

# Social Origin, Education and Occupation in Georgia

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## Abstract

Using data from the Generations and Gender Survey for the cohorts born from 1926 to 1985 in Georgia, and the linear probability models of higher educational and ISCO 1-2 occupational attainment, I find the large ascriptive inequalities of life chances, which especially intensified for those born in 1976-85. Having parents with the lower socio-economic status negatively and significantly associates with life prospects. Although tertiary education serves mainly as the mediator of social origin, the latter also exerts a direct effect on the occupational attainment. One of the reasons why the inequalities in life chances have increased in recent decades is the growing gap between educational expansion and occupational upgrade and the resultant inflation of credentials.

## Introduction

This study aims to investigate the role of ascription in life chances in Georgia by studying associations between individuals' characteristics they have no control over and their educational and labour market outcomes. Social stratification models attribute a person' life chances to two theoretically distinctive sets of factors: ascription and achievement. The role of achievement in life chances is usually studied by the contribution of individuals' ability, merits and effort in their educational and occupation attainment; whereas ascriptive factors are typically examined with reference to the effects of social origin in life chances.<sup>1</sup> Ascribed characteristics are not limited to parental education and occupation, they also include aspects of personality, such as gender, ethnicity, settlement, and family structure, which are assigned at birth or assumed involuntarily later in life. If life chances primarily depend on ascribed factors rather than achieved ones, they cannot be considered as earned or chosen and therefore are inherently unfair.

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<sup>1</sup> Yanjie Bian, 'Chinese Social Stratification and Social Mobility', *Annual Review of Sociology*, vol. 28, 2002, pp. 91–116.

Although monetary inequalities have been relatively well researched,<sup>2</sup> only a limited number of studies exist on ascriptive stratification and its evolvement over time in Georgia.<sup>3</sup>

The purpose of this study is to produce a tentative account of the main ascriptive vector affecting social stratification in Georgia. I will seek to answer two main research questions: (1) How is social origin associated with attainment of higher education? (2) How is social origin associated with the attainment of prestigious occupations? Along with an increasingly popular research on the role of the first few years on children's later life chances,<sup>4</sup> one of the most important areas of stratification literature are studies on the antecedents of success in educational and occupational outcomes. Cumulative advantage is a valuable framework for understanding ascriptive inequalities across individuals' life course in which a favourable relative starting position becomes a resource that produces further relative gains.<sup>5</sup> In other words, ascription might contribute to occupational attainment via affecting individuals performance in primary, secondary and tertiary educational institutions. Therefore to understand the role of ascription vs. achievement, it is necessary to account links between education and ascription while studying the effect of education on labour market outcomes. On the other hand, inequalities in life chances might be generated independently from the educational attainment by the direct effects of ascriptive factors on occupational attainment. Which type of stratification machine and which part of its mechanism – higher educational institutions or labour markets – are predominant in a given society is an open question, particularly in the dynamic societies such as Georgia.

To address the research questions rigorously, covering the early and mature Soviet era and, most importantly, the developments in the independent Georgia, I employ, to my knowledge, the most suitable

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<sup>2</sup> Ruslan Yemtsov, *Inequality and Income Distribution in Georgia* (Washington, D.C.: The World Bank, Discussion Paper No. 252, 2001).

World Bank, *Georgia: Poverty Assessment*, (Human Development Sector Unit, South Caucasus Country Unit, Europe and Central Asia Region, Report No. 44400-GE, 2009).

<sup>3</sup> Furio Rosati, Zeynep Özbil, and Diana Marginean, *School-to-Work Transition and Youth Inclusion in Georgia* (London: The International Bank for Reconstruction and Development /The World Bank, 2006).

Maia Chankseliani, *Mixed-Methods Study of Higher Education Access in Georgia: Does Location Matter?* (Camrdidge, UK, PhD thesis, University of Cambridge, 2012).

Ken Roberts and Garry Pollock, 'New Class Divisions in the New Market Economies: Evidence from the Careers of Young Adults in Post-Soviet Armenia, Azerbaijan and Georgia', *Journal of Youth Studies*, vol. 12, no. 5, 2009, pp. 579–96.

<sup>4</sup> James J. Heckman, 'The Economics of Inequality: The Value of Early Childhood Education', *American Educator*, vol. 35, no. 1, 2011, pp. 31–35, 47.

<sup>5</sup> Thomas A. DiPrete and Gregory M. Eirich, 'Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments', *Annual Review of Sociology*, vol. 32, 2006, pp. 271–297.

data from the Generations and Gender Survey. In the next section, I empirically validate my selection of two dependent variables – higher education and service class occupation – as good proxies for life chances in Georgia. I test the selected variables against a numerous welfare indicators such as labour market performance, social status, and family incomes. Simultaneously, it is well known that not only ascription affects educational and occupational performance but its nature is strongly determined by the developments in educational level and occupational structures. Therefore, before testing the degree and trends in ascriptive inequalities, I review long-term trends in educational and occupational upgrade and its possible implications for life chances. In the multivariate analysis of the study, I test examine social origin as the main source of ascriptive inequalities and analyse its changing role starting from a cohort born in 1926-30 and ending with a cohort born in 1981-85. In the last section, I summarise the findings and briefly discuss their implications to policy realm.

## **Education, Occupation and Life Changes**

Life chances can be understood as the chances an individual has or a group of individuals have of gaining access to scarce and socially valued resources.<sup>6</sup> In order to understand how life chances are affected by ascription in Georgia, the first step of the analysis should be the identification of relevant, validated and measurable indicators of individuals' success in life. One of the most appropriate frameworks seems to be a Weberian approach in which a group-based situation provides to individuals with related education and occupations 'shared typical probability of procuring goods, gaining a position in life, and finding inner satisfaction'<sup>7</sup>. In other words, members of a group must share common life chances. In a modern, meritocratic society education serves as an antecedent of occupational placement, while education itself is largely determined by social origin. However, after the 1990s, some prominent sociologist began to claim that traditional labour market-related stratification was losing its relevance.<sup>8</sup> This approach assumed that welfare was becoming a more transient phenomenon associated with particular events and stages in individual lives.<sup>9</sup> Nevertheless, the review of evidence showed that proposed hypothesis was based on a

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<sup>6</sup> Richard Breen, 'Foundations of a Neo-Weberian Class Analysis', in Erik Olin Wright, ed., *Approaches to class analysis*. (Cambridge: Cambridge University Press, 2005).

<sup>7</sup> Max Weber, *Economy and Society* (London: University of California Press, 1978).

<sup>8</sup> Pakulski and Malcolm Waters, *The death of class* (London, Thousand Oaks, Calif: SAGE, 1996).

<sup>9</sup> Hans-Jürgen Andreß and Katja Schulte, 'Poverty Risks and the Life Cycle: The Individualization Thesis Reconsidered', in Hans-Jürgen Andreß, ed., *Empirical Poverty Research in a Comparative Perspective* (Aldershot: Burlington, VT: Ashgate Publishing, 1998).

selective reading of the empirical literature.<sup>10</sup> The relevance of education and occupational structure has been shown to affect welfare outcomes in western European<sup>11</sup> as well as in some post-socialist<sup>12</sup> societies. Educational segregation is straightforward and almost always can be operationalised by the limited categories of an ordinal variable consisting of primary, secondary and tertiary education. More elaborate are various occupation-based classifications such as Erikson–Goldthorpe class schema (EGP), International Socio-Economic Index of Occupational Status (ISEI), the European Socio-economic Classification (ESeC), and various other schemas. These occupational measures share many similarities but they are also characterised by conceptual differences. Considering the tradeoffs between the simplicity and analytical sophistication of the current analysis and the availability and reliability of appropriate datasets, I select ISCED 5-6 (higher education more precisely) and ISCO 1-2 (service class occupation) attainment as the main dependent variables of the study. To demonstrate the relevance of higher educational and occupational service class job attainment for various measure of life chances I use descriptive statistics for objective welfare indicators. The datasets which I use here are the first wave of the Life in Transition Survey for 2006<sup>13</sup> conducted by the European Bank for Reconstruction and Development and the fourth wave of the European Values Studies for 2008 by the University of Tilburg,<sup>14</sup> both of which are nationally representative surveys and derived results can be generalised to the total population of Georgia, excluding territories of Abkhazia and South Ossetia.

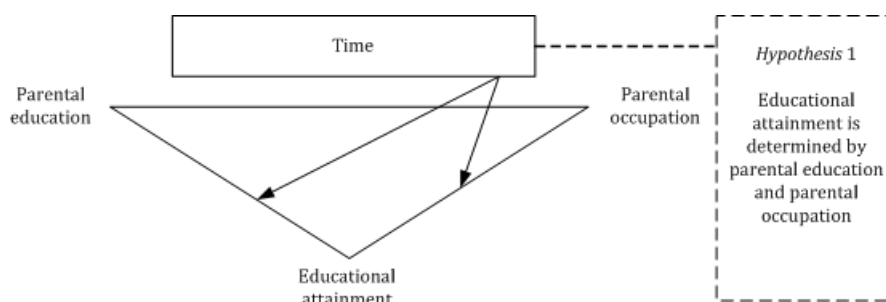


FIGURE 1 ABOUT HERE

<sup>10</sup> Mike Hout, Clem Brooks and Jeff Manza, 'The Persistence of Classes in Post-industrial Societies', *International Sociology*, vol. 8, no. 3, September 1993, pp. 259–77.

<sup>11</sup> Richard Layte and Christopher T. Whelan, 'Cumulative Disadvantage Or Individualisation? A Comparative Analysis Of Poverty Risk And Incidence', *European Societies*, vol. 4, no. 2, 2002, pp. 209–33.

<sup>12</sup> Alexi Gugushvili, 'Material Deprivation, Social Class and Life Course in the Balkans, Eastern Europe and Central Asia', *Studies of Transition States and Societies*, vol. 3, no. 1, pp. 39–54.

<sup>13</sup> EBRD, *Life in Transition Survey* (London: European Bank for Reconstruction and Development, 2006).

<sup>14</sup> EVS, *European Values Study, 4th wave, Integrated Dataset*, ZA4800 Data File Version 2.0.0, 2010-11-30 (GESIS Data Archive: Cologne, Germany, 2008).

Figure 1 presents how the level of education and different occupational codes associate with various labour market outcomes, occupational prestige, and objective incomes. There is a clear association between higher educational attainment, belonging to ISCO 1 or 2 occupational groups and experiencing much better chances of being employed. The higher chances of employment are also observed for ISCO 9 (elementary occupations) and ISCO 5 (service and sales workers) occupational group. Individuals with higher education and service class job have substantial advantage in terms of avoiding more than 3 months of unemployment experience. More educated and ISCO 1-2 individuals report the higher levels of freedom to make decisions on the job. Occupational prestige scores, measured by the ISEI<sup>15</sup>, are much higher for highly educated and for those with jobs in professional occupations.<sup>16</sup> Interestingly individuals in ISCO 2 group supersede those in ISCO 1 in the mean value of prestige. The bars in the diagram also show ISEI scores for the respondents' partners. The association between these two variables is very high (Pearson's correlation=.93) which indicates on strong educational and occupational homogeneity in Georgia.<sup>17</sup> Furthermore, the households of respondents' with higher education and service class occupation have substantially higher monthly incomes than all other groups of households. All in all, it is obvious that higher education and service class occupations are central for better life chances in Georgia.

## Ascription and Life Changes – Two Hypotheses

Life chances, operationalized with educational and occupational attainment, can be literally affected by the myriad of ascriptive and achieved factors. Research demonstrates that genetics,<sup>18</sup> cognitive skills,<sup>19</sup> non-cognitive traits and behaviours,<sup>20</sup> the nature of neighbourhoods,<sup>21</sup> the socioeconomic composition of

<sup>15</sup> Harry B. G. Ganzeboom, Paul M. De Graaf and Donald J. Treiman, 'A Standard International Socio-economic Index of Occupational Status', *Social Science Research*, vol. 21, no. 1, 1992, pp. 1–56.

<sup>16</sup> It has to be mentioned that original ISEI schema is partially derived from ISCO codes, along with information on education and incomes, therefore strong association between ISCO codes and ISEI scores is expected.

<sup>17</sup> In sociology marital homogamy refers to marriage between individuals who are similar to each other in some culturally important way such as ethnicity, religion, education, and occupation.

<sup>18</sup> Guang Guo, 'Twin Studies: What Can They Tell us About Nature and Nurture?', *Contexts*, vol. 4, no. 3, 2005, pp. 43–47.

<sup>19</sup> James J. Heckman, Jora Stixrud and Sergio Urzua, *The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior* (Cambridge, MA: National Bureau of Economic Research, 2006).

<sup>20</sup> George Farkas, 'Cognitive Skills and Noncognitive Traits and Behaviors in Stratification Processes', *Annual Review of Sociology*, vol. 29, 2003, pp. 541–62.

<sup>21</sup> David J. Harding, Lisa Gennetian, Christopher Winship, Lisa Sanbonmatsu and Jeffrey R. Kling, *Unpacking Neighborhood Influences on Education Outcomes: Setting the Stage for Future Research* (Cambridge, MA: National Bureau of Economic Research Working Paper Series, No. 16055, 2010).

educational institutions,<sup>22</sup> the quality of tutors,<sup>23</sup> all have strong effect on educational performance. Although the listed factors are expected to affect life chances in Georgia, this study only investigates the effect of ascription for life chances stemming from parental social background. The strong links between social background and educational attainment is one of the most consistent findings in sociology<sup>24</sup> and economics,<sup>25</sup> but, to my knowledge, so far these links have not been rigorously investigated in Georgia. Although within households analysis shows that young people with educated parents are more likely to be in school than young people with less-educated parents,<sup>26</sup> while the recent Pisa 2009 Plus results reveal that among Georgian adolescents, the relationship between socioeconomic status and reading performance is slightly weaker than for the OECD countries, on average,<sup>27</sup> less is known how educational attainment overall is defined by social background. Based on educational stratification research on former socialist societies,<sup>28</sup> I hypothesise that social origin is the strong predictor of educational attainment in Soviet and post-Soviet Georgia.

Existing studies on Georgia indicate that the attained education affects earnings in private and public sector,<sup>29</sup> but the analysis of the Government of Georgia<sup>30</sup> has also shown that the market wage level is determined mostly by factors other than years of schooling. As we have seen in the previous section there is a strong correlation between earnings and occupational placement, therefore it is reasonable to expect that attained occupations is affected by the level of education but is not limited to it. Literature on

<sup>22</sup> Robert Crosnoe, 'Low-Income Students and the Socioeconomic Composition of Public High Schools', *American Sociological Review*, vol. 74, no. 5, 2009, pp. 709–30.

<sup>23</sup> Jennifer L. Jennings and Thomas A. DiPrete, 'Teacher Effects on Social and Behavioral Skills in Early Elementary School', *Sociology of Education*, vol. 83, no. 2, 2010, pp. 135–59.

<sup>24</sup> Michael Hout and Thomas A. DiPrete, 'What We Have Learned: RC28's Contributions to Knowledge about Social Stratification', *Research in Social Stratification and Mobility*, vol. 24, no. 1, 2006, pp. 1–20.

<sup>25</sup> Pedro Carneiro, Costas Meghi and Matthias Parey, 'Maternal Education, Home Environments and the Development of Children and Adolescents', *Journal of the European Economic Association*, Forthcoming.

<sup>26</sup> Furio Rosati, Zeynep Özbil, and Diana Marginean, *School-to-Work Transition and Youth Inclusion in Georgia* (London: The International Bank for Reconstruction and Development /The World Bank, 2006).

<sup>27</sup> Maurice Walker, *PISA 2009 Plus Results: Performance of 15-Year-Olds in Reading, Mathematics and Science for 10 Additional Participants* (Victoria, Australia: Australian Council for Educational Research Ltd, 2011).

<sup>28</sup> Theodore P. Gerber and Michael Hout, 'Educational Stratification in Russia During the Soviet Period', *American Journal of Sociology*, vol. 101, no. 3, 1995, pp. 611–60.

Cristina Iannelli, *Parental Education and Young People's Educational and Labour Market Outcomes: A Comparison across Europe* (Mannheim: Arbeitspapiere - Mannheimer Zentrum für Europäische Sozialforschung, 2002).

<sup>29</sup> World Bank, *Georgia: Poverty Assessment* (Human Development Sector Unit, South Caucasus Country Unit, Europe and Central Asia Region, Report No. 44400-GE, 2009).

<sup>30</sup> Government of Georgia, *Constraints Analysis* (Tbilisi: Government of Georgia, 2011).

transitional societies show direct and indirect effect of social background on occupational attainment. In Ukraine higher educational institutions are more selective in terms of students' social background than post-secondary vocational schools and colleges, and lead to the better labour market positions.<sup>31</sup> The analysis of labour market entry of tertiary graduates in the Central and Eastern European countries, finds that differences in degree level is indeed crucial for respondents' occupational status.<sup>32</sup> For Georgia I am aware of only a handful of studies on links between social origin and occupational attainment. Roberts et al.<sup>33</sup> argue that although some of the elite families in 1990s realised that their children's post-secondary studies had been devalued by the inflation of education, the family connections apparently still remained important for career advances. Among other means, individuals through their well-connected parents might benefit because of the job information they receive through family social ties.<sup>34</sup> Rosati et al.<sup>35</sup> also shows that within families the education of the household head improves the employment chances of young people, as almost 40 percent of working age children of educated parents are in wage work, compared to only 13 percent of same age children of uneducated parents. I expect that social background, net of respondents' own education, affect occupational destination and this effect intensified in the independent Georgia.

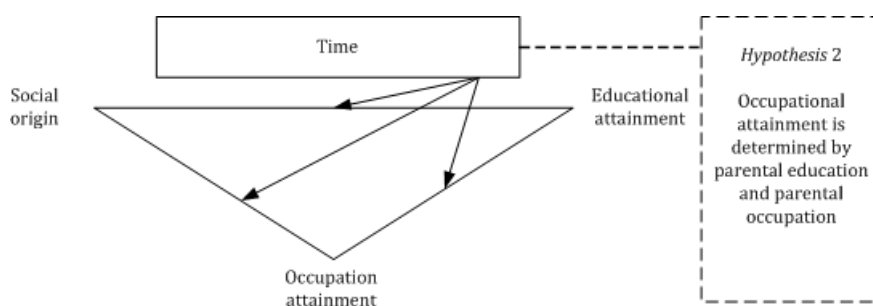


FIGURE 2 ABOUT HERE

<sup>31</sup> Michael Gebel and Irena Kogan, 'Chapter 11: When Higher Education Pays Off Education and Labor Market Entry in Ukraine', in Irena Kogan, Clemens Noelke and Michael Gebel, eds., *Making the Transition: Education and Labor Market Entry in Central and Eastern Europ* (Palo Alto: Stanford University Press, 2011).

<sup>32</sup> Clemens Noelke, Michael Gebel, and Irena Kogan, 'Uniform Inequalities: Institutional Differentiation and the Transition from Higher Education to Work in Post-socialist Central and Eastern Europe', *European Sociological Review*, Forthcoming.

<sup>33</sup> K. Roberts, C. Fagan, L. Tarkhnishvili, E. Ivaschenko and A. Abidekian, 'Employment and Social Mobility: Evidence from Armenia, Georgia and Ukraine in the 1990s', *European Journal of Education*, vol. 35, no. 1, 2000, pp. 125–36.

<sup>34</sup> Ted Mouw, 'Social Capital and Finding a Job: Do Contacts Matter?', *American Sociological Review*, vol. 68, no. 6, 2003, pp. 868–98.

<sup>35</sup> Furio Rosati, Zeynep Özbil, and Diana Marginean, *School-to-Work Transition and Youth Inclusion in Georgia* (London: The International Bank for Reconstruction and Development /The World Bank, 2006).



## Research Design

To understand the long term developments in educational and occupational attainment, this study utilises the data from the Generations and Gender Survey (GGS) by the United Nations Economic Commission for Europe.<sup>36</sup> The data was collected by the Georgian Centre of Population Research (GCPR) in 2006 from the entire territory of Georgia except of the areas that were not covered by the population census of 2002.<sup>37</sup> The GGS is a national representative survey, and the required information for our analysis was gathered via retrospective questions on a person's current and childhood circumstances. The dataset for Georgia includes 10,000 observations, and is much more convenient to analyse the long term trends of ascription's effects in life chances than any alternative datasets such as the LITS (2006) and EVS (2010), both of which contain information on social origin but have extremely limited sample sizes. The large sample of the GGS allows making statistically reliable estimations of changes in social stratification over the course of the century for both gender groups.

GGS provides information on completed education codes of International Standard Classification of Education (ISCED) for respondents and their parents, in which ISCED 0=pre-primary education, ISCED 1=primary level, ISCED 2=lower secondary level, ISCED 3=upper secondary level, ISCED 4=post-secondary non-tertiary, ISCED 5=first stage of tertiary education, ISCED 6=second stage of tertiary education. For the multivariate analysis the dependent variable combines the first and the second stages of tertiary education in a single dummy variable. Occupational structure in the GGS is given through 4-digit International Standard Classification of Occupations (ISCO-88) which applies to respondents and their parents. I reduce ISCO codes into 1 digit occupation groups in which ISCO 1=legislators, senior officials and managers, ISCO 2=professionals, ISCO 3=technicians and associate professionals, ISCO 4=clerks, ISCO 5=service workers and shop and market sales workers, ISCO 6=skill agricultural and fishery workers, ISCO 7=craft and related workers, ISCO 8=plant and machine operators and assemblers, ISCO 9=elementary occupations. In the dependent variable ISCO 1 and 2 groups are combined. For parental education and occupation I use the dominance approach which means that if parents have

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<sup>36</sup> UNECE, *Generations and Gender Survey: 1st Wave* (Geneva: United Nations Economic Commission for Europe, 2012).

<sup>37</sup> Irina Badurashvili, *Generations and Gender Survey Georgia Wave 1* (Tbilisi: The Georgian Centre of Population Research, 2012).



different levels of education and types of occupation, the higher level educational or occupational position is assigned to the respondents' parents.<sup>38</sup>

The described variables are used to estimate the role of ascription in Georgia over the course of a century. For the descriptive purposes I present the changing patterns of the level of education and occupational structure. To expand the available timeframe of the analysis the respondents' answers on their parents educational and occupational attainment along with their birth dates are used for cohorts born before 1931-35. For the later cohorts the respondents' own education is utilised. It has to be emphasised that this approach gives a depth of historical account which most likely has never done before in Georgia, but at the same time the selected method is not without its shortcomings. Two major problems might stem from biased recall and various mortality rates of respondents based on their social-economic status. Nevertheless, I make an assumption that both of those errors are randomly distributed among the respondents. The survey questions actually utilized concern actual behaviours, situations, or choices, rather than opinions, preferences, or views. Obviously, the problems with accurate reporting from memory are expected to occur but unless these effects stem from a selected group and simultaneously imply over- or underestimation, they are less problematic. The existing research into the quality of retrospective information confirms that reporting errors are more or less randomly distributed across various groups.<sup>39</sup>

Associative analysis between attained education and occupation and social origin is conducted on the yearly basis as sample allows for the most of years to have sufficiently large number of observations to derive statistically meaningful calculations. To estimate overtime changes in the ascriptive inequality in life chances in multivariate settings, I create 5-year dummy variables for 12 cohorts, starting from 1926-30 and ending in 1980-85. I interact these dummy variables with social origin indicators for educational attainment models and with respondent own attainment for occupational attainment models and include them in regressions. The reference category I use is the cohort of 1966-70, which can be regarded as the period of mature communism. The comparison with this base category allows us to see how the ascription in life chances has been changing in communism and during the transition. I employ linear probability models using ordinary least square regressions (OLS) to explore how social origin variables associate with educational and occupational attainment. Coefficients from linear probability models are almost similar to

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<sup>38</sup> Robert Erikson, 'Social Class of Men, Women and Families', *Sociology*, vol. 18, no. 4, 1984, pp. 500-14.

<sup>39</sup> Gerbert Kraaykamp, 'Literary Socialization and Reading Preferences. Effects of Parents, the Library, and the School', *Poetics*, vol. 31, no. 3-4, 2003, pp. 235-57.

marginal effects for logistic regressions, but the former are easier to estimate and interpret.<sup>40</sup> To account for heteroskedasticity in regressions robust standard errors are estimated,<sup>41</sup> but because space constrains they are not shown in presented tables and figures.

## Educational and Occupational Upgrade

Before I test the outlined hypotheses on the role of ascription in life chances in Georgia, some preliminary clues can be derived from the review of trends in educational and occupation upgrade. The structural changes have direct impact on ascriptive inequality because changes in the educational system, the overall level of education in population as well as labour market conditions affect the pattern of matching of labour force and available jobs.<sup>42</sup> In normal conditions, educational upgrade should be associated with the corresponding expansion of high quality jobs on the labour market, which can be described as meritocratic, achievement-based process. On the other hand, if the number of well qualified individuals is higher than the appropriate number of jobs then this leaves more space for ascription in stratification process.

### The inflation of credentials

Figure 1 clearly shows educational upgrade in Georgia for both gender groups over the course of the 20<sup>th</sup> century. People with only pre-primary and primary levels of education virtually disappear for the cohorts born after the Second World War. Before this period women tend to be overrepresented among the least and underrepresented among the most educated. The gender balance only equalised for the cohorts born after 1961-65, although it again increased for the latest generation. The trend for the last two cohorts indicates on the substantial expansion of tertiary education as well as lower secondary level of education on the expense of the reduction in post-secondary non-tertiary attainment. Interestingly women's share with post-secondary non-tertiary education decreased more rapidly than for men This is in line with the official statistics on the substantial decline of people with vocational education after 1989.<sup>43</sup> The share of

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<sup>40</sup> Fabrizio Bernardi and Héctor Cebolla, *Compensation and Imperfect Information: Do Previous School Results Matter Differently Depending on Students' Social Background?* (Florence: European University Institute, 2011).

<sup>41</sup> Adrian Colin Cameron and P. K. Trivedi, *Microeconometrics Using Stata* (College Station, Texas, Stata Press, 2009).

<sup>42</sup> Theodore P. Gerber, 'Structural Change and Post-Socialist Stratification: Labor Market Transitions in Contemporary Russia', *American Sociological Review*, vol. 67, no. 5, 2002, pp. 629–59.

<sup>43</sup> Eduarda Castel Branco, *ENPI 08-14 Black Sea Labour Market Reviews: Georgia Country Report* (Torino: European Training Foundation, 2010).

individuals with primary and pre-primary education among population apparently increased more than twice in comparison to the previous cohort. Overall, females are characterised with the higher levels of education because they are more likely to have post-secondary non-tertiary education, while men are much more likely to quit their education at upper secondary level.

The implication of educational expansion on the equality of access of education is ambiguous. On the one hand, new positions in higher educational institutions might create greater opportunities for all social groups, but on the other hand, in line with the maximally maintained inequality hypothesis,<sup>44</sup> the expansion first and the foremost could affect those students who come from the families with higher socioeconomic status but were not able to qualify for a university degree without such an expansion. Furthermore, more educated labour force should lead to better welfare outcomes in theory, but this is likely to happen when the restructuring of education is associated with the corresponding development on labour market. It is well recognised that the inflation of credentials occurs when educational upgrading is more intense than occupational upgrading.<sup>45</sup> The nature of credentials' inflation is that education becomes essential but not a sufficient factor for labour market success. What it means is that those who are low educated have to compete with the higher educated individuals for the same jobs. In a competitive market employers must prefer those candidates with the higher formal educational credentials. However much will depend on the structure of the labour market, which is reviewed in the next subsection.

### **The rigidity of occupational structure**

Figure 2 presents development of occupational structure of labour market in Georgia for the cohorts born from 1890 to 1980. Several characteristics are outstanding in the observed trends. There is a clear trend of decreasing share of elementary occupations in the overall distribution of jobs. If for cohorts born before 20<sup>th</sup> century, elementary occupations, which encompass basic jobs in sales and services as well as labourers in mining, construction, manufacturing, transport, agriculture, fishery and related spheres, provided more than 40 percent of all available jobs, its share decreased to less than 10 percent for the post-Second World War generations. On the other hand, the expansion has been taking place for service

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<sup>44</sup> Adrian E. Raftery and Michael Hout, 'Maximally Maintained Inequality: Expansion, Reform, and Opportunity in Irish Education, 1921-75', *Sociology of Education*, vol. 66, no. 1, 1993, pp. 41–62.

<sup>45</sup> Maarten H. J. Wolbers, Paul M. de Graaf and Wout C. Ultee, 'Trends in the Occupational Returns to Educational Credentials in the Dutch Labor Market: Changes in Structures and in the Association?' *Acta Sociologica*, vol. 44, no. 1, 2001, pp. 5–19.

related occupations during the Russian Empire, the Soviet Union and in the independent Georgia. Along with the industrialisation process, the relative size of plant and machine operators and assemblers has been also increasing for the most part of last century but started to shrink for the cohorts born after 1960s. In both of these sets of occupations males are expectedly overrepresented. Figure 2 also shows that the share of legislators, senior official, managers and professionals has not been significantly changing from the beginning of 20<sup>th</sup> century. Professional occupations, in relative size, experienced only a marginal growth in the second half of the twentieth century. Nevertheless, significant upgrade among females is observed in the same period. For the latest cohort, more than 35 percent of economically active females report to belong to one of the occupations listed under ISCO 2 code.

### FIGURE 3 ABOUT HERE

The comparison of the trends in educational and occupational upgrade allows us to make several conclusions. Although educational and occupational upgrade throughout the past century has been taking place, the educational expansions after 1970s did not associate with corresponding upgrade in occupational structure, particularly in legislative, senior official and managerial and professionals occupations. Interestingly, the relative share of females in professional occupations has dramatically increased by 10 percentage points. This large growth can be attributed to the fact that the relative share of females who report in the survey their occupational status decreased much more substantially (from 75.0 in 1966-70 to 43.2 percent in 1976-80) than the same share of males (from 96.9 in 1966-70 to 77.1 percent in 1976-80). This means that more females are restricted in their chances to enter labour market, but if they do, their have higher chances to end in ISCO 1-2 occupations. To conclude, it can be assumed that educational expansion outperformed occupational upgrading in the recent decades which leads to the inflation of credentials. Already for the cohorts born during and after of the Second World War labour market was not able to accommodate all higher educated individuals in ISCO 1 and 2 occupations. The intense inflation of credentials occurred for the cohorts born since the end of the 70s when the higher education expanded, while ISCO 1 and 2 jobs did not. For the latest cohort for which the data is available more than 40 percent of males have higher education, while the share of jobs in 'legislators, senior officials and managers and professionals' is less than 20 percent.

### **Social origin and educational and occupational attainment**

In order to understand what are the links in the changing educational and occupational context between attained education and occupation, one the one hand, and the main ascriptive factor such as social origin,

one the other, I regress respondents' ISCED 5-6 and ISCO 1-2 on parental education and occupation, respectively. Regressions are run for every respondents' birth year, starting from 1926 and ending in 1983, overall amounting to 58 separate yearly regressions. Figure 5 illustrates the OLS coefficients from these calculations the absolute majority of which are statistically significant. Before 1940s associations between parental education and education attainment was not conclusive, but for males these associations were slightly higher than for females. The relationship stabilised for those born in 1950s when the rates of associations for males and females came close to each other. Although, the higher association is already obvious in the 1960s and the beginning of 1970, the increased educational inequalities become much higher after 1973. This period coincides with a generation that had to make crucial educational decisions during the first years of transition. Indeed, the highest association between parents and their offspring education is observed for those born in 1981 who had to enter the decisive period for their life chances in the beginning of 1990s. Ongoing military confrontations, economic collapse, thousands of internationally displaced people, as well as drastic reduction educational expenditure and other public services had to affect educational performance of children. However, increased association between children and their parents educational attainment indicates that not everyone had the same opportunities. Children with better educated parents were much more likely to still attain higher education.

#### FIGURE 4 ABOUT HERE

The apparent fact that parental education became more important for offspring higher education attainment does not say much whether or not the attained occupational statuses became more dependent on social origin. Figure 5 shows associations between respondents service class destination and their parents' service class membership. Unlike the educational graph, we observe a less clear trend over the course of the 20<sup>th</sup> century. Regression coefficients between parental and respondents' social class increased for the cohort of 1940s. The same trend was also seen for the higher educational attainment. One of the explanations for this could be the Second World War. It might be the case that during the war people with higher occupational status were more likely to avoid a direct engagement in battles and therefore had the higher chances of survival and successful breeding. If people with higher social status were more likely to have children it also could alter patterns of ascribed inequality. Towards the end of 1940s and the first half of 1950s, the regression coefficients decline, but they increase again in 1970s, especially for females. Unlike the graph on education, the trends of ascription in occupational attainment is less clear-cut. One of the reasons why educational and occupational attainment differ from each other is that the former is a process which lasts much longer than the latter. Another explanation could be that

inequalities increased only for educational attainment, but because of the growth in returns to higher education, destination position in labour market became more likely to be earned through education than this was previously the case. These speculations are dealt more rigorously in the preceding multivariate analysis.

## Multivariate Analysis of Ascriptive Inequality

Table 1 shows the output from the linear probability models. Expectedly parents' socio-economic status strongly correlates with the respondents' educational attainment. The cohort dummies illustrate that controlling for parental education and social class, opportunities for higher education attainment actually increased for those born in 1971-80, in comparison to the cohort of 1966-1970. In line with Hypothesis 1 parental education strongly affects the respondents chances of attaining higher education in all models. Moving one ladder up on the parents' ISCED scale increases the respondents' chances of tertiary educational attainment by 16 percent, when parental occupation is controlled for. The same applies to parents' occupation. Coming from a family where mother's or father's occupation is described as ISCO 1-2 increases the chances of higher education attainment by 41 percent. In models 5, when education and cohort interactions are included, the effect is reduced by more than a half, to 19 percent. On the other hand, parental ISCO 9 background reduces the chances of higher education attainment by 21 and 9 percent, when parental education is or is not controlled for, respectively. The goodness of fit of regressions allows us to conclude that parental education is more important ascriptive factor for offspring higher education, explaining 21 percent of variation, while parents' occupation only accounts 14 percent of the dependent variable variance.

Models in Table 1 also answer a question raised in the previous section – whether or not the chances of higher educational attainment changed from cohorts born in 1926-30 to 1981-85, conditional to individuals' social origin. This is done by including in the models interactions between parental education and cohort dummies, on the one hand, and parental occupation and cohort dummies, on the other. Model 2 looks only on cohort \* parental education interactions and reveals that the role of parental education increased significantly for the transitional generation, those who were born in 1971-80 period. The reason why we do not observe statistically significant effect for the latest, 1981-85 cohort, could be that the analysis excludes those respondents who were still in education during the interviews, in 2006. The results also indicate that the ascription in higher education attainment has been lower for all cohorts before 1970s. In Model 4 also shows that the effect of service class origin did not change across time,

however the negative effect of social origin from the elementary occupations seems to be on rise. For cohorts born in 1976-85, coming from ISCO 9 social origin associates with the lower chances of higher education attainment than is the case for those born in 1966-70. Model 6 simultaneously includes interactions for both components of social background – education and occupation. The fact that no statistically significant results are shown for social origin \* cohort interactions most likely means that parents' education and occupation are strongly correlated.

#### TABLE 1 ABOUT HERE

Models in Table 2 test Hypothesis 2 on how the destination to service class occupation is associated with social origin and respondents' own education. In Models 2, 4 and 6 when respondents' education is introduced into regressions, the role of parental education and occupation is substantially reduced but still remains statistically significant. In Models 3, 6, and 9 positive and significant coefficients for cohort dummies in 1976-80 and 1981-85 indicate that, controlling for other factors, labour market created new positions in service occupations. When overtime changes and respondents' own education are controlled, moving up on every ladder of parents' ISCED increases the chances of service class destination by 5 percent. Cohort \* education interactions show the growing importance of parental education on the probability of attaining a ISCO 1-2 occupation. In Models 4, 5, and 6 parental occupation is also a significant predictor of offspring's life chances. Coming from ISCO 1-2 and ISCO 9 occupational origin is associated with the positive and negative chances of ending up in the highest occupational group, respectively. In Model 6, when respondents' education is controlled for, these effects amount to 13 and –4 percent accordingly, in comparison to parents' social background from other occupations. Both parental education and occupation maintain strong statistical significance in Models 7, 8, and 9 when all social origin characteristics are simultaneously introduced into regressions.

Cohort \* occupation interactions in Models 5 and 6 reveal the growing importance of parents' occupation on their sons' and daughters' chances of attainment service class occupation for those born in 1976-85. This effect is also sustained in Models 8 and 9 when education and cohort \* education interactions are included. Perhaps the most interesting findings are given in Models 3, 6, and 9 when respondents' educational attainment is controlled for. Own education is clearly the most important determinant of labour market destination and its inclusion in all Models increases explained variation of the dependent variable by 17 and 20 percentage points in Models 6 and 9, respectively. The fact that respondents' educational attainment is a decisive factor for school-to-work transition is a positive phenomenon, but the observed overtime trends are less encouraging. In all models cohort-respondents' education



interactions indicate that the role of respondents' education on labour market outcomes has been decreasing for people born in 1976-80 and 1981-1985. A cautionary note for these findings is that attained education might lead to the better chances of service job destination as respondents become older. Since the last two cohorts are represented by people whose age varies from 21 to 30, the result should not be considered as definitive picture of the actual labour market relationships. Presented evidence clearly indicates on statistically significant relationships between social origin and life chances but the exact mechanism by which inequalities are generated and sustained must be a research question in future studies.

TABLE 2 ABOUT HERE

## Conclusions and Discussion

In this study I analysed educational and labour market outcomes attributed to individuals' main characteristic they have no control over – parental social background. The findings indicate that there is strong correlation between respondents life chances and their ascriptive environment, and such inequalities, in my normative stance, are unfair. In line with Hypothesis 1, not only parental social background remains decisive for educational attainment, but its effect has been also rising for those born since 1970s. Although higher education increasingly depends on the social origin, its association with the chances of attaining ISCO 1-2 occupation has been decreasing. Furthermore, according to confirmed Hypothesis 2 the effect of social origin on labour market destination remains significant after controlling for respondents' own education. Apparently education is a mediating factor for labour market outcomes, but statistically significant effect also stems directly from social origin to occupational destination. At the same time, it has to be mentioned, the evidence presented in this study applies to period before 2006 and does not reflect the significant educational and labour market changes that have taken place after the Rose Revolution. The main goal for future studies should be the evaluation of consequences of recent developments on individuals life chances.

It is known that transition to a market economy in other countries has been linked to higher inequalities in life chances,<sup>46</sup> but the apparent decrease of the role of education in individuals occupational attainment indicates that employers in their hiring decisions pay increasingly less attention to formal educational degrees. One of the main reasons for this, is the inflation of credentials as the result of the dissimilar

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<sup>46</sup> Erzsébet Bukodi and John H. Goldthorpe, 'Market versus Meritocracy: Hungary as a Critical Case', *European Sociological Review*, vol, 26, no. 6, 2010, pp. 655–74.

developments in the qualitative structure of education and employment. It would be mistaken to think that inequalities will be eliminated without fundamental changes in the existing job structure. Unless labour market creates more high qualified jobs and will use education as the main formal selection criteria, individuals will rely on their social origin to make advances in life. Upgrading economy's occupational structure is a long and tedious process. As of 2012 around a half of the economically active population of Georgia is engaged in subsistence agricultural employment with extremely low productivity rates. The experience of advanced welfare democracies clearly indicates that upgrading of occupational structure to more skill-intensive economy must be primarily driven by market forces, while the state should provide conducive institutional framework – rule of law, property rights, fair courts – which has been shown to associate with better occupational opportunities. However, it is important to remember that itself the succession of social structure from primary to secondary and tertiary production does not necessarily associate with higher social mobility rates.

One of the main conclusion of the decades of social stratification research is that fundamental intergenerational inequalities are resilient to changes, but the same stream of literature also identifies three broad group of factors which can improve individuals life chances regardless of their social origin. On macro level, existing evidence indicates that the higher social spending associates with the lower social stratification.<sup>47</sup> Although a precise mechanism of this relationship is not clear, the greater investments in health, education, family benefits and other social services apparently allows disadvantaged families to direct more resources to their children's cognitive and non-cognitive development and their successful transition to labour markets. Recent evidence also suggests that investments in early childhood are particularly effective for children's development which not only improves life chances of otherwise disadvantaged youngsters but also leads to substantial economic gains to a broader society. This happens because inequality in early childhood experiences determines inequality in cognitive and non-cognitive abilities, achievement, health and consequently in adult success.<sup>48</sup> Last but not least, one of the most important characteristics of stratification system is educational tracking which increases the variance of educational outcomes. Schools where all students study the same subjects with the same intensity have higher equality of test scores and labor market outcomes than it is observed in educational systems that teach different students different subjects or the

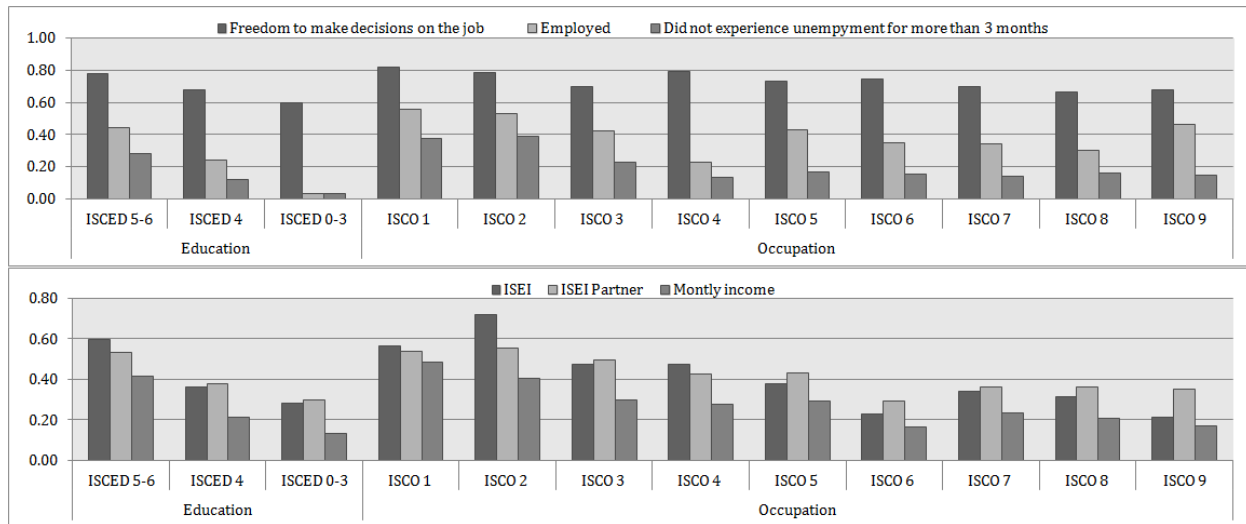
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<sup>47</sup> Susan E. Mayer and Leonard M. Lopoo, 'Government spending and intergenerational mobility', *Journal of Public Economics*, vol. 92, no. 1-2, 2008, pp. 139-158.

<sup>48</sup> James J. Heckman, 'The economics of Inequality: The Value of Early Childhood Education', *American Educator*, vol. 35, no. 1, 2011, pp. 31-35, 47.

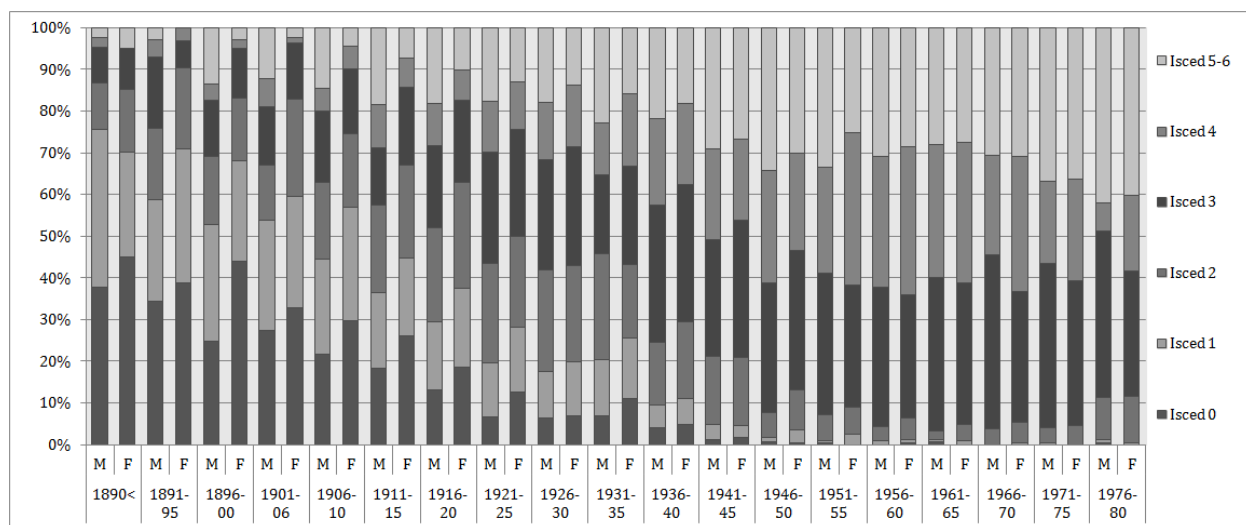
same subjects with different intensity.<sup>49</sup> More immediate and localised policies such as pro-poor university financing schemes, state funded grants and loans for applicants from disadvantages families can also reduce inequalities but an expected effect from these measures is likely to be marginal.

Figure 1: Educational and occupational structure and various welfare indicators, the mean values of variables



Notes: ISCED 0-3=Pre-primary , primary level, lower secondary and upper secondary education; ISCED 4= Post secondary non-tertiary education; ISCED 5-6=First and second stage of tertiary education; ISCO 1=Legislators, senior officials and managers; ISCO 2=Professionals; ISCO 3=Technicians and associate professionals; ISCO 4=Clerks; ISCO 5=Service workers and shop and market sales workers; ISCO 6=Skill agricultural and fishery workers; ISCO 7=Craft and related workers; ISCO 8=Plant and machine operators and assemblers; ISCO 9=Elementary occupations. The values of the variables are standardised to simplify visualisation and comparison. M=males; F=females. Source: Author’s calculation based on data from the European Values Studies (EVS, 2010) and Life in Transition Survey (EBRD, 2006)

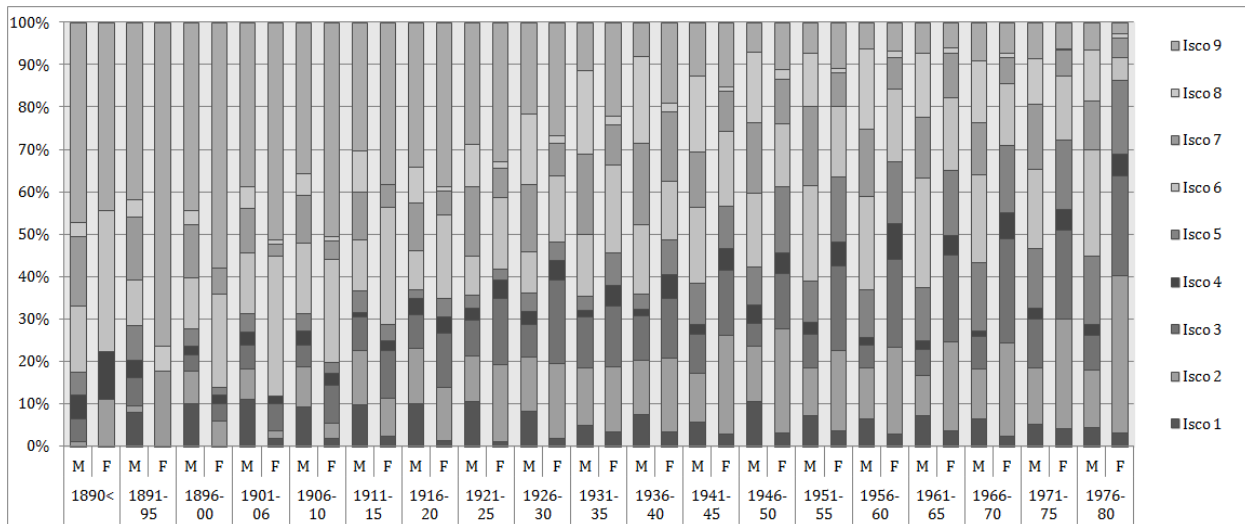
Figure 2: The educational expansion for the cohorts born from 1890 to 1980, the relative share of occupations



<sup>49</sup> Michael Hout and Thomas A. DiPrete, ‘What we have learned: RC28’s contributions to knowledge about social stratification’, *Research in Social Stratification and Mobility*, vol. 24, no. 1, 2006, pp. 1-20.

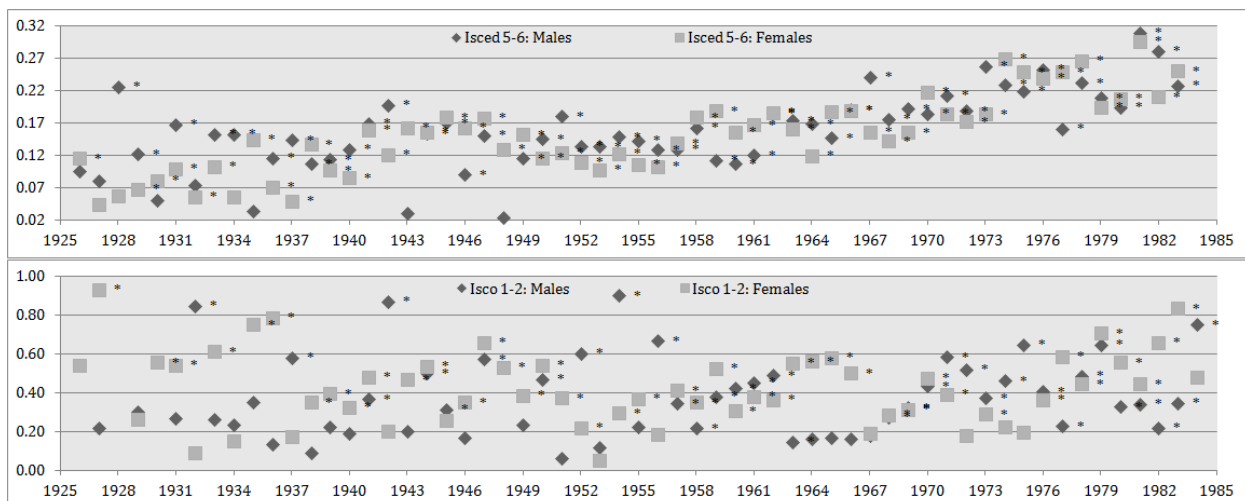
Notes: ISCED 0=Pre-primary education; ISCED 1=Primary level; ISCED 2=Lower secondary level; ISCED 3=Upper secondary level; ISCED 4: Post secondary non-tertiary; ISCED 5=First and second stage of tertiary. To define educational structure for cohorts born before 1931-35, the respondents' answers on their parents educational attainment are used, for the later cohorts the respondents' own education is utilized. M=males; F=females. Source: Author's calculation based on data from UNECE (2012)

Figure 3: The development of occupational structure across gender for the cohorts born from 1890 to 1980, the relative share of occupations



Notes: ISCO 1=Legislators, senior officials and managers; ISCO 2=Professionals; ISCO 3=Technicians and associate professionals; ISCO 4=Clerks; ISCO 5=Service workers and shop and market sales workers; ISCO 6=Skill agricultural and fishery workers; ISCO 7=Craft and related workers; ISCO 8=Plant and machine operators and assemblers; ISCO 9=Elementary occupations. To define occupational structure for cohorts born before 1931-35, respondents' answers on their parents occupational belonging are used, for the later cohorts respondents own occupations are utilized. Source: Author's calculation based on data from UNECE (2012)

Figure 4: The attainment of higher education (ISCED 5-6) and service class job (ISCO 1-2) conditional to parental education and occupation, regression coefficients from linear probability models after OLS



Notes: \* denotes statistical significance at the 0.10 level or higher. Separate regressions are run for each year, with no controls. Source: Author's calculation based on data from UNECE (2012)

Table 1: The attainment of higher education (ISCED 5-6) conditional to parental education

(ISCED 0-6) and occupation (ISCO 1-2 and 9), regression coefficients from linear probability models						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	-.53***	-.64***	.19	.21*	-.40***	-.47***
Social background						
Parents' education (isced 0-6)	.15***	.18***	–	–	.13***	.16***
Parents' occupation (isco 1-2)	–	–	.39***	.41***	.19***	.19***
Parents' occupation (isco 9)	–	–	-.13***	-.21***	-.05***	-.09***
Cohort dummies						
Cohort 1926-30	-.16	.08	-.19	-.22	-.12	.13
Cohort 1931-35	-.12	.10	-.16	-.22*	-.09	.01
Cohort 1936-40	-.13	.11	-.13	-.13	-.09	.15
Cohort 1941-45	-.07	.05	-.07	-.06	-.05	.01
Cohort 1946-50	-.06	.13*	-.04	-.03	-.04	.08
Cohort 1951-55	-.06	.14**	-.05	-.04	-.04	.12
Cohort 1956-60	-.02	.13**	-.03	-.07	-.01	.06
Cohort 1961-65	-.02	.05	-.03	-.04	-.02	.07
Cohort 1971-75	.06***	-.06	.05**	.04	.05**	-.07
Cohort 1976-80	.14***	-.03	.11***	.09**	.11***	-.06
Cohort 1981-85	.04	-.08	.00	-.03	.00	-.13
Cohort-education interactions						
Coh 1926-30 * par. edu.	–	-.11***	–	–	–	-.11***
Coh 1931-35 * par. edu.	–	-.08***	–	–	–	-.04*
Coh 1936-40 * par. edu.	–	-.09***	–	–	–	-.08***
Coh 1941-45 * par. edu.	–	-.03**	–	–	–	-.01
Coh 1946-50 * par. edu.	–	-.05***	–	–	–	-.03
Coh 1951-55 * par. edu.	–	-.06***	–	–	–	-.05**
Coh 1956-60 * par. edu.	–	-.04***	–	–	–	-.03
Coh 1961-65 * par. edu.	–	-.02	–	–	–	-.02
Coh 1971-75 * par. edu.	–	.03*	–	–	–	.03

Coh 1976-80 * par. edu.	-	.04**	-	-	-	.04
Coh 1981-85 * par. edu.	-	.03	-	-	-	.03
Cohort-isco 1-2 interactions						
Coh 1926-30 * par. isco 1-2	-	-	-	-.10	-	.07
Coh 1931-35 * par. isco 1-2	-	-	-	-.03	-	-.08
Coh 1936-40 * par. isco 1-2	-	-	-	-.10	-	-.01
Coh 1941-45 * par. isco 1-2	-	-	-	.01	-	-.05
Coh 1946-50 * par. isco 1-2	-	-	-	-.11*	-	-.10
Coh 1951-55 * par. isco 1-2	-	-	-	-.12*	-	-.06
Coh 1956-60 * par. isco 1-2	-	-	-	.03	-	.04
Coh 1961-65 * par. isco 1-2	-	-	-	.02	-	.01
Coh 1971-75 * par. isco 1-2	-	-	-	-.00	-	-.00
Coh 1976-80 * par. isco 1-2	-	-	-	-.02	-	-.01
Coh 1981-85 * par. isco 1-2	-	-	-	.00	-	.01
Cohort-isco 9 interactions						
Coh 1926-30 * par. isco 9	-	-	-	.13**	-	.04
Coh 1931-35 * par. isco 9	-	-	-	.18***	-	.11*
Coh 1936-40 * par. isco 9	-	-	-	.06	-	-.01
Coh 1941-45 * par. isco 9	-	-	-	.01	-	.01
Coh 1946-50 * par. isco 9	-	-	-	.05	-	.02
Coh 1951-55 * par. isco 9	-	-	-	.08*	-	.04
Coh 1956-60 * par. isco 9	-	-	-	.14***	-	.09**
Coh 1961-65 * par. isco 9	-	-	-	.02	-	-.01

*(continued)*

Table 1. (Continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Coh 1971-75 * par. isco 9	–	–	–	.06	–	.06
Coh 1976-80 * par. isco 9	–	–	–	.08*	–	.06
Coh 1981-85 * par. isco 9	–	–	–	.17***	–	.08
Observations	8812	8812	8098	8098	7838	7838
Adjusted R <sup>2</sup>	.20	.21	.14	.14	.22	.23

*Notes:* \*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.10 levels. Reference categories are: parental occupation ISCO 3-8, cohort 1965-75, cohort 1965-75\*parents' ISCED 0-6 and cohort 1965-75\*parents' ISCED 3-8. Models control for sex and age of respondents. Robust standard errors are calculated, not shown. *Source:* Author's calculation based on data from UNECE (2012)



Table 2: The attainment of service class job (ISCO 1-2) conditional to parental education (ISCED 0-6) and occupation (ISCO 1-2 and 9), regression coefficients from OLS models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	-.39***	-.43***	-.97***	.21	.24*	-.73***	-.24*	-.27**	-.85***
Social background									
Parents' education (isced 0-6)	.11***	0.13***	.05***	–	–	–	.09***	.10***	.04***
Parents' occupation (isco 1-2)	–	–	–	.34***	.28***	.13***	.20***	.14***	.09*
Parents' occupation (isco 9)	–	–	–	-.10***	-.14***	-.05*	-.04***	-.06**	-.03
Respondent own education									
Isced 0-6	–	–	.20***	–	–	.21***	–	–	.20***
Cohort dummies									
Cohort 1926-30	-.04	.03	.21	-.01	.02	.24*	.01	.09	.11
Cohort 1931-35	-.01	.05	.26**	-.01	-.05	.26**	.01	-.04	.11
Cohort 1936-40	-.02	.11	.12	.02	.03	.09	.02	.16	.08
Cohort 1941-45	-.03	-.02	.05	.01	.04	.02	-.00	-.04	-.10
Cohort 1946-50	-.01	.01	-.10	.03	.03	-.09	.01	.01	-.13
Cohort 1951-55	-.03	.09	-.03	-.01	-.01	-.08	-.01	.06	-.09
Cohort 1956-60	-.01	.08	-.03	-.00	-.03	-.09	.00	.03	-.08
Cohort 1961-65	-.00	.04	-.05	-.01	-.01	.00	-.00	.08	.01
Cohort 1971-75	.03	.01	.09	.01	-.02	.09	.02	.04	.13
Cohort 1976-80	.08**	-.09	.16*	.04	-.01	.31***	.05	-.02	.25**
Cohort 1981-85	.04	-.17*	.30***	-.01	-.05	.52***	.01	-.05	.44***
Cohort-education interactions									

Coh 1926-30 * par. edu.	-	-.03	-.01	-	-	-	-	-.02	-.01
Coh 1931-35 * par. edu.	-	-.02	-.02	-	-	-	-	.02	.01
Coh 1936-40 * par. edu.	-	-.05***	-.04**	-	-	-	-	-.05**	-.04**
Coh 1941-45 * par. edu.	-	.00	.00	-	-	-	-	.03	.01
Coh 1946-50 * par. edu.	-	-.00	.01	-	-	-	-	.00	-.00
Coh 1951-55 * par. edu.	-	-.04**	-.02*	-	-	-	-	-.03	-.02
Coh 1956-60 * par. edu.	-	-.03*	-.02	-	-	-	-	-.02	-.01
Coh 1961-65 * par. edu.	-	-.01	-.01	-	-	-	-	-.02	-.02
Coh 1971-75 * par. edu.	-	.00	-.01	-	-	-	-	-.01	-.02
Coh 1976-80 * par. edu.	-	.04**	.03	-	-	-	-	.00	.01
Coh 1981-85 * par. edu.	-	.05**	.07**	-	-	-	-	.00	.02
Cohort-isco 1-2 interactions									
Coh 1926-30 * par. isco 1-2	-	-	-	-	-.05	-.01	-	-.02	.01
Coh 1931-35 * par. isco 1-2	-	-	-	-	.10	.06	-	-.06	-.01
Coh 1936-40 * par. isco 1-2	-	-	-	-	-.04	-.03	-	-.02	-.00

*(continued)*

Table 2. (Continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Coh 1941-45 * par. isco 1-2	-	-	-	-	.00	-.01	-	-.09	-.05
Coh 1946-50 * par. isco 1-2	-	-	-	-	.06	.09	-	.04	.08
Coh 1951-55 * par. isco 1-2	-	-	-	-	-.01	.02	-	.02	.03
Coh 1956-60 * par. isco 1-2	-	-	-	-	.07	.04	-	.07	.05
Coh 1961-65 * par. isco 1-2	-	-	-	-	.05	.06	-	.06	.08

Coh 1971-75 * par. isco 1-2	-	-	-	-	.07	.07	-	.11	.10
Coh 1976-80 * par. isco 1-2	-	-	-	-	.18**	.20***	-	.20**	.20**
Coh 1981-85 * par. isco 1-2	-	-	-	-	.15*	.20**	-	.16	.19*
Cohort-isco 9 interactions									
Coh 1926-30 * par. isco 9	-	-	-	-	.00	-.00	-	-.02	.00
Coh 1931-35 * par. isco 9	-	-	-	-	.11**	.06	-	.08	.07
Coh 1936-40 * par. isco 9	-	-	-	-	.04	-.00	-	-.00	-.02
Coh 1941-45 * par. isco 9	-	-	-	-	-.06	-.03	-	-.02	-.01
Coh 1946-50 * par. isco 9	-	-	-	-	.02	.03	-	.02	.03
Coh 1951-55 * par. isco 9	-	-	-	-	.06	.03	-	.04	.02
Coh 1956-60 * par. isco 9	-	-	-	-	.10**	.03	-	.07*	.02
Coh 1961-65 * par. isco 9	-	-	-	-	-.03	-.04	-	-.05	-.04
Coh 1971-75 * par. isco 9	-	-	-	-	.05	.04	-	.04	.03
Coh 1976-80 * par. isco 9	-	-	-	-	.03	-.01	-	.01	-.00
Coh 1981-85 * par. isco 9	-	-	-	-	.07	-.01	-	.00	-.03
Cohort-resp. edu. interactions									
Coh 1926-30 * resp. isced 0-6	-	-	-.05**	-	-	-.05**	-	-	-.01
Coh 1931-35 * resp. isced 0-6	-	-	-.06**	-	-	-.07***	-	-	-.04
Coh 1936-40 * resp. isced 0-6	-	-	-.01	-	-	-.02	-	-	.01
Coh 1941-45 * resp. isced 0-6	-	-	-.02	-	-	-.00	-	-	.01
Coh 1946-50 * resp. isced 0-6	-	-	.01	-	-	.02	-	-	.03
Coh 1951-55 * resp. isced 0-6	-	-	.01	-	-	.01	-	-	.03
Coh 1956-60 * resp. isced 0-6	-	-	.02	-	-	.01	-	-	.02

Coh 1961-65 * resp. isced 0-6	–	–	.02	–	–	–.00	–	–	.01
Coh 1971-75 * resp. isced 0-6	–	–	–.00	–	–	–.02	–	–	–.01
Coh 1976-80 * resp. isced 0-6	–	–	–.05**	–	–	–.07***	–	–	–.07***
Coh 1981-85 * resp. isced 0-6	–	–	–.12***	–	–	–.12***	–	–	–.13***
Observations	6926	6926	6926	6390	6390	6390	6167	6167	6167
Adjusted R <sup>2</sup>	.14	.15	.32	.13	.13	.33	.17	.17	.34

Notes: \*\*\*, \*\*, and \* denote statistical significance at the 0.01, 0.05, and 0.10 levels. Reference categories are: parental occupation ISCO 3-8, cohort 1965-75, cohort 1965-75\*parents' ISCED 0-6 and cohort 1965-75\*parents' ISCED 3-8. Models control for sex and age of respondents. Robust standard errors are calculated, not shown. *Source:* Author's calculation based on data from UNECE (2012)