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Cities as drivers of social mobility

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Cities as Drivers of Social Mobility[§]

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Abstract

Intergenerational mobility refers to children moving up from the social class position held by their parents. Previous studies indicate family background as one of the major determinants of socioeconomic mobility and, in general, of individual life chances.

This paper extends the standard approach to measure intergenerational social mobility by examining the role of cities where offspring grew up. The idea is that cities can provide resources and opportunities able to increase the chance of employment and status attainment.

We assess intergenerational mobility in Italy, the most immobile country in Europe together with Greece and Portugal. We use a data survey provided by the Italian National Institute of Statistics (ISTAT), which provides information on the individual-level track of Italian students' life path from high school to occupation. We merge these data with city-level data on economic conditions, human capital, and social capital.

We distinguish between students who attended university in the same province where they presumably grew up and those who migrated to another province for higher education. This allows us to test whether migration affects the shift in occupation type and, if so, which characteristics of cities enhance upward mobility.

Key Words: Intergenerational social mobility; spatial mobility; cities.
JEL Codes: J62; R11; R12.

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1. Introduction

Improving upward social mobility is a goal all nations desire, and such a concern has given rise to a flourishing literature at the interface of economics, sociology, and political science. Mobility may be intragenerational ; within the same generation, or intergenerational, between one or more generations (Lopreato and Hazelrigg, 1970). The latter is the movement in social position across generations; the former is how a person moves up or down the social ladder during her lifetime. In both cases, most studies indicate family background and its financial resources as the main drivers of moving up in social position.

This paper focuses on intergenerational social mobility and investigates the role played by the city where offspring grew up. The aim is to determine whether the resources provided by cities in terms of economic conditions, human capital and social capital affect the individuals' probability to reach higher socioeconomic status than their parents.

Previous studies on intergenerational mobility carried out for Italy find that this country is characterised by lower intergenerational mobility and higher income inequality than other European countries (Breen, 2004). A similar evidence occurs if Italy is compared to the United States, as in Checchi et al. (1999), even if, in this case there is less inequality in Italy than in the US. In these works the causes of low intergenerational mobility rely on the centralised public education system, which is assumed to reduce the incentives of poor families to invest in human capital. As a result, children of those families fail to signal their abilities in an egalitarian education system. Moreover, traditionally strong family ties in Italy generate a significant degree of social closure, where the family strongly shapes individual's life chances (Schizzerotto and Marzadro, 2008).

In this paper, we aim to go beyond the classic dispute on how the educational system and family structure drive the low intergenerational mobility in Italy. We focus our attention on the role of cities in promoting upward mobility. More specifically, we investigate the relationship between

intergenerational mobility and cities using the Italian Graduates Employment Survey[1] for the year 2007 provided by the Italian National Institute of Statistics (ISTAT), which contains individual-level track of Italian students' life path from high school to occupation. We merge these data with city-level data on economic conditions, human capital, and social capital.

We distinguish between students who attended university in the same province where they presumably grew up and those who migrated to another province for higher education. This allows us to test whether spatial mobility of students affects the shift in occupation type and if so, which characteristics of cities enhance upward mobility. The empirical strategy is based on a multilevel approach where individuals are considered as nested in cities.

Our findings confirm the influence of parents' jobs on the status of their children and allow to state that, *coeteris paribus*, more accessible cities, with better economic conditions, higher social capital and human capital enhance intergenerational mobility. Moreover, we show that students emigrating to another city to get higher education benefit from the bundle of resources and services of the university city, and this further increases their likelihood to get a higher social position.

The remainder of the paper is structured as follows. In Section 2 we review the literature about social mobility. Section 3 presents the theoretical background. Section 4 describes data and variables. Section 6 discusses the empirical strategy. Section 7 presents the results. The last section concludes.

[1] Inserimento Professionale dei Laureati dell'anno 2007 (Istat, 2011).

2. Social mobility: A view from the literature

Intergenerational mobility has been deeply investigated first by sociologists and then also by economists. While there is a unique definition of intergenerational social mobility common to all disciplines, some differences remain in the way it is measured. The sociological literature is interested in the transition of skills and occupational status between dynasty and offspring, whilst economists investigate the link between intergenerational mobility and inequality, hence the dependence of one generational earnings to the previous generations and resulting unevenness in wealth distributions (Solon, 1992; 1999). Consequently, several methods and variables to assess intergenerational mobility put forth over the years. In the sociology literature, occupational status is often considered as categorical functions based on prestige or skills required to undertake a given job (Erickson and Goldthorpe, 1992), whereas mobility in income profiles and income distribution over time has been the prevalent way how economists approach the phenomena (Atkinson, 1980).

In terms of methods, linear regressions (Hodge, 1981), log-linear (Atkinson et al. 1983; Bjorklund and Jantti, 1997), and multinomial models (DiPrete, 1990; Carmichael, 2000) have been used to study intergenerational mobility. In these models, occupational status or income is defined as a function of previous generations' respective status or income along with other covariates. Some common covariates include but not limited to individual and household characteristics such as gender, ethnical background, and parental attributes. A less discovered factor that is potentially significant in the transition process is the effect of locations to which individuals are exposed during their upbringing and higher education. More recently, there has been a growing interest to understand and determine the effect of locational attributes on several socio-economic outcomes. In this respect, research on the so-called neighbourhood effects, focusing on the role of neighbourhood to determine individual outcomes, have contributed to shed light on the relationship between the residential context and socio-economic outcomes

(see, for instance, Vartanian, 1999; Leventhal and Brooks-Gunn, 2000; Sharkey and Faber, 2014; Ludwing et al., 2013; Türk and Östh, 2017). For instance, Page and Solon (2003) observe a correlation between neighbouring boys in their adult earnings. Raaum et al. (2006) find a similar though decreasing similarities of market outcomes of neighboring children. Chetty et al. (2015) show that children from less deprived U.S. counties show greater chances of higher earnings in adult life. In a study of the relationship between social mobility and neighbourhoods in the Netherlands, Musterd et al. (2001) find that the neighbourhood composition is especially important for households of stronger economic positions. Andersson and Musterd (2010) show that in Sweden, as the scale of neighbourhood increases, the contextual effects such as unemployment become more apparent. Most studies focusing on neighborhood effects consider variables based on poverty concentration to characterise the local context. In this paper, we use a wider set of variables, including economic conditions, human capital and social capital. They are expected to produce an effect in the intergenerational transition process.

3. The theoretical background

The theoretical background relies on the model developed by Becker and Tomes (1979; 1986), and used as a benchmark in a number of papers on intergenerational occupational mobility (Emran and Shilpi, 2001; Long and Ferrie, 2007). It is an overlapping generations model in which all individuals live for two periods. In the present paper, the model is extended by including the urban context in the human capital accumulation function of the young individual. The idea is that urban context may matter in the human capital development process.

Let family i contains one parent in generation $t-1$ and one child in generation t. The child's lifetime outcome, denoted by y_{it}, is determined by the amount of human capital, denoted by h_{it}, which has a rate of return of ρ. Formally,

$$\ln y_{it} = \mu + \rho h_{it} \quad (1)$$

The parent makes an investment of I_{it-1} in the human capital of the child, which is given by

$$h_{it} = \theta \ln I_{it-1} + e_{it} + c_{it} \quad (2)$$

where e_{it} is a human capital endowment that does not depend on parental investments and it is inherited from the previous generation; c_{it} represents the urban context, i.e. all factors specific to a city that influence the accumulation process of human capital.

The parent must allocate his earnings, y_{it-1}, between the parent's own consumption, c_{it-1}, and the investment I_{it-1} in the child's human capital. The parent's optimal choice is such that he maximises a Cobb-Douglas utility function subject to the budget constraint. Formally:

$$\max (1-\alpha) ln c_{it-1} + a \ln y_{it} \quad (3)$$

s.t. $y_{it-1} = c_{it-1} + I_{it-1}$

where $0 < a < 1$ represents the degree of parental altruism.

The first order condition is:

$$I_{it-1} = \left[\frac{a\rho\theta}{1-a(1-\rho\theta)}\right] y_{it-1} \quad (4)$$

The amount of investment in the child's human capital will be higher if the parent has a higher income; the parent is more altruistic; the return to human capital is higher.

Once the optimal amount of investment in the child's human capital is determined, the child's lifetime earnings are given by

$$\ln y_{it} = \mu^* + \rho\theta ln y_{it-1} + \rho e_{it} + \rho c_{it} \quad (5)$$

where $\mu^* = \mu + \rho\theta ln \frac{a\rho\theta}{1-a(1-\rho\theta)}$.

4. Data and Variables

We use data from the Italian Graduates Employment Survey, which is conducted every 4 years by the Italian National Institute of Statistics (ISTAT). We consider the 2011 survey since it provides information on the residential location of students and the location of university attended at the provincial level while the other editions of the survey provide this type of information only at regional level. The survey contains data about the professional life-path of students who graduated from a university in 2007 and provides information on the type of the occupation individuals presently hold and the occupation of their fathers, as well as information on university performance of university graduates (grades, attendance at university), their labour market performance (working before graduation, type of contract, type of occupation, unemployment periods), and demographic characteristics (sex, age, nationality, province of residence).

Our dependent variable is the socio-economic status of offspring, measured by four discrete occupational categories. Occupations are ranked according to the median income paid by each occupation in the generation of children as in Checchi et al. (1999). As it is conventional in the social mobility literature, the socio-economic status of fathers is included in the model under the same categories. The type of occupation is measured on a four-point Likert scale as follows:[2]

1. Manual workers;
2. Secretarial workers, teachers, self-employed (without employees), craftsmen, clerical workers;
3. Middle managers, administrators, running or owning small family business;
4. Managers, professional, entrepreneurs (with employees), company managers with shareholding.

[2] See Table A1 in Appendix for further details about occupational groups.

Table 1 gives a description of explanatory variables used in the empirical analysis. They are grouped into six categories. The first group includes individual and household variables and are at the individual level. Variables of other groups - spatial, economics, human capital, social capital, and demography - characterise the socio-economic profile of Italian provinces and are at the provincial level. Some of these variables deserve further explanation: academic performance is measured by both graduation marks and the delay time in finding an employment after the graduation year. Graduation marks are measured by a discrete variable ranging from 1 (mark between 66 and 90) to 5 (110 with distinction); the employment delay is a discrete variable ranging from 1 (no delay) to 4 (four years). The home ownership rate is a measure of social stability (Östh et al. 2017); voter participation[3] is a measure of political participation (Putnam 1993; 1995 and Helliwell and Putnam 1995). The 'negative' social capital is measured by the number of crimes per 100,000 inhabitants (Biagi et al. 2011).

[3]Source: http://elezionistorico.interno.gov.it

Variable name	Definition	Mean	Std. Dev.
Dependent variable			
Son's occupation	Ordinal variable ranging from 1 to 4	2.4403	1.0645
Individual and household variables			
Gender	Dummy variable = 1 if woman; 0 otherwise	0.5535	0.4971
Age	Ordinal variable indicating the age of respondents under four categories: 1=21-22; 2=23-24 3=25-29 4=30-more	2.7036	0.8855
Foreign	Dummy variable = 1 if foreign-born; 0 otherwise	0.0127	0.1123
Married	Dummy variable = 1 if married; 0 otherwise	0.3117	0.4632
Graduation mark	Discrete variable ranging from 1 to 5. 1= 66-90 2=90-100 3=101-105 4=106-110 5=110 with distinction.	3.2682	1.3220
Employment Delay	Discrete variable ranging from 1 to 4 for the delay of employment after graduation year. 1=No delay 2=2 years 3=3 years 4=4 years	1.8857	1.3195
Father's occupation	Ordinal variable ranging from 1 to 4	2.4209	1.0068
Spatial variables			
Distance	Euclidean distance between parents' house and university	78.9057	153.7303
Accessibility	Multi-modal indicator of accessibility by train, air and car	5.82E+07	1.68E+07
Economic variables			
GDP	GDP per capita at current prices. Year 2007. Source: Istat	21861.820	3073.474
Social capital variables			
Voters	Share of people that effectively vote over the total number of voters in municipal election by province. Year: 2011. Source: Italian Department of Public Security http://elezionistorico.interno.gov.it	0.6941	0.07850
Crime	Crimes reported by the police forces to the judicial authority (per 100,000 inhabitants) by province	0.8665	0.5616
Home ownership rate	Percentage of homes that are owned by their occupants by province: Istat	0.7096	0.0501
Human capital variable			
Tertiary education	Share of individuals over the total population holding at least a bachelor's degree by province. Source: Istat	0.2095	0.04309

Table 1: Model variables and summary statistics

Overall, we consider 21,421 respondents belonging to the four occupational categories described above. From the original sample, we excluded all individuals not belonging to the labour force or whose occupation was unknown.

Table 2 shows the raw data in the form of a 4×4 matrix, with fathers' occupations across the columns and offspring's occupation down the rows, similarly to Long and Ferrie (2007). This

table provides information for a preliminary analysis comparing the main-diagonal values with off-diagonal values. It turns out that around 74 percent of individuals are employed in occupations different from those of their fathers. Moreover, looking at the values below the main diagonal, the 47 percent of offspring have a higher occupational status than their fathers.

		Father Occupation Category				
		1	**2**	**3**	**4**	**Total**
Offspring Occupation Category	**1**	770	1,619	897	535	3,821
	2	968	1,743	1,045	662	4,418
	3	1,501	2,718	1,701	949	6,869
	4	1,212	2,264	1,413	1,424	6,313
	Total	4,451	8,344	5,056	3,570	21,421

Table 2: Intergenerational occupational mobility in Italy, year 2007.

Among offspring, we distinguish between people who physically migrated to another city to attend university from those who studied in the same city where the original family lived. We assume a student migrated rather than commuted from the parents' house if the Euclidean distance between parents' house and university is above 100 kilometres. Considering two different sub-samples with people who migrated and people that did not allows to determine if the effect of factors influencing social mobility changes across the two target populations. In particular, we aim to determine whether the environment and opportunities offered by the university city to out-of-town students play a significant role in their upward mobility. The data survey contains around 35 percent of offspring migrated to another city to study. We address two selection concerns. The parent's socio-economic status or the educational attainment of children could guide the selection of students moving to another province to attend the university. However, the lack of systematic differences in percentages of people moving to another province by father's type occupation (see Table A2 in Appendix) and the lack of systematic differences in percentages of people moving to another province by grades in the high school diploma (see Table A3 in Appendix) reduce this concern (see Table A3 in

Appendix).

5. Empirical methodology

We use a two-level ordered logistic regression to evaluate the impact of the different factors mentioned above on the probability to have a better job than parents. The dependent variable, denoted by Y, is defined on J ordered occupation categories. The two-level ordered logistic regression assumes that the cumulative logits are a function of a linear combination of the covariates presented above and denoted by $\boldsymbol{x} = (x_1, \dots, x_K)$, as follows:

$$logit[P(Y \geq j|\boldsymbol{x})] = \alpha_j + \boldsymbol{\beta}'\boldsymbol{x} + \boldsymbol{u}, \qquad j = 2, \dots, J. \tag{1}$$

where α_j is the so-called cut-point that estimates the logit of the odds of being into or above than category j; the vector $\boldsymbol{x}$ includes all the individual-specific characteristics and urban factors introduced in Section 4; $\boldsymbol{u}$ are the random intercept. Hence, the model has two random terms: the level 1 random term specific to each individual and the level 2 random term specific to each province. The multilevel model is specifically designed to consider variations at two level simultaneously and it is a suitable alternative to conventional models, such as ordinary least squares, that underestimate standard errors and overestimate test statistics (Snijders and Bosker, 1999).

The generic coefficient β_k associated with the explanatory variable x_k measures the marginal variation of the log-odds of falling into or above any category of Y due to a one-unit increase in x_k. A positive estimated coefficient indicates a tendency of the occupational status to increase as the explanatory variable increases.

Model (1) is a proportional odd-model in which for each of the categories the coefficients β_k are equal while the intercepts α_j may differ. Hence, the odds-ratio of the event is independent

of the category j, i.e. an increase in one of the explanatory variables affects the log-odds similarly (Witte and Rogge, 2013).

6. Results

In this section, the regression results are presented. Estimations have been obtained by maximum likelihood.[4] Table 3 shows the econometric results for the whole sample of 21,421 young individuals (Model I) and for two subsamples.

[4] We used Stata meologit command.

	Whole Population		Students not migrating to attend the university		Students migrating to attend the university	
	Null Model (I)	Model (I)	Null model (II)	Model (II)	Null Model (III)	Model (III)
	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)	Coeff. (Std. Err.)
Individual and household variables						
Gender		-1.037*** (0.032)		-0.993*** (0.040)		-1.097*** (0.055)
Age 23-24		-0.305*** (0.053)		-0.205*** (0.066)		-0.427*** (0.079)
Age 25-29		-0.106** (0.051)		0.013 (0.064)		-0.167** (0.076)
Age 30-more		0.544*** (0.062)		0.640*** (0.079)		0.637*** (0.092)
Foreign		-0.115 (0.135)		-0.164 (0.168)		-0.052 (0.204)
Married		0.274*** (0.034)		0.282*** (0.43)		0.263*** (0.050)
Graduation mark 91-100		0.040 (0.057)		0.107 (0.071)		0.025 (0.082)
Graduation mark 101-105		0.153*** (0.061)		0.238*** (0.076)		0.123 (0.088)
Graduation mark 106-110		0.289*** (0.059)		0.434*** (0.075)		0.158* (0.085)
Graduation mark 110 with distinction		0.558*** (0.060)		0.739*** (0.075)		0.457*** (0.087)
No delay		0.921*** (0.055)		0.856*** (0.067)		0.940*** (0.081)
1 yr of employment delay		0.977*** (0.056)		0.951*** (0.068)		0.951*** (0.083)
2 yr of employment delay		0.398*** (0.064)		0.412*** (0.077)		0.349*** (0.096)
3 yr of employment delay		0.179*** (0.059)		0.217*** (0.072)		0.125 (0.087)
Father's occupation 2		-0.073* (0.040)		-0.015 (0.051)		-0.172*** (0.057)
Father's occupation 3		-0.001 (0.045)		0.068 (0.056)		-0.108* (0.066)
Father's occupation 4		0.181*** (0.051)		0.214*** (0.064)		0.133* (0.076)
Spatial variables						

Ln(distance)		0.172*** (0.015)				
Accessibility_Home		0.273*** (0.034)		0.184*** (0.041)		0.016 (0.035)
Accessibility_Univ						0.199*** (0.046)
Economic variables						
GDP_Home		1.897** (0.852)		4.944*** (1.324)		0.399 (0.303)
GDP_Univ						3.556** (1.381)
Social capital variables						
Voters_Home		1.470*** (0.301)		1.409*** (0.354)		0.399 (0.303)
Voters_Univ						0.967** (0.464)
Crime_Home		-0.058 (0.041)		-0.192*** (0.074)		-0.036* (0.020)
Crime_Univ						-0.168** (0.085)
Homeowner_Home		2.367*** (0.490)		2.834*** (0752)		1.913 (1.164)
Homeowner_Univ						0.367 (0.641)
Human capital variable						
Tertiary education_Home		1.418** (0.636)		3.481*** (0.853)		1.204 (0.731)
Tertiary education_Univ						1.871** (0.809)
Cut1	-1.063*** (0.026)	-0.570 (0.416)	-0.892*** (0.035)	-0.742 (0.619)	-1.087 *** (0.032)	-1.559 (1.008)
Cut2	0.046* (0.024)	0.695* (0.416)	0.251*** (0.34)	0.537 (0.620)	0.021 (0.029)	-0.287 (1.008)
Cut3	1.50*** (0.027)	2.352*** (0.417)	1.753*** (0.039)	2.206*** (0.621)	1.450*** (0.035)	1.353*** (1.008)
Variance (Province level)	0.083 (0.012)	0.049 (0.012)	0.134 (0.018)	0.085 (0.025)	0.239 (0.030)	0.128 (0.030)
Observations	21,421	21,421	13,838	13,838	7,583	7,583
Log likelihood	-20700.114	-19249.172	-13295.975	-12503.47	-9671.299	-8947.3831
Pseudo R2		0.1801		0.1692		0.2403
Number of groups	110	110	81	81	99	99
Chibar2(01)		61.89		70.44		46.16
Prob>Chibar2		0.000		0.000		0.000

Note: ***1%; **5%; *10%; Pseudo-R^2 is based on McKelvey and Zavoina (1975).

Table 3: Estimation results of model (1).

The first subsample includes 13,838 graduated students who did not migrate to another province to attend university (Model II); the second subsample is composed of 7,583 graduated students who migrated (Model III). Covariates at the city level in Model III are specified for both origin and destination locations, i.e. province of origin and province where the university is located. We compare each of these models with the corresponding null model that includes the constant term and the intercept random term.

Adding variables to the baseline null model, the variance of random effects decreases on average by almost a half, meaning that the additional explanatory variables explain a relevant portion of variability in the dependent variable.

As regards to individual and household characteristics, the sign of estimated coefficients are in line with findings of previous studies focusing on Italy. Upward mobility is less likely for women. The fact that women are under-represented among top leadership positions has been extensively discussed in the literature (for Italy, see Profeta et al. 2014 and Ferrari et al. 2018). Students graduated after 22 years reduces the probability of upward mobility. The effect of age becomes positive for students graduating at 30 or later, maybe because the choice of graduating later allows to get a job promotion and to move on in their careers. The positive effect of marriage on upward mobility may be explained by the prevalence of homogamy couples that characterise contemporary Italy (Lucchini et al. 2007; Schizzerotto and Marzadro 2008). Academic performance of students has a positive effect on upward mobility. The higher the graduation mark, the lower the delay to find the first job after graduation, the greater the chance of upward mobility.

Upward mobility of offspring significantly depends on father's occupational position. In particular, the offspring of fathers with the highest status are more likely to reach the highest status themselves. In order to deeply assess the intergenerational occupational mobility, we derived the predicted probabilities associated with father's occupation categories for the whole

sample of students and for the two sub-samples (Figure 1).

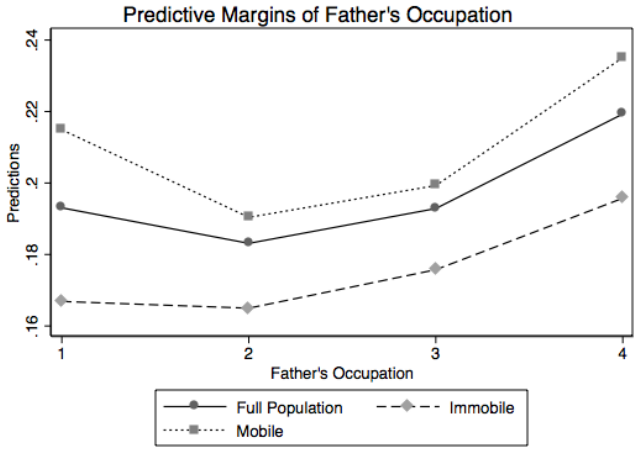

Figure 1: predicted probabilities for offspring to reach a higher occupational position than father distinguishing between the whole population; students not emigrating to attend university; and students migrating to another city to attend university.

It turns out that children of fathers at the highest occupational position are 1.13 times more likely to reach the highest occupational category than children of fathers at the lowest occupational position. This effect is stronger for students who emigrated to attend university. Our results on the effect of father's occupation are consistent with previous research on intergenerational mobility in Italy. For example, Di Preto and Urwin (2003) find that the sons of fathers at the top of the income distribution are 2.32 times more likely to reach the same status compared to those with father at the bottom of income distribution.

Figure 1 also shows that children emigrating to attend university have greater chances of upward mobility than people did not, regardless of father's occupation. This result is consistent with the estimated coefficient associated with the variable distance between university and parents' house (Table III, Model I). It turns out to be statistically significant and positive. Hence, the likelihood of upward mobility is higher, as the distance between university and parents' house increases. Looking at the distribution of young individuals who emigrated, and those who did not (Table A2 in Appendix), it turns out that, on average, 35 percent of children

emigrated; the percentage is higher (around 37 percent) for children with fathers in the lowest-status occupational groups and lower (around 32 percent) for children with fathers in the highest groups. The reason why offspring from a poorer family background are more likely to emigrate is perhaps related to the higher percentage of them living in small urban areas, hence they must move to greater cities to get higher education.

Turning on variables characterising provinces, the coefficients associated with them are statistically significant, and have the expected sign.

Accessibility has a positive effect on upward mobility. Accessible cities facilitate commuting and, more generally, daily and periodic mobility. Individuals may have access to a wider variety of job opportunities and greater chances of finding a job matching their skills.

Economic conditions, measured by per capita GDP, have a positive effect on intergenerational social mobility. This result is consistent with the theories that prove the existence of a social stigma associated with poverty and identify the implications of negative public opinion on people living in poor urban areas. People living in these areas are more likelihood to have a negative image and reputation. As a result, they are less integrated into society and may have fewer opportunities in the job market. On the contrary, people living in richer areas may have higher quality relationships that increase the chances of better employment (Musterd and Andersson, 2006).

Variables measuring social capital show a similar behaviour: cities with high levels of crime have a negative effect on upward mobility; higher homeownership rates and higher voter participation positively contribute to upward mobility. Several studies show that home ownership is related to a set of positive individual and societal outcomes that can be viewed as the causal channels through which social capital affects upward mobility. Homeowners are more likely to participate to non-governmental organisations and political activities and to interact with their neighbours (Rohe et al., 2013), show a higher commitment to their cities

(Blum and Kingston, 1984), and the children of families who own homes show greater cognitive abilities and success (Hauring et al., 2002). Higher voter participation rates are usually associated with more civic engagement, social trust and connectedness (Putnam, 2003).

The effects of urban factors discussed above hold for all the three models (I, II, III, see Table 3), although there are a few differences in the estimated coefficients. In particular, the GDP per capita, the homeowners rate and the ratio in tertiary education show a greater impact on upward mobility of students who did not migrate to attend university (Model II). The upward mobility of this group of students benefits more from economic conditions, social stability and the high level of human capital provided by cities where they grew up. This explain why they did not move to another city to attend university. Moreover, looking at Model III, the estimated coefficients associated with the variables measuring accessibility, education and economic conditions in the destination provinces are higher than the same variables measured in the origin provinces. On the contrary, again in Model III, the homeowners rate and the turnout rate in destination cities do not affect upward mobility in any way or at a lesser extent. A possible interpretation of the latter finding is that social stability and social capital on upward mobility are more efficient in matching workers to occupations when they are accompanied by the informal network through family ties in Italy (Pellizzari, 2010).

Figure 2 shows the predicted probability for the offspring to fall in one of the four occupation categories associated with a marginal increase in a given variable measured at the city level. The probabilities have been obtained from the estimated coefficients of Model I run on the whole sample.[5]

All these variables increase the probability to reach the highest occupation category and decrease the probability to reach the lowest occupation category. So, we can conclude that, *coeteris paribus*, accessible cities, with better economic conditions, higher social capital and

[5] The probability for crime is missing since the estimated coefficient is not statistically significant in Model I.

human capital actually promote intergenerational mobility.

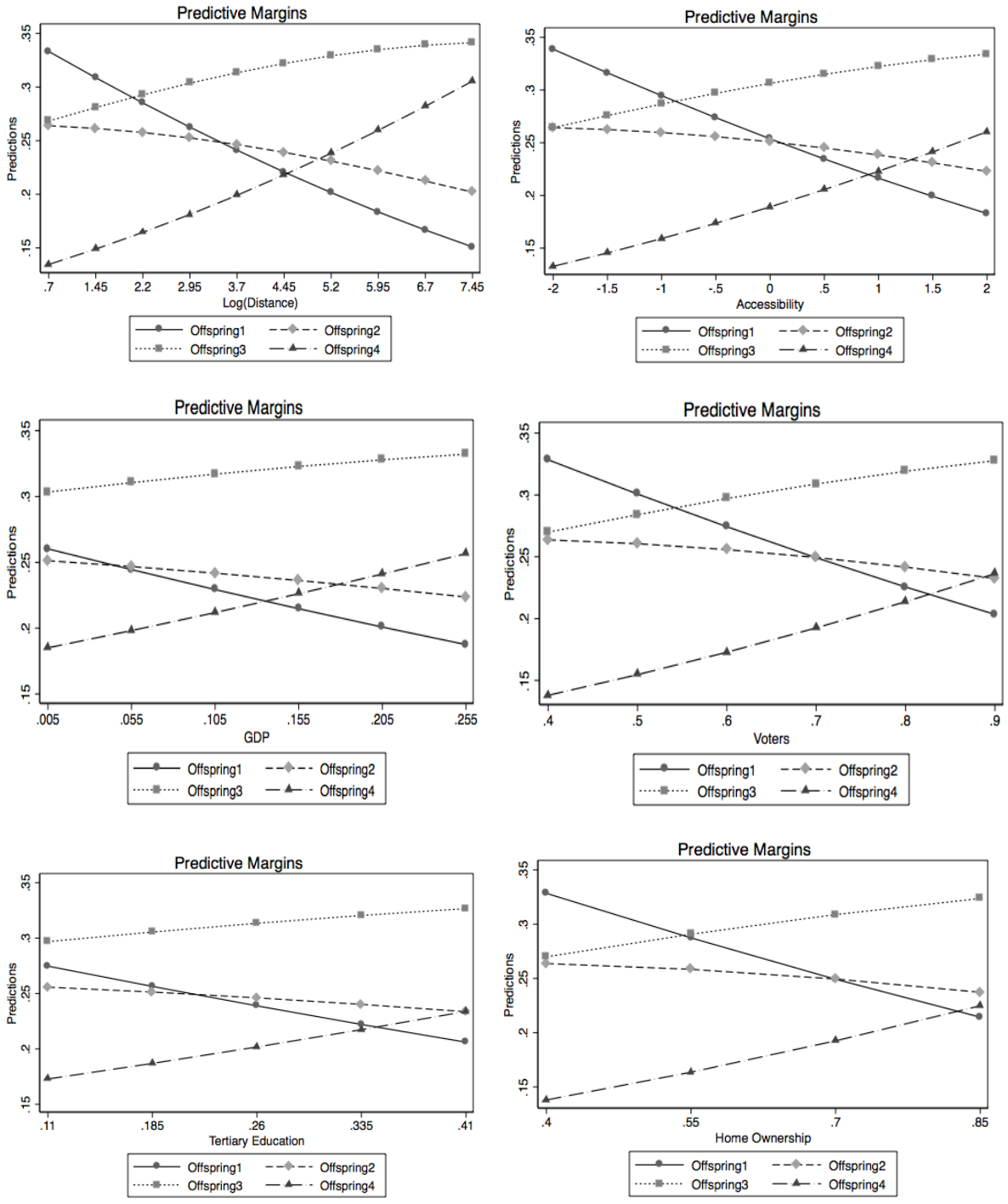

Figure 2: predicted probability for the offspring to belong to an occupation category associated with a marginal increase in a given variable measured at the city level.

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7. Conclusions

In this paper, we examine the intergenerational occupational mobility in Italy using recent data from ISTAT. In addition to several individual and household variables typically used in the study of intergenerational mobility, we include a set of variables on different city aspects, which are expected to have had an influence on young individuals during upbringing and higher education. The empirical analysis confirms previous findings of the literature as regards the role of individual characteristics and parental background. It also allows to determine the effect of cities on upward mobility. In particular, better economic conditions, higher social capital, higher human capital and higher accessibility positively contribute to reach higher occupational positions. The effect of such variables is magnified for children migrated to another city to attend higher education. Indeed, children moved to cities endowed, on average, with more resources and services. This result offers an argument in favour of policies promoting a more even availability of urban resources and services across cities in order to equalise opportunities and life-chances. In this perspective, our study has a wide range of applications, from simulating the effects of changes in economic conditions to the analysis of persistent poverty and stratification especially in cities located in the southern regions of Italy.

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Appendix

	Groups	Quantile
1 - Legislators, entrepreneurs and senior managers	1.1 - Members of legislative and governmental bodies, managers and public administrates of judiciary, health, education, and research services and organizations in relation to national and supranational interest	4
	1.2 - Entrepreneurs, managers and managers of large companies	4
	1.3 - Entrepreneurs and managers of small businesses	3
2 - Intellectual, scientific and highly specialized professions		4
	2.3 - Specialist in the life sciences	3
	2.5 - Specialists in human, social, artistic and managerial sciences	3
3 - Technical professions		3
4 - Executive professions in office work		2
5 - Qualified professionals in commercial activities and services		2
6 - Craftsmen, skilled workers and farmers		2
7 -Plant operators, stationary and mobile machinery workers and vehicle drivers		2
8 - Unqualified professions		1
9 - Army	9.1 - Officers of the Armed Forces	4
	9.2 - Sergeants, superintendents and marshals of the Armed Forces	4
	9.3 - Troop of Armed Forces	4

Source: National classification of occupations (*La Classificazione delle Professioni*, Istat, 2013)); quartiles are computed by the authors using incomes declared by the respondents to the survey ISTAT (2011)

Table A. 1 Employment Status of Offspring and Father's Occupation Category

	Father's Occupation Category					
		1	**2**	**3**	**4**	**Total**
Spatial mobility	**0**	2,759 (61.99 %)	5,266 (63.11%)	3,402 (67.29%)	2,411 (67.54%)	13,838 (60.19%)
	1	1,692 (38.01%)	3,078 (36.89%)	1,654 (32.71%)	1,159 (32.46%)	7,583 (35.40%)
	Total	4,451 (100%)	8,344 (100%)	5,056 (100%)	3,570 (100%)	21,421 (100%)

Note: Spatial mobility = 0 if the child studied in a university located within an Euclidean distance of 100 km from parents' house; spatial mobility = 1 otherwise.

Table A2 Distribution of children migrating to attend university by father's occupation category.

		Secondary School Graduation Marks		
		<90	**90-100**	**Total**
Spatial mobility	**0**	11,684 (84.70 %)	6,538 (85.59%)	18,212 (85.02%)
	1	2,110 (15.30%)	1,099 (14.41%)	3,209 (14.98%)
	Total	13,794 (100%)	7,627 (100%)	21,421 (100%)

Note: Spatial mobility = 0 if the child studied in a university located within an Euclidean distance of 100 km from parents' house; spatial mobility = 1 otherwise.

Table A3 Distribution of children migrating to attend university by secondary school graduation marks.