% in 2007 to 78.5% in 2009, and then slightly bounced back to 79.2% in 2014 (see Tab 5).

[TAB 5 ABOUT HERE]

4.2 The impact of education differentiation on the income of the NWCWs

The analysis of the survey data indicates that education attainment, measured against individuals' association with/perceived position in the stratified HEIs, e.g. the key universities of the "985" and "211" projects (see Notes 1 and 2 above) versus non-key universities, e.g. "non-211" and "independent colleges", has contributed to the differentiation of the initial salary for the graduates of these two broad categories in their first job offers. This confirms the findings of other research. For example, Mycos Institute (2010) showed that in 2010 the average annual salary of a "985 university" graduate was 35,364 Yuan, of a "211 university" graduate 33,072 Yuan while a "non-211 university" graduate only earned 28,428 Yuan, and an independent college graduate 22,944 Yuan. This is also true, as our research shows, for the employment rate of the graduates of the different types of HEIs (see above).

Although the level of education and the position of the HEI in the organizational hierarchy, where a graduate obtained his/her degree, showed stable correlation with his/her initial income level, detailed analysis of the different cohorts in our database reveals some subtle temporal variations (Fig 2b; 2c; 2d). For example, for the post-global financial crisis university graduate cohort who had been employed for less than five years (i.e. those who had been enrolled in university in/after 2008 and graduated after 2010 – see Fig 2b and Tab 2), the factor loading of living conditions to income is 0.65. This is the highest weight and suggests that the most recent graduates' income is strongly influenced by the type of the issuing HEI of their degree certificates. For the earlier graduate cohort, we would expect combined effects of his/her university's prestige and accumulated work experience, thus the direct impact would be stable, as

evidenced in the fact that the standard regression weight of the pre-financial crisis subgroup, who had been employed for over 10 years (graduated before 2005), declines to 0.55 (Table 4 and Fig2d). However, it seems to be an exception for the during-crisis subgroup who had been employed for 5 to 10 years (graduated between 2005 and 2010): the weight is 0.53, lower than the index of the cohort with 10 or more years' work experience (Tab 3 and Fig 2c).

4.3 The impact of education differentiation on the housing of the NWCWs

Likewise, education stratification also generates a significant impact on the NWCWs' housing conditions. The SEM analysis of the survey sample as a whole indicates that the factor loading of living conditions to housing is 0.48, which is higher than that to occupation but lower than that to income (Fig 2a, Tab 1). This suggests that housing is affected significantly by education differentiation and attainment, and that it has become another important determinant of the NWCWs' socioeconomic status. Similarly, there are intra-group, temporal variations: the factor loading of the latest graduate cohort is 0.51, which declines to 0.44 and 0.46 for the during and pre-financial crisis graduate subgroups, respectively (Fig 2b, 2c and 2d; Tab 2, 3 and 4).

Clearly, within the three cohorts of the NWCWs, all the standardized regression weights reflect an abnormal variation between 2004 and 2009 (Tab 3), suggesting an indirect effect of the global financial crisis on the NWCWs: the factor loadings of living conditions to housing, income and occupation for the post-crisis graduate cohort are 0.51, 0.65 and 0.21, respectively, which are higher than the weights for the pre-crisis cohort of 0.46, 0.55 and 0.19, respectively.

5. Emerging patterns and trends shaping the post-graduation career pathways and profiles of the NWCWs

Our results have clearly demonstrated that education attainment (conceived here as an individual's degree being associated with a stratified higher education system) of the NWCWs has significantly impacted their post-graduation differentiation with respect to occupation, income and housing conditions. However, in contrast to the pre-global financial crisis graduate cohort (Fig 2), the impact of education attainment on social differentiation for the post-financial crisis graduate cohort decreases. As shown above, the weights on all the categories, including occupation, income and housing for the pre-financial crisis graduate cohort versus the post-crisis cohort increased from 0.19 to 0.21; 0.55 to 0.65; and 0.46 to 0.51 respectively (Fig 2b and 2d). Thus, it could be inferred that the graduates' social background and other factors would have contributed to the observed trend and pattern. The results indicate some temporal dynamics that with time social background (e.g. family's social class, fathers' occupation, the type of *hukou* registration, etc.) has an increasingly positive correlation with the NWCWs' social-economic differentiation. For instance, the weights of fathers' occupation are 0.68, 0.725 and 0.752 for the three graduate cohorts in chronological sequence (the pre-, during and post-global financial crisis), respectively. The data suggests that the degree to which education attainment may shape university graduates' career pathways decreases with time, and this may point at least to two trends. First, the NWCWs tend to be marginalized after the 2008 global financial crisis or their educational capital is depreciated. The NWCWs as a social group distinguish themselves from

others more on the basis of their achieving university degrees. The decreased impact of education attainment on the NWCWs' social status has evidenced what Bourdieu (2011) argues that educational capital is often dependent on, and works together with economic, cultural and political capital. In this sense, devaluation of undergraduate education would have happened as documented by many researchers around the world (Doob, 2016; Ehrenreich, 1989). In China it is reported that an increasing number of undergraduate students prefer going on with postgraduate study since the turn of the 21st century for fear of a depreciated bachelor's degree (Zhang 2013; Zhou & Lin; 2009): a rise from 3.0% in 2007 to 4.9% in 2009 (Mycos Institute, 2014; Tab 5).

Moreover, the emergence of the NWCWs and their ensuing marginalization may fragment the extant stratum of the middle class in China's neoliberal urban transition. The social formation and class remake relating to the NWCWs prior to the global financial crisis had been manifest in a widened gap between the upper and the lower end of society. Concomitantly, social stratification in Chinese cities tends to become both intra-generational to intergenerational, as observed in other capitalist countries (Goldthorpe, 2014). The results from the SEM modeling analysis suggest a trend that, over time, the socio-economic stratification of the NWCWs decreased in correlation with their education attainment, but was increasingly influenced by the individuals' family background, or parental wealth.

Our research results suggest that if we take as the benchmark the correlation between the cohort of the pre-financial crisis university graduates' educational attainment and their post-graduation social differences, the correlations between the two variables for the during- and

post-financial crisis graduate cohorts show a clear trend of graduates' relying more on their parents' social status, e.g. the educational level and occupation of fathers, family wealth and/or family's urban versus rural *hukou* status. It can be argued therefore that the neoliberal reform initiated in China since the late 1970s has induced and entrenched a new trend and pattern of social stratification, namely social advantages, privileges, status and class tend to be reproduced or transferred across generations at the expense of equality, equity and social mobility. This concurs with the global trend of widening inequalities across and within nations, and declining social mobility under the increasingly dominant neoliberal ideology and free market orthodoxy (Doob, 2016; Stiglitz, 2015). In China as in elsewhere, this trend and its associated social process have generated increasingly negative effect on socially inclusionary and sustainable urban development.

6. Conclusion

The uneven distribution of education resources affects educational attainment of young people, which can, in turn, reshape education accessibility based on geographical locations for various social groups (Wu, et al., 2015). Yet, the relationship between education differentiation and social-economic polarization is largely neglected in current research, even though researchers have demonstrated that different educational attainment often leads to differences in individuals' later social status (Bourdieu & Passeron, 1977).

Since the acceleration of neoliberal education marketization in the late 1990s, urban

education differentiation has been one facet of social stratification in China. In this article, we have applied quantitative research methodology combining the Internet-based survey for data collection and the SEM modeling for data analysis to reveal correlations and relationships between education differentiation and its socio-economic consequences for the NWCWs in Nanjing. The research results demonstrate a positive correlation between disparity in education attainment (conceived as an individual's academic degree being associated with a stratified higher education system) of the NWCWs and their post-university differentiation in occupation, income and housing conditions. Education attainment across HEIs differs with regard to the duration of education (e.g. three years for a university diploma, four or five years for an undergraduate degree), and categories of colleges (e.g. HEIs in the key “985 project”, “211 project” and in non-key categories, including also independent colleges). Our analysis of the various graduate cohorts has indicated a gradual but visible alteration of the pattern of the socialist period marked by a mixture of egalitarian and elite-oriented education, as new pathways of social reproduction have started to emerge and become entrenched, thereby the NWCWs' post-university social positioning has been shaped by a range of variables at different scales, including access to and control of educational capital, resource allocation, as well as economic and employment conditions at local, national and global scales. Furthermore, individuals' educational and later career advancement have become determined more by their family background, e.g. parental occupation and wealth, than by other factors.

Our research points to considerable policy implications for China's higher education. It suggests that access to and attainment of higher education, as an important avenue for upward

social mobility intra- and inter-generationally, could be improved through targeting students from poorer family background so that socially disadvantaged groups could have better opportunities for, as well as are equitably represented in, elite key universities; and that the higher education sector should increase investment in and channel resources to not just key but also ordinary universities and colleges (where youth from disadvantaged social background tend to concentrate), in order to narrow the gap between different social groups in quality education, its attainment, post-university career development, and social advancement within and across generations. As stated earlier, our research shares similar limitations of the Internet-based survey method, and thus it requires further studies employing qualitative or mixed research methodology to obtain richer sets of data and in-depth analysis, so as to deepen our understanding of the mechanisms at play, and the relationships between educational stratification and its socio-economic consequences.

Acknowledgements

The research is supported by National Natural Science Foundation of China (Nos. 41271176 & 41671155). The authors wish to express their gratitude to Prof. Meir Yaish for his editorial support and to two anonymous reviewers for their constructive and critical comments that help us improve the paper. However, any errors are the authors' own.

References

- A.N. (2013). This day in 1952, the PRC government launched a national campaign to illiterate illiteracy. <http://history.voc.com.cn/article/201305/201305241010306152.html>, accessed 1 October 2016.
- A.N. (2014). Abandoning schools for cadres' children in 1956. *Southern Education Times* (the digital version), http://szjy.sznews.com/html/2014-05/02/content_2860944.htm, accessed 28 September 2016.
- Bagley, M. N., & Mokhtarian, P. L. (2002). The impact of residential neighborhood type on travel behavior: A structural equations modeling approach. *The Annals of Regional Science*, 36, 279-297.
- Bai, L. (2006). Graduate unemployment: Dilemmas and challenges in China's move to mass higher education. *The China Quarterly*, 185, 128-144.
- Bell, D. (1976). The coming of the post-industrial society. *The Educational Forum*, 40, 574-579.
- Bian, Y. (2002). Chinese social stratification and social mobility. *Annual Review of Sociology*, 28, 91-116.
- Blau, P. M., & Duncan, O. D. (1967). *The American Occupational Structure*. New York: John Wiley & Sons.
- Bourdieu, P. (2011). The forms of capital (1986). In I. Szeman & T. Kaposy (Eds.), *Cultural Theory: An Anthology* (pp. 81-93). Malden, MA: Wiley-Blackwell.
- Bourdieu, P., & Passeron, J. C. (1977). *Reproduction in Education, Society and Culture*. London: Sage Publications.
- Breen, R., & Karlson, K. B. (2014). Education and social mobility: New analytical approaches. *European Sociological Review*, 30, 107-118.
- Breitung, W. (2012). Enclave urbanism in China: Attitudes towards gated communities in Guangzhou. *Urban Geography*, 33, 278-294.
- Buchmann, C., DiPrete, T. A., & McDaniel, A. (2008). Gender inequalities in education. *Annual*

- Review of Sociology*, 34, 319-337.
- Buchmann, C., & Hannum, E. (2001). Education and stratification in developing countries: A review of theories and research. *Annual Review of Sociology*, 27, 77-102.
- Chan, D., & Mok, K.-H. (2001). Educational Reforms and Coping Strategies under the Tidal Wave of Marketisation: A comparative study of Hong Kong and the mainland. *Comparative Education*, 37, 21-41.
- Chan, W. K., & Ngok, K. (2011). Accumulating human capital while increasing educational inequality: A study on higher education policy in China. *Asia Pacific Journal of Education*, 31, 293-310.
- Couper, M. P. (2000). Review: Web surveys: A review of issues and approaches. *Public opinion quarterly*, 64, 464-494.
- Deng, Z., & Treiman, D. J. (1997). The impact of the cultural revolution on trends in educational attainment in the People's Republic of China. *American Journal of Sociology*, 103, 391-428.
- Doob, C. B. (2016). *Social Inequality and Social Stratification in US Society*. Abingdon, Oxon & New York: Routledge.
- Ehrenreich, B. (1989). *Fear of Falling: The Inner Life of the Middle Class*. New York: Pantheon Books.
- Fan, C. C. (2002). The elite, the natives, and the outsiders: Migration and labor market segmentation in urban China. *Annals of the Association of American Geographers*, 92, 103-124.
- Goldthorpe, J. H. (2014). The role of education in intergenerational social mobility: Problems from empirical research in sociology and some theoretical pointers from economics. *Rationality and Society*, 26, 265-289.
- Gu, C., & Shen, J. (2003). Transformation of Urban Socio-spatial Structure in Socialist Market Economies: The Case of Beijing. *Habitat International*, 27, 107-122.
- Guthrie, D. (2008). *China and Globalization: The Social, Economic and Political Transformation of Chinese Society*. New York: Routledge.

- Hao, J., & Welch, A. (2012). A tale of sea turtles: Job-seeking experiences of hai gui (high-skilled returnees) in China. *Higher Education Policy*, 25, 243-260.
- Hout, M. (1988). More universalism, less structural mobility: The American occupational structure in the 1980s. *American Journal of Sociology*, 93, 1358-1400.
- ILO. (2012). *Youth Employment Crisis: Time for Action* (Vol. 5). Geneva: International Labour Office.
- ILO. (2014). *Global Employment Trends 2014: Risk of a Jobless Recovery?* Geneva: International Labour Organization.
- Jiangsu Communication Administration, Jiangsu Internet Trade Management Service Center, & Jiangsu Internet Association. (2014). Report on Internet Development in Jiangsu 2013. In (Vol. 2015).
- Kotz, D. M. (2009). The financial and economic crisis of 2008: A systemic crisis of neoliberal capitalism. *Review of Radical Political Economics*, 41, 305-317.
- Lee, J., & Zhu, Y. P. (2006). Urban governance, neoliberalism and housing reform in China. *The Pacific Review*, 19, 39-61.
- Lenski, G. (1978). Marxist experiments in destratification: An appraisal. *Social Forces*, 57, 364-383.
- Li, Y. A., Whalley, J., Zhang, S., & Zhao, X. (2011). The Higher Educational Transformation of China and Its Global Implications. *The World Economy*, 34, 516-545.
- Liang, C., & Lee, J. (2012). A silent revolution: Research on family background of students of Peking University and Soochow University (1952-2002). *Social Sciences in China*, 2, 98-118.
- Lipset, S. M., & Bendix, R. (1991). *Social Mobility in Industrial Society*. New Brunswick, NJ: Transaction Publishers.
- Loehlin, J. C. (1998). *Latent Variable Models: An Introduction to Factor, Path, and Structural Analysis* (Vol. 3rd). Mahwah, NJ: Lawrence Erlbaum.
- Loosveldt, G., & Sonck, N. (2008). An evaluation of the weighting procedures for an online

- access panel survey. *Survey Research Methods*, 2, 93-105.
- Malik, K. (2014). *Human Development Report 2014: Sustaining Human Progress: Reducing Vulnerabilities and Building Resilience*. New York: United Nations Development Programme.
- Mallman, M. (2015). Not entirely at home: Upward social mobility and early family life. *Journal of Sociology*, August 3, 2015, DOI: 10.1177/1440783315601294.
- Mastekaasa, A. (2011). Social origins and labour market success–stability and change over Norwegian birth cohorts 1950–1969. *European Sociological Review*, 27, 1-15.
- McAfee, A., & Brynjolfsson, E. (2012). Big Data: The Management Revolution. *Harvard business review*, 61-67.
- Mok, K. H., Wong, L., & Lee, G. O. M. (2002). The challenges of global capitalism: unemployment and state workers' reactions and responses in post-reform China. *The International Journal of Human Resource Management*, 13, 399-415.
- Mycos Institute (2009-2014). *Annual Report on Chinese College Graduates Employment (various years between 2009-2014)*. Beijing: Social Sciences Academic Press.
- Mycos Institute (2015a). *Annual Report on Chinese 3-Year Vocational College Graduates Employment (2015)*. Beijing: Social Sciences Academic Press.
- Mycos Institute (2015b). *Annual Report on Chinese 4-Year College Graduates Employment (2015)*. Beijing: Social Sciences Academic Press.
- Nanjing Municipal Population and Family Planning Commission, & Nanjing Bureau of Statistics (2014). *Report on Population Development of Nanjing in 2013*. Nanjing: Nanjing Bureau of Statistics.
- Nanjing Bureau of Statistics (2014). The Statistical Communiqué of Nanjing on the 2013 National Economic and Social Development. In (Vol. 2015).
- Pressman, S. (2007). The Decline of the Middle Class: An International Perspective. *Journal of Economic Issues*, 41, 181-200.
- Robson, G., & Butler, T. (2001). Coming to Terms with London: Middle - class Communities in

- a Global City. *International Journal of Urban and Regional Research*, 25, 70-86.
- Shi, L. (1996). *Pedagogy of Middle School*. Fuzhou: Fujian education press.
- Solinger, D. J. (1999). *Contesting Citizenship in Urban China: Peasant Migrants, the State, and the Logic of the Market*. Berkeley, CA: University of California Press.
- Song, W., & Wu, Q. (2010). Gentrification and residential differentiation in Nanjing, China. *Chinese Geographical Science*, 20, 568-576.
- Stiglitz, J. E. (2015). Inequality in America: A policy agenda for a stronger future. *The ANNALS of the American Academy of Political and Social Science*, 657, 8-20.
- Tang, J., Dong, M. Z., & Duda, M. (2007). Marginalisation of laid-off state-owned enterprises workers in Wuhan. In H. X. Zhang, B. Wu & R. Sanders (Eds.), *Marginalisation in China: Perspectives on Transition and Globalisation* (pp. 35-54). Hampshire: Ashgate Publishing, Ltd.
- Treiman, D. J. (2013). Trends in educational attainment in China. *Chinese Sociological Review*, 45, 3-25.
- Triventi, M. (2013). The role of higher education stratification in the reproduction of social inequality in the labor market. *Research in Social Stratification and Mobility*, 32, 45-63.
- Wang, D., & Li, S. M. (2006). Socio-economic differentials and stated housing preferences in Guangzhou, China. *Habitat International*, 30, 305-326.
- Wang, F. L. (2004). Reformed migration control and new targeted people: China's hukou system in the 2000s. *The China Quarterly*, 177, 115-132.
- Wang, X., Liu, C., Zhang, L., Shi, Y., & Rozelle, S. (2013). College is a rich, han, urban, male club: Research notes from a census survey of four tier one colleges in China. *The China Quarterly*, 214, 456-470.
- Wang, Y. P., & Murie, A. (2000). Social and spatial implications of housing reform in China. *International Journal of Urban and Regional Research*, 24, 397-417.
- Wilson, R. A., & Schultz, D. A. (1978). *Urban Sociology* (Vol. 2d). Englewood Cliffs: Prentice Hall.

- Wu, F., Webster, C., He, S., & Liu, Y. (2010). *Urban Poverty in China*. Glos, UK: Edward Elgar.
- Wu, F., & Webster, C. J. (2010). *Marginalization in Urban China: Comparative Perspectives*. London: Palgrave Macmillan.
- Wu, Q., Cheng, J., Chen, G., Hammel, D. J., & Wu, X. (2014). Socio-spatial Differentiation and Residential Segregation in the Chinese City Based on the 2000 Community-level Census Data: A Case Study of the Inner City of Nanjing. *Cities*, 39, 109-119.
- Wu, Q., Zhang, X., & Waley, P. (2015). Jiaoyufication: When gentrification goes to school in the Chinese inner city. *Urban studies*.
- Wu, X. (2011). The Household Registration System and Rural-Urban Educational Inequality in Contemporary China. *Chinese Sociological Review*, 44, 31-51.
- Wu, X., & Treiman, D. J. (2004). The household registration system and social stratification in China: 1955-1996. *Demography*, 41, 363-384.
- Wu, Y. (2008). Cultural capital, the state, and educational inequality in China, 1949–1996. *Sociological Perspectives*, 51, 201-227.
- Yu, N., Yu, B., de Jong, M., & Storm, S. (2015). Does inequality in educational attainment matter for China's economic growth? *International Journal of Educational Development*, 41, 164-173.
- Zhang, H. X., Wu, B., & Sanders, R. (2007). *Marginalisation in China: Perspectives on Transition and Globalisation*. Aldershot: Ashgate.
- Zhang, L. (2007). Living and working at the margin: Rural migrant workers in China's transitional cities. In H. X. Zhang, B. Wu & R. Sanders (Eds.), *Marginalization in China, Perspectives on Transition and Globalization* (pp. 81-97). Aldershot: Ashgate.
- Zhou, M. & Lin, J. (2009). Chinese graduates' employment: The impact of the financial crisis. *International Higher Education* 55: 3-4.
- Zhang, T., & Zhao, M. (2006). Universalizing nine-year compulsory education for poverty reduction in rural China. *International Review of Education*, 52, 261-286.
- Zhang, X. (2013). China's "Ant Tribe" Present Social Survival Situation and Personal Financial A

- dvice. *Asian Social Science* 9, 24-35.
- Zhao, Y., & Bourassa, S. C. (2003). China's urban housing reform: Recent achievements and new inequities. *Housing Studies*, 18, 721-744.
- Zhou, X., Moen, P., & Tuma, N. B. (1998). Educational stratification in urban China: 1949-94. *Sociology of Education*, 71, 199-222.

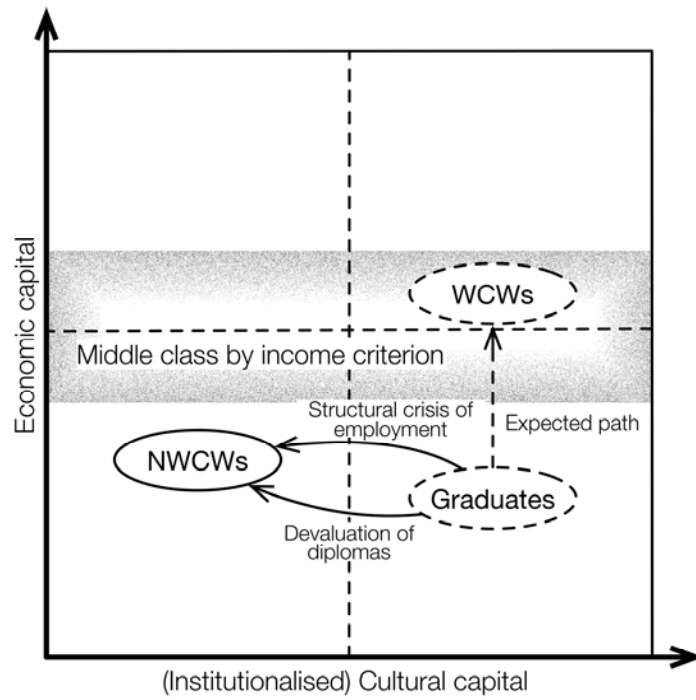


Fig 1 The conceptual class-remake of NWCWs

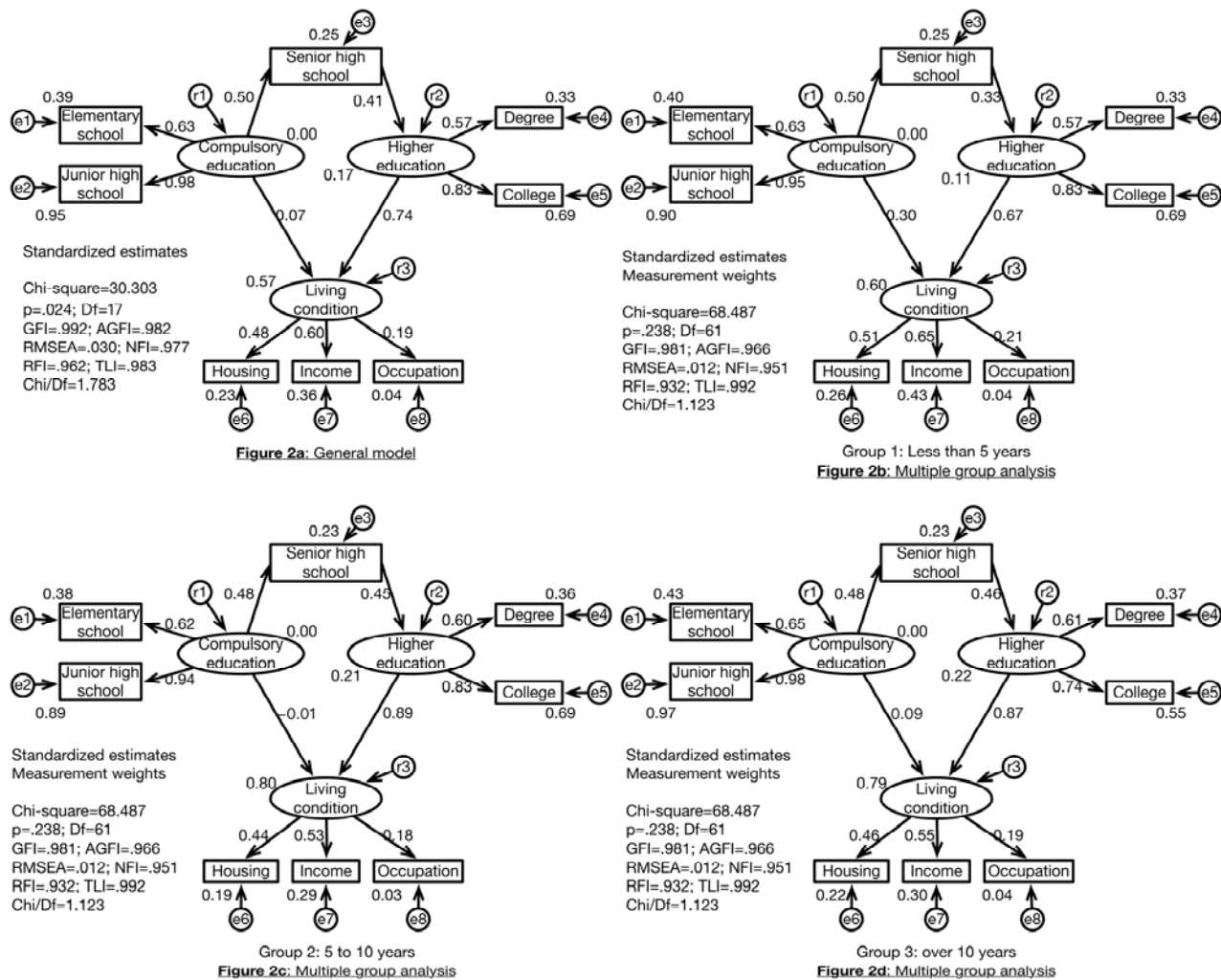


Fig 2 The two SEM models

Tab 1. Regression weights of the general SEM model^a

			Estimate	S.E.	C.R.	P	Standardized estimate
Senior high School	←	Compulsory education	0.508	0.047	10.691	***	0.500
Higher education	←	Senior high school	0.615	0.07	8.73	***	0.409
Living conditions	←	Higher education	0.304	0.072	4.233	***	0.736
Living conditions	←	Compulsory education	0.045	0.033	1.349	0.177	0.071
Junior high school	←	Compulsory education	1	-	-	-	0.977
Elementary school	←	Compulsory education	0.612	0.052	11.661	***	0.626
Degree	←	Higher education	1	-	-	-	0.573
College	←	Higher education	1.171	0.101	11.554	***	0.829
Occupation	←	Living conditions	1	-	-	-	0.195
Income	←	Living conditions	2.171	0.502	4.324	***	0.602
Housing	←	Living conditions	3.127	0.736	4.246	***	0.476

Note: ^a C.R.: composite reliability; S.E.: standard error.

Source: Authors' own findings (2015)

Tab 2. Regression weights of the multiple group analysis SEM model^a (Group 1: worked for less than 5 years – measurement weights)

			Estimate	S.E.	C.R.	P	Standardized estimate
Senior high School	←	Compulsory education	0.495	0.047	10.624	***	0.500
Higher education	←	Senior high school	0.63	0.141	4.473	***	0.330
Living conditions	←	Higher education	0.237	0.062	3.794	***	0.667
Living conditions	←	Compulsory education	0.201	0.075	2.691	0.007	0.301
Junior high school	←	Compulsory education	1	-	-	-	0.949
Elementary school	←	Compulsory education	0.637	0.054	11.811	***	0.632
Degree	←	Higher education	1	-	-	-	0.573
College	←	Higher education	1.122	0.091	12.262	***	0.833
Occupation	←	Living conditions	1	-	-	-	0.211
Income	←	Living conditions	2.044	0.461	4.438	***	0.655
Housing	←	Living conditions	3.088	0.703	4.391	***	0.506

Note: ^a C.R.: composite reliability; S.E.: standard error.

Source: Authors' own findings (2015)

Tab 3. Regression weights of the multiple group analysis SEM model^a (Group 2: worked for 5 to 10 years – measurement weights)

			Estimate	S.E.	C.R.	P	Standardized estimate
Senior high School	←	Compulsory education	0.495	0.047	10.624	***	0.484
Higher education	←	Senior high school	0.7	0.102	6.886	***	0.454
Living conditions	←	Higher education	0.35	0.086	4.086	***	0.894
Living conditions	←	Compulsory education	-0.008	0.054	-0.144	0.886	-0.013
Junior high school	←	Compulsory education	1	-	-	-	0.945
Elementary school	←	Compulsory education	0.637	0.054	11.811	***	0.615
Degree	←	Higher education	1	-	-	-	0.599
College	←	Higher education	1.122	0.091	12.262	***	0.833
Occupation	←	Living conditions	1	-	-	-	0.18
Income	←	Living conditions	2.044	0.461	4.438	***	0.534
Housing	←	Living conditions	3.088	0.703	4.391	***	0.44

Note: ^a C.R.: composite reliability; S.E.: standard error.

Source: Authors' own findings (2015)

Tab 4. Regression weights of the multiple group analysis SEM model^a (Group 3: worked over 10 years – measurement weights)

			Estimate	S.E.	C.R.	P	Standardized estimate
Senior high School	←	Compulsory education	0.495	0.047	10.624	***	0.481
Higher education	←	Senior high school	0.601	0.086	6.982	***	0.465
Living conditions	←	Higher education	0.425	0.107	3.956	***	0.867
Living conditions	←	Compulsory education	0.057	0.057	1.003	0.316	0.087
Junior high school	←	Compulsory education	1	-	-	-	0.984
Elementary school	←	Compulsory education	0.637	0.054	11.811	***	0.654
Degree	←	Higher education	1	-	-	-	0.611
College	←	Higher education	1.122	0.091	12.262	***	0.742
Occupation	←	Living conditions	1	-	-	-	0.191
Income	←	Living conditions	2.044	0.461	4.438	***	0.549
Housing	←	Living conditions	3.088	0.703	4.391	***	0.464

Note: ^a C.R.: composite reliability; S.E.: standard error.

Source: Authors' own findings (2015)

Tab 5. The total employment rate of university graduates in China (2007 – 2014) (%)

Year	2007	2008	2009	2010	2011	2012	2013	2014
Total employment rate ^a	87.5	85.6	86.6	89.6	90.2	90.9	91.4	92.1
Employed full time	83.7	81.0	78.5	82.4	81.0	81.3	80.6	79.2
Employed part time	-	-	1.5	1.1	1.1	1.1	1.2	1.4
Self-employed	1.2	1.0	1.2	1.5	1.6	2.0	2.3	2.9
Pursuing postgraduate study abroad	3.0	4.1	4.9	3.8	5.1	5.4	6.1	5.9
Preparing for postgraduate study abroad	-	1.0	1.0	1.0	1.1	1.1	0.9	0.9
Continuing with UG study	-	-	1.3	1.3	1.9	1.7	1.9	2.1

Note: ^a“Total employment rate” means the percentage of non-NEET (which means a young person who is “not in education, employment, or training” – ILO, 2014) people.

Source: Mycos Institute (2009, 2010, 2011, 2012, 2013, 2014, 2015a, 2015b).

Appendix A Details of the Surveyed Sample

Sample Attributes	Size	Ratio	Sample Attributes	Size	Ratio		
Gender	Male	423	47.69%	Graduation Year	Before 2005	308	34.72%
	Female	464	52.31%		2005-2009	312	35.17%
Age ^a	23~26	201	22.66%		2010-2014	267	30.10%
	27~30	244	27.51%	≤1500	101	11.39%	
	31~34	247	27.85%	1501~3000	409	46.11%	
	35~38	195	21.98%	3001~6000	240	27.06%	
Degree	Associate	196	22.10%	Income	6001~9000	72	8.12%
	Bachelor	576	64.94%		9001~12000	34	3.83%
	Master	104	11.72%		12001~15000	22	2.48%
	Ph.D.	11	1.24%		≥150001	0	0.00%

^a Specifically, age and income are asked as closed questions in our online survey.

Appendix B Indicators for model fit of the SEM models ^a

Fit index	Absolute index			Relative index					Parsimony index			
	P	RMR	RMSEA	NFI	RFI	IFI	TLI	CFI	PGFI	PNFI	PCFI	X ² /Df
Criterion	P>0.05	<0.05	<0.08	>0.90	>0.90	>0.90	>0.90	>0.90	>0.50	>0.50	>0.50	<2
Model 1	0.024	0.031	0.030	0.977	0.962	0.990	0.983	0.990	0.468	0.593	0.601	1.783
Model 2	0.238	0.059	0.012	0.951	0.932	0.994	0.992	0.994	0.554	0.690	0.772	1.123

^a “Model 1” is the general SEM model, and “model 2” is the multiple group analysis SEM model in measurement weights.