

Occupational Change Across Generations.

The role of housing bequests

Annalisa Cristini

University of Bergamo - Italy

June 2022

Abstract

This paper investigates intergenerational occupational mobility and the role played by the inherited housing. Data are from SHARE that provides 4-digit ISCO information on father's and mother's occupation in two waves. Occupations are ranked according to the median hourly wage in the year of the survey and rank-rank regressions are performed. Results from conditional and unconditional quintile regressions indicate that: (i) occupational mobility is negatively associated with house bequest, except for the lower quartile if conditioning on covariates; (ii) child's position in the ranking is positively associated with father's position throughout the distribution, with a maximum value of the correlation in correspondence of the median. Descriptive statistics confirm the extant evidence of a lower social mobility in Mediterranean countries relative to Nordic countries and show a reduction in mobility for the youngest cohorts relative to the oldest. Oster test of selection on unobservables hints that the role of father's rank is likely to be explained away by unobservables (genetic factors) whereas the role of property bequest is robust to the test and to a different base year for ranking occupations. A conceptual framework is also suggested.

Keywords: Household consumption, household wealth, occupations, intergenerational.

JEL Classification: E21, E24, J24, J62

Acknowledgments: A previous version of the paper presented at the workshop *Household Consumption: the role of heterogeneity and policies*, Bergamo University June 3, 2019 and at the Winter Workshop, 6-8 February 2020, Barzio (LC). Participants are acknowledged for useful comments and suggestions.

Corresponding author: Annalisa Cristini. Email: annalisa.cristini@unibg.it

1 Introduction

In Europe, 11% of homeowners have acquired their home through a bequest (SHARE, 2015). This percentage is highest in Croatia and Slovenia (23%), followed by Italy, Greece and Austria (19%); at the other end of the spectrum we find Sweden (3%), Denmark and Netherlands (1%). In this paper we ask whether the choice of living in the inherited house is significantly associated with a measure of intergenerational occupational mobility and if a causal effect of home bequest can be detected.

The sign of the association is a priori ambiguous. On the one hand, the decision to settle down where the inherited house is located is likely to limit the work opportunities to those offered in that particular area; this can constrain one's labour mobility and hold back moving up the social ladder.¹ Labour mobility may further be limited by an illiquid housing market or by low house prices, which may be particularly relevant during recessions.² On the other hand, if financial markets are sufficiently developed, housing equity can help financing education, thus favouring intergenerational mobility; moreover, relative to a renter, a homeowner is *ceteris paribus* richer and less vulnerable to poverty.

Because inter-vivos in-kind transfers between generations are frequently realised if parents and children live geographically close to each other, the well-known exchange motive of bequest (Cox, 1987) can also help explain the acceptance of a home bequest. However, the question of whether the inherited housing wealth contributes to the intergenerational social mobility has not been explicitly analysed. Given the many factors at work, a basic conceptual framework that accounts for them is sketched in section 2 .

¹Evidence in support of the view that a limitation in job opportunities may take place is provided by the lower wage of working mothers whose child is looked after by the grandparents living close by; though living close to one's parents causes the increase in the daughter (or daughter-in-law) labour supply, this appears to be at the expense of better paid jobs García-Morán and Kuehn (2017).

²Evidence is mixed, See Farber (2012), Bover et al. (1989), Oswald (2009) and subsequent literature

We measure social mobility by occupational mobility. As it has long been recognised by the economic and sociological literature, intergenerational occupational mobility is a relevant indicator of intergenerational social mobility and several metrics of socioeconomic status are computed using occupations as basis. Occupations also capture job quality: fatigue, extent of autonomy, discretion at work, and as jobs' quality impacts on various dimensions of life and living standards, the average prestige that people attach to occupations defined a well-known prestige scale ([Treiman, 1977](#)).

The use occupations instead of income, has advantages and drawbacks: information on occupations is usually available on historical data ([Feigenbaum, 2018](#)); contrary to income data, occupations are less subjected to transitory changes and are often retained in face of transitory income shocks ([Long and Ferrie, 2013](#) [Björklund and Jantti, 2000](#)); in addition, data on occupations are relatively less prone to misreporting, as people are likely to be more willing to reveal their occupation than their income. However, the classification of occupations and their comparison across countries and time is a more complex than the comparison of monetary values.

Intergenerational mobility based on occupations is often studied using occupational transition matrices ([Altham and Ferrie, 2007](#)); these methods are agnostic about movements up and down the occupational ladder, but avoid the thorny issue of ranking occupations.

Where income data across generations are available, the traditional measure for the intergenerational mobility is the intergenerational elasticity of income (IGE), obtained by regressing log of child's income over log of father's income; however the estimated elasticity has been found to be rather unstable due to the presence of zeros or very small values in income data; an alternative is the rank-rank slope ([Chetty et al., 2014](#)).

Similarly, in this paper, we suggest ranking occupations according to the rank of the median

wage of each occupation.³ Given the occupational ranking, we compare the position of the child with that of the father. In order to check the robustness of results to the chosen rank, which is based on a particular year (either 2004 or 2005), we consider an alternative ranking based on wages and occupations prevailing between 1979-1991.

The paper is organised as follows: the next section introduces a conceptual framework; section 3 describes the data used, the ranking of occupations and some descriptive statistics; section 4 introduces the quantile regressions, reports and illustrates the results comparing conditional and unconditional quantile regressions results; robustness checks, including a discussion of endogeneity issues are presented in section 5. The last section concludes.

2 A simple conceptual framework

Conditioning on having inherited the house, we compare the endowment of the adult child under two alternative events: (i) the child stays to live in the inherited home, (ii) the child decides to move, hence sells the inherited house and buys a house in another area.⁴

In both cases, the job is assumed to be where the residence is, so that we abstract from commuting costs. We also abstract from the choice of renting and assume that homeownership has already been decided over the renting option.⁵ Although house prices can vary across areas, which in the empirical analysis will be defined in terms of regions and degree of urbanization; within areas, because of landlords arbitrage in the housing market, the price of a unit of house p^H equals the discounted future flow of rents per unit, R . Hence for each area j we define:

³The same type of ranking is used in the job polarization literature (e.g. [Autor et al., 2003](#); [Goos and Manning, 2007](#))

⁴Notice that if parents are still alive and live in the same house, the child can still sell the sole proprietorship. This implies a reduction on the market price.

⁵On this point see [Sinai and Souleles \(2005\)](#) and [Ortalo-Magné and Rady \(2002\)](#). They show that homeownership is more convenient the longer the expected stay and the more volatile the renting market.

$$p^H_j = \int_{t=0}^{\infty} R_{jt} e^{-\delta t} dt \quad (1)$$

where δ is the discount rate. In order to compare the expected utility of the heir under the two cases, we also consider that areas may differ in terms of labour market conditions, like the rate of unemployment, productive structure, and in terms of job opportunities. We separately account for schooling (s) and ability (a , which determine a wage premium on top of the basic average wage. Hence, the average endowment from labour in area j is defined as follows:

$$W_j = \text{gamma}(s, a) \int_{t=0}^{\infty} \bar{W}_{jt} e^{-\delta t} dt = \gamma(s, a) \bar{W}_j \quad (2)$$

where γ is the wage premium factor and $\gamma'_s > 0$, $\gamma''_s < 0$ and $\gamma'_a > 0$, $\gamma''_a < 0$.⁶

It is well known that ability and schooling create an important link between generations which can greatly affect intergenerational mobility (Becker and Tomes (1979)). Specifically, ability is partly inherited and schooling largely depends on parents' altruistic sentiment, on their endowment, propensity to invest in children, and on the household geographical location. We will account for these intergenerational links in the empirical analysis.

The inter vivos in-kind transfers are also expected to play an important role in the decision of staying or moving that we are analysing. Specifically, the adult child that lives close to his/her parents might take advantage of grandparenting thus reducing the cost of child care. This possibility has been largely documented and depends, in addition to the proximity

⁶We assume that differences in the pricing of schooling and ability across areas is essentially related to the productive structure so that it is captured in \bar{W} . This also simplifies the analysis.

between parents and children, on parents' health and working time (Rupert and Zanella, 2018, Dimova and Wolff, 2011, Compton and Pollak, 2014). Let π be the probability that the heir has children and δF the monetary-equivalent share of the total child caring costs F that can be obtained from parents' help; then $\pi\delta F$ is the additional cost for the mover with respect to the stayer.

We can now compare the intertemporal budget constraint of the heir in the two cases: stay and live in the area where the inherited house is located ($j = i$) or sell the inherited house and move to a different area ($j = z \neq i$). Let C_j be the present discounted value of the non-housing consumption c_j , the price of which is the numeraire.

$$C_j = \int_{t=0}^{\infty} c_{jt} e^{-\delta t} dt \quad (3)$$

Then, the intertemporal budget constraint of the heir that sells the inherited house and moves to a different area ($j = z \neq i$) is the following:

$$C_z = \gamma(s, a)\bar{W}_z + (1 - \theta)p_i^H H_i^d - p_z^H H_z - \pi F \quad (4)$$

where H^d and H are the units of house bequeathed and bought on the market, respectively; $(1 - \theta)$ is the reduction factor due to selling the naked proprietorship, with $0 \leq \theta \leq 1$. For $\theta = 0$ the house has no constraints and can be sold at market prices whereas $\theta = 1$ implies that the property cannot be sold at all, for example for no demand.

Likewise, the intertemporal budget constraint for those that decide to live in the inherited house is:

$$C_i = \gamma(s, a)\bar{W}_i + p_i^H H_i^d - \pi(1 - \delta)F \quad (5)$$

By comparing the endowments in the two cases we find that $C_i > C_z$ if

$$p_z^H H_z + \theta p_i^H H_i^d + \pi \delta F > \gamma(s, a)(\bar{W}_z - \bar{W}_i) \quad (6)$$

or

$$\frac{p_z^H H_z + \theta p_i^H H_i^d + \pi \delta F}{\gamma(s, a)} > \bar{W}_z - \bar{W}_i \quad (7)$$

If the PDV of the labour income -net of premia- are the same across the local labour markets (i.e. the right hand side is zero) or if the location of the inherited house provides the best job opportunities (i.e. the right hand side is negative) then, conditioning on having received a house as bequest, the decision will always be to stay.

However, if the PDV of the labour income -net of premia- is higher in any area z with respect to i , then the decision to stay is more likely:

- the lower the wage premium, i.e. the lower schooling and/or ability,
- the higher the house prices (either/both p_i^H and p_z^H),
- the higher the housing units (either/both H and H^d),
- the higher the loss when selling the bequest with constraints (the higher θ).
- the higher the probability of having children AND of parents being able to help with children care.

As it is clear from the last two points, the presence of living parents exerts two opposite effects in the decision to stay

Notice that according to this simple model, for those that have not inherited the house, i.e. $H^d = 0$, the condition to remain in location i , where parents live, relative to any other

location $z \neq i$ is:

$$H(p_z^H - p_i^H) + \pi\delta F > \gamma(s, a)(\bar{W}_z - \bar{W}_i) \quad (8)$$

By comparing condition (6) with condition (8), we find that since the l.h.s of (6) is strictly greater than the l.h.s. of (8), having bequeathed the house always increases the probability to remain in location i , other things equal, thus reducing job mobility. However, having inherited a house is not a sufficient condition to decide to stay, as the inequality (6) need also be satisfied.

To the extent that reduced mobility limits job opportunities and the labour income endowment may consequently be lower, house inheritance may hold back upward social mobility. On the other other hand, the condition of homeowner, acquired by heirs that decide to live in the inherited house, may provide various benefits, as recalled in the introduction. Specifically, the inherited housing wealth protects outright homeowners from the negative effects of drastically declining house prices and rising interest rates (underwater) and can therefore act as a shield against poverty. Similarly, it protects from rent variability, which if correlated with labour earnings, may increase the overall variability of household's budget (Sinai and Souleles, 2005, Ortalo-Magné and Rady, 2002). As both these mechanisms are relevant, house inheritance can thereby prevent moving down the social ladder.

3 The data

We use data from SHARE, the Survey of Health Ageing and Retirement in Europe;⁷; specifically we use wave 1 (carried out in 2004) and wave 6 (carried out in 2015) because these two waves include data on parents' occupations at the 4 digit ISCO level. Although information on parents' occupation is provided by the child (respondent), previous studies suggest that retrospective information on fathers' occupation and education obtained from sons, yields similar results to using information obtained directly from fathers (footnote 24 in [Björklund and Jantti 2000](#)). In addition to detailed demographics and education data, SHARE provides information on inheritance; specifically the respondent is asked (if homeowner) whether the house has been inherited, and/or whether she has ever received gifts worth more than 5000 euros and from whom. Additional information is the degree of urbanization of the area of residence, the distance from the parents' house, the number of children and grandchildren.

We consider 10 countries that are available in both wave 1 and 6: Austria, Belgium, Denmark, Germany, Greece, France, Italy, Spain, Sweden and Switzerland. On the whole, the total valid cases are 27,579 for ISCO-child, 27,126 for ISCO-father and 23,868 for ISCO-mother. However missing values in reported occupations of both of parents' and children's are especially numerous and reduce the number of usable observations to 20,347 of which 17,698 in wave 1 and 2,649 in wave 6, so that almost 3/4 of ISCO child and ISCO father are in wave 1. Valid cases when using ISCO-mother further drop to 8,414.

⁷SHARE (Survey of Health Ageing and Retirement in Europe) is a multi-disciplinary panel of micro data on socio-economic, health status and social and family networks. It is harmonized with the US Health and Retirement Study (US - HRS) and the English Longitudinal Study of Ageing (UK - ELSA) and covers most of the European Union and Israel. It is run every two years on representative samples of the individuals aged 50 or more and their spouses. So far, SHARE has collected six panel waves 1-2, 4-7 carried out in 2004, 2006, 2010, 2012, 2015 and 2017; wave 3 (SHARELIFE) collected only retrospective information.

3.1 Who lives in the inherited house?

According to SHARE, 81.6% of the people interviewed are homeowners; of these, 11% have acquired the house through a bequest.⁸ This percentage is highest in Croatia and Slovenia (23%), followed by Italy, Greece and Austria (19%) while at the other end there are Denmark and Netherlands (1%) and Sweden (3%). The overall average of 11% is confirmed for the subgroup of 10 countries (Austria, Belgium, Denmark, Germany, Greece, France, Italy, Spain, Sweden and Switzerland) for which we can recover information on occupational mobility, as it will be explained in the next section, and that will be the focus of the empirical analysis. Within this country group, those that live in the inherited house are slightly less educated and a little older than the remaining homeowners, are more likely to reside in a rural area and closer to where their parents live, and have a lower number of children and grandchildren (Table 1).

As suggested by the conceptual framework and recognized by the existing empirical literature, the degree of urbanization of the area is likely to play a role in the choice of education, and the proximity to the parents' house is likely to affect the decision of having children; since education costs rise with the distance from cities, the location of the house inherited may be correlated with the years of schooling; likewise, the degree of proximity with the parents' house may affect the decision to have children. Results from a multivariate probit, which allows for conditional probabilities, confirm the suggestions. Table 2 shows that a distance longer than 25 km from parents is negatively associated with living in the bequeathed house; in addition, controlling for the distance from parents reverts the sign of education. Indeed living further away from parents is positively associated with education, which explains the omitted variable bias that emerges when controlling for proximity.

⁸These are percentages are simple averages across all countries and waves.

Table 1: Descriptive statistics by House bequest

	HOUSE BEQUEST	
	Yes	No
Yrs schooling	9.5	10.7
Age	66.5	64.7
Nr. children	1.8	2.1
Nr.grandchildren	1.9	2.2
Area of living:		
<i>big city</i>	0.11	0.13
<i>suburbs</i>	0.09	0.13
<i>rural</i>	0.43	0.29
Proximity to parents' house:		
<i>same building</i>	0.28	0.06
<i>more than 25 Km away</i>	0.15	0.35
Country of residence:		
<i>Austria</i>	0.19	0.81
<i>Greece</i>	0.19	0.81
<i>Italy</i>	0.19	0.81
<i>Germany</i>	0.15	0.85
<i>Spain</i>	0.12	0.88
<i>France</i>	0.10	0.90
<i>Switzerland</i>	0.09	0.91
<i>Belgium</i>	0.06	0.94
<i>Sweden</i>	0.04	0.96
<i>Denmark</i>	0.01	0.99
Nr.observations	5,356	42,299

Source: author's elaboration from SHARE, all waves.

Table 2: House acquired as bequest
Probit analysis

	1	2	3
Years of education	-0.010*** (0.00)	-0.003 (0.00)	0.011** (0.01)
Age	0.008*** (0.00)	0.009*** (0.00)	0.003 (0.00)
Female	0.030* (0.02)	0.046*** (0.02)	0.093** (0.04)
Number of children	-0.108*** (0.01)	-0.113*** (0.01)	-0.055*** (0.02)
Number of grandchildren	0.006 (0.00)	0.002 (0.00)	0.032** (0.01)
Area: big city		-0.067** (0.03)	-0.204*** (0.07)
Area: small town		0.170*** (0.02)	0.119** (0.06)
Area: rural		0.413*** (0.02)	0.302*** (0.06)
Proximity: same_building			0.641*** (0.06)
Proximity: more than 25km away			-0.338*** (0.05)
country fe	Yes	Yes	Yes
Pseudo Rsq	0.07	0.09	0.15
N	47651	46454	10417

Source: author's elaboration from SHARE, all waves; standard error in parenthesis.

3.2 A measure of occupational mobility

Occupational mobility is measured by comparing, in the percentile ranking, the position of the child's occupation relative to the father's occupation. Occupations are ranked, within each wave, on the basis of their hourly wage as stated by each respondent at the date of the interview. In order to account for differences in the cost of living and make wages comparable across countries, the monetary values of the wages are converted to PPP. Each occupation is then associated to a percentile in the ranking, defined on the median hourly

wage.

Table 3 shows the Spearman correlation between children and parents' occupation ranking. The correlation is significant in all countries and larger between child and father than between mother and child. It is relatively low in Switzerland and Denmark and relatively higher in France and Italy. These results agree with the existing evidence (add ref).

Table 3: Spearman's rank correlation coefficient of occupations

	Child-Father	Child-Mother	Father-Mother
All countries	0.194*	0.043*	0.046*
France	0.238*	0.068*	0.149*
Italy	0.237*	0.063*	0.061*
Spain	0.223*	0.045	0.020
Belgium	0.220*	0.006	-0.034
Austria	0.209*	0.092*	-0.009
Germany	0.182*	0.053*	0.035
Greece	0.157*	0.147*	0.158*
Sweden	0.140*	0.035	0.055*
Denmark	0.101*	-0.017	-0.002
Switzerland	0.096*	0.024	-0.066

* Significant at 0.01

Given the ranking of fathers and children, an initial measure of mobility is the difference in the ranking between child and father percentile. This is shown in Figure 1, by waves.

Figure 2 compares the observed difference (using both waves) with the difference obtained by randomly associating children to father occupations. It shows that in the observed density the concentration around zero, indicating little mobility, is higher than what one would expect if children's occupations would be independent of fathers' occupations.

Additional initial information is obtained by comparing the density of the differences in percentiles by country groups and by children birth-cohorts. Figure 3 shows that the initial increase in mobility enjoyed by the 1942-56 birth cohorts, relative to the previous

Figure 1: Observed difference in children-father percentiles by wave

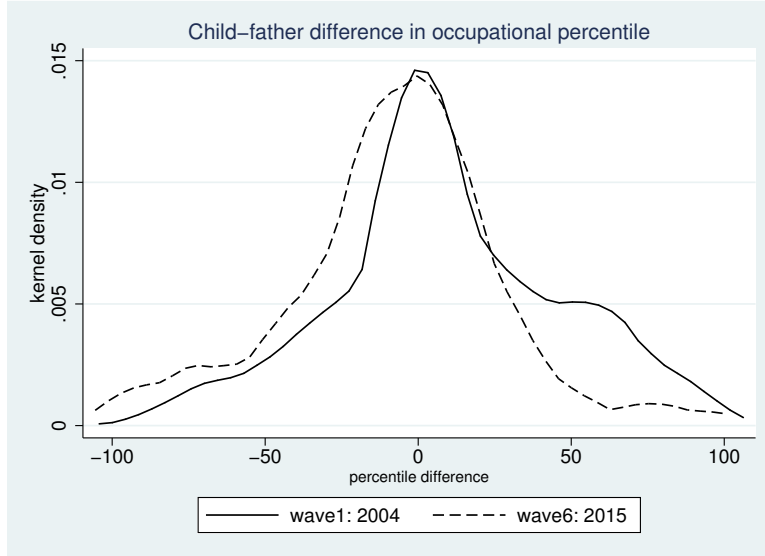
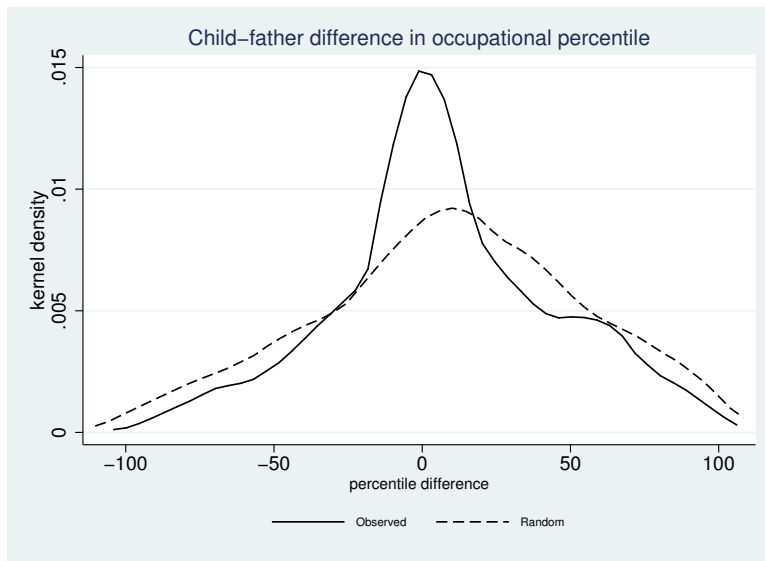
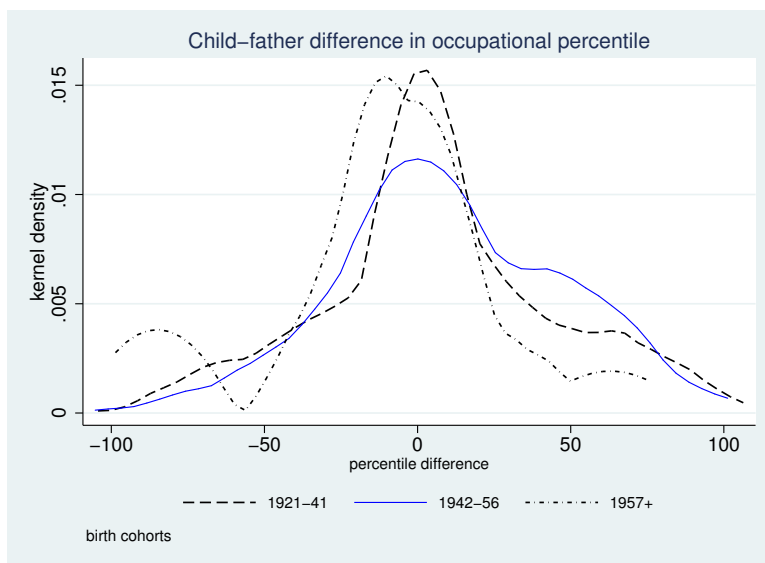


Figure 2: Observed and random difference in children-father percentiles



one born between 1921 and 41, appeared to have declined for cohorts born after 1957. Figure 4 illustrates, in accordance with the Spearman correlation, that Mediterranean countries show lower occupational mobility with respect to Nordic countries, Switzerland and Continental European countries.

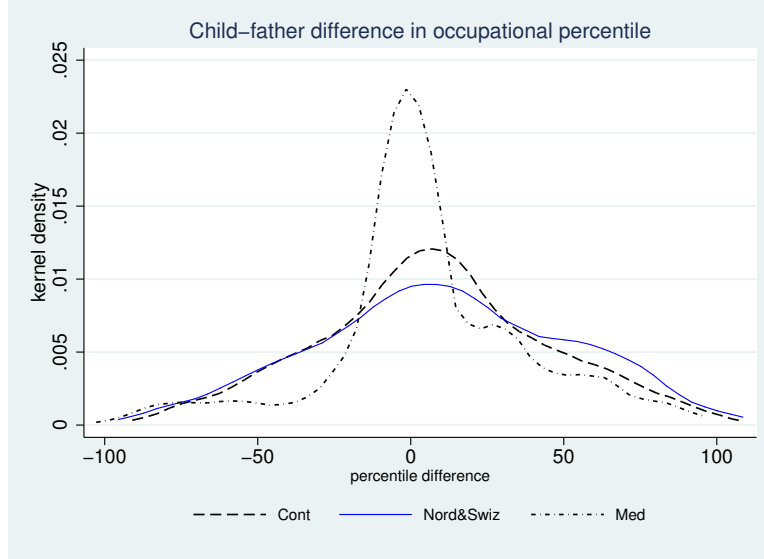
Figure 3: Observed and random difference in children-father percentiles
By birth cohort



4 Living in the inherited house and social mobility. A quantile regression analysis

The empirical analysis estimates rank-rank regressions between the occupational percentile Y_{irat} of child i living in region r and urbanization area a at time t and the father occupa-

Figure 4: Observed and random difference in children-father percentiles
By country groups



tional percentile X_{irat} . The basic specification is the following:

$$\begin{aligned}
 Y_{irat} = & c + \beta X_{irat} + \gamma_0 BEQ_{irat} + \gamma_1 GIFT_{irat} + \gamma_2 PROX_{irat} + \gamma_3 FAR_{irat} + \gamma_4 YEDU_{irat} \\
 & + \gamma Z_{irat} + \sum_{r=1}^R \delta_r d_r + \sum_{c=1}^C \delta_c d_c + \sum_{a=1}^A \delta_a d_a + \epsilon_{irat}
 \end{aligned} \tag{9}$$

where BEQ is a dummy for property acquired as bequest, $GIFT$ is a dummy for having received (from mother or father) monetary gifts larger than 5000 euros, $PROX$ and FAR are dummies capturing the distance from parents (respectively, living in the same building or more than 25 Km away) and $YEDU$ are the years of schooling; Z is a vector of other controls which include: gender, age, age squared; d_r are region dummies, d_c are country dummies and d_a are type of urbanization area dummies.

We present both OLS and quantile regressions; the latter provide a richer characterisation

of the data as they allow to compute the role of covariances at various points of the distribution of the variable of interest. We present both conditional and unconditional quantile regressions: The coefficients estimated by conditional quantile regressions (CQ) are specific to the group that shares the same values of the covariates, so CQ essentially provide ‘within group’ estimates. On the contrary, the unconditional regression coefficients inform on the marginal effects of the covariate on the unconditional distribution of Y (Firpo et al. 2009), which is a more interesting information from the policy of view.

4.1 OLS results

OLS results are reported in Table 4.

The father’s rank is always significant across the specification and sets to 0.09 in the last column, which includes region fixed effect. The estimated value indicates that 1 decile change in the father’s position is associated to almost 1 percentage point change in the child’s position. Living in the bequeathed house reduces upward mobility by more than 3 percentage points, other thing equal; other factors that are negatively associated with upward social mobility, in addition to being female, are related to the area of living: the drawback rises with the distance from the big city. Schooling, measured by years of education are the only counterbalancing factor.

Table 4: OLS Regressions

	1	2	3	4	5	6	7	8
Father's pctl	0.269*** (0.02)	0.257*** (0.03)	0.149*** (0.02)	0.149*** (0.02)	0.133*** (0.02)	0.104*** (0.02)	0.098*** (0.02)	0.091*** (0.02)
House bequest		-9.135*** (1.77)	-6.902*** (1.49)	-6.902*** (1.49)	-5.389*** (1.25)	-3.521*** (0.93)	-3.052*** (0.83)	-3.640*** (1.01)
Gift		7.748*** (0.81)	3.210*** (0.80)	3.210*** (0.80)	2.710*** (0.62)	0.808 (0.48)	0.735 (0.48)	0.919 (0.77)
Years of education			2.556*** (0.16)	2.556*** (0.16)	2.508*** (0.15)	2.416*** (0.17)	2.334*** (0.18)	2.300*** (0.12)
Female			-2.743** (1.18)	-2.743** (1.18)	-2.632* (1.18)	-2.551** (1.10)	-2.760** (1.02)	-2.629** (1.02)
Father's pctl x fem			-0.012 (0.02)	-0.012 (0.02)	-0.014 (0.02)	-0.014 (0.02)	-0.015 (0.02)	-0.013 (0.02)
Age			0.418 (0.33)	0.418 (0.33)	0.767** (0.33)	0.561** (0.25)	0.531* (0.25)	0.403 (0.27)
Age2			-0.004 (0.00)	-0.004 (0.00)	-0.006** (0.00)	-0.004** (0.00)	-0.004** (0.00)	-0.003* (0.00)
Area_sub							-2.351** (1.03)	-2.498** (1.22)
Area_lt							-2.742** (1.07)	-2.866*** (1.05)
Area_st							-4.400*** (1.26)	-3.958*** (1.06)
Area_ru							-6.407*** (1.57)	-6.382*** (1.15)
country*	No	No	No	No	No	Yes	Yes	No
region*	No	No	No	No	No	No	No	yes
Rsq	0.08	0.10	0.25	0.25	0.26	0.29	0.30	0.31
N	20347	9815	9814	9814	9792	9464	9423	8627

Note: each regression also includes time dummy and other dummies capturing real and financial wealth (being homeowner, having a mortgage, holding stocks, holding bonds). The reference urbanization area is the big city. OLS standard errors are clustered at the country level and at the region level in the last column.

4.2 Quantile regressions

Results are reported in Table 5 and, for the variables of interest, in Figures 5 and 6. Father's rank is significant throughout the distribution, both in conditional and unconditional regressions; the graph of the estimated coefficient (Figure 5) shows a monotonic inverse U shape of the CQ regression coefficient, reaching the maximum around the median; similarly for the UQ, where the maximum of 1.7 is reached at the 55 percentile but with less monotonicity (see explanation in Firpo et al. (2009)). Both conditional and unconditional quantile regressions suggest that mobility is higher for top quantiles. On the contrary,

for the bottom quantile of the child' occupation ranking, mobility is also low whereas conditional quantile regression suggests to be relatively high.

House acquired as bequest is negatively associated with the child's position in the ranking in both conditional and unconditional regressions. However, in the former the values increase in absolute value and significance with quantiles, except at very top of the distribution. The coefficient in the unconditional quintile regression slightly declines in absolute value, but changes only a little, on the whole.

These results suggest that, *ceteris paribus*, living in the house acquired as a bequest is not reducing social mobility for those in the bottom 25% of the occupational distribution while it is detrimental for those positioning above the first quartile. Moreover, the unconditional quantile regressions indicate that even for the bottom 25% the effect can be negative, on the whole.

Table 5: Quintile Regressions

	1	2	3	4	5	6	7
	ols	CQ_25	CQ_50	CQ_75	UQ_25	UQ_50	UQ_75
Fatther's pctile	0.098*** (0.02)	0.124*** (0.02)	0.138*** (0.02)	0.085*** (0.02)	0.092*** (0.01)	0.143*** (0.03)	0.151*** (0.03)
House bequest	-3.052*** (0.83)	-0.909 (1.28)	-3.144*** (1.09)	-5.332*** (1.20)	-4.242*** (1.13)	-3.727** (1.65)	-3.806** (1.58)
Gift	0.735 (0.48)	-0.264 (0.92)	1.589** (0.78)	2.140** (0.86)	-1.239* (0.72)	1.699 (1.24)	2.742** (1.32)
Years of education	2.334*** (0.18)	1.728*** (0.11)	2.912*** (0.09)	3.118*** (0.10)	1.631*** (0.09)	4.391*** (0.14)	3.897*** (0.15)
Female	-2.760** (1.02)	0.406 (1.19)	-1.659 (1.01)	-6.145*** (1.12)	1.102 (1.05)	-3.192** (1.55)	-6.075*** (1.49)
Father's pctile x fem	-0.015 (0.02)	-0.014 (0.03)	-0.061*** (0.02)	0.003 (0.02)	-0.003 (0.02)	0.038 (0.03)	-0.092** (0.04)
Age	0.531* (0.25)	0.517 (0.47)	0.711* (0.40)	0.165 (0.44)	1.359*** (0.40)	0.974 (0.61)	-0.087 (0.64)
Age2	-0.004** (0.00)	-0.004 (0.00)	-0.006* (0.00)	-0.002 (0.00)	-0.012*** (0.00)	-0.008* (0.00)	0.002 (0.00)
Area_sub	-2.351** (1.03)	-1.410 (1.53)	-2.021 (1.30)	-2.931** (1.44)	-2.780** (1.20)	-1.694 (2.06)	-4.044* (2.20)
Area_lt	-2.742** (1.07)	-1.444 (1.47)	-4.377*** (1.25)	-2.103 (1.38)	-1.559 (1.18)	-3.222 (1.96)	-4.605** (2.09)
Area_st	-4.400*** (1.26)	-3.483** (1.41)	-5.490*** (1.20)	-4.159*** (1.32)	-4.931*** (1.13)	-5.543*** (1.88)	-5.995*** (1.99)
Area_ru	-6.407*** (1.57)	-5.218*** (1.46)	-7.601*** (1.24)	-5.722*** (1.36)	-8.420*** (1.18)	-9.755*** (1.94)	-5.540*** (2.06)
country*	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rsqr	0.30	0.149	0.231	0.214	0.18	0.26	0.17
N	9423	9423	9423	9423	9423	9423	9423

Note: each regression also includes time dummy and other dummies capturing real and financial wealth (being homeowner, having a mortgage, holding stocks, holding bonds). The reference urbanization area is the big city. OLS standard errors are clustered at the country level and at the region level in the last column.

Education shows a positive coefficient throughout the distribution but with smaller magnitudes for lower percentiles. Living in rural areas and small towns reduce mobility throughout the distribution, both in conditional and unconditional regressions.

Figure 5: Quantile regression estimates of father's occupation rank

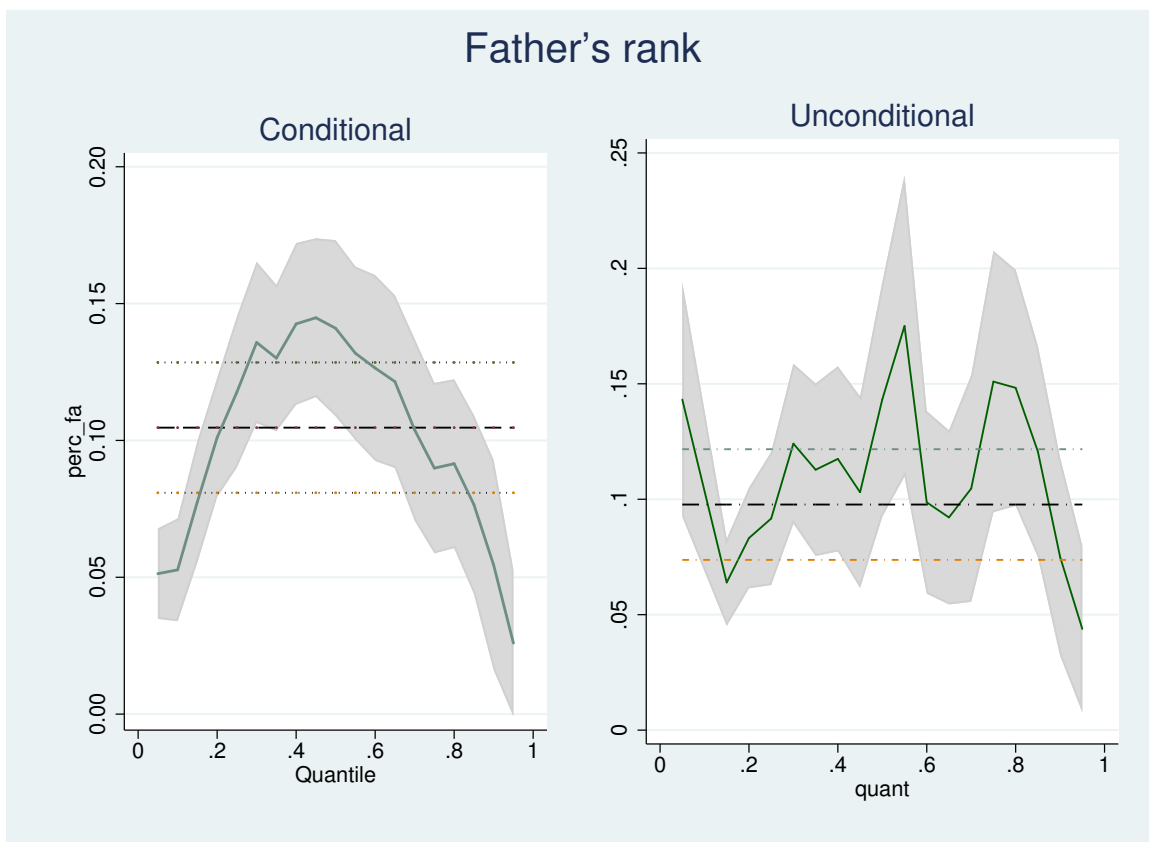
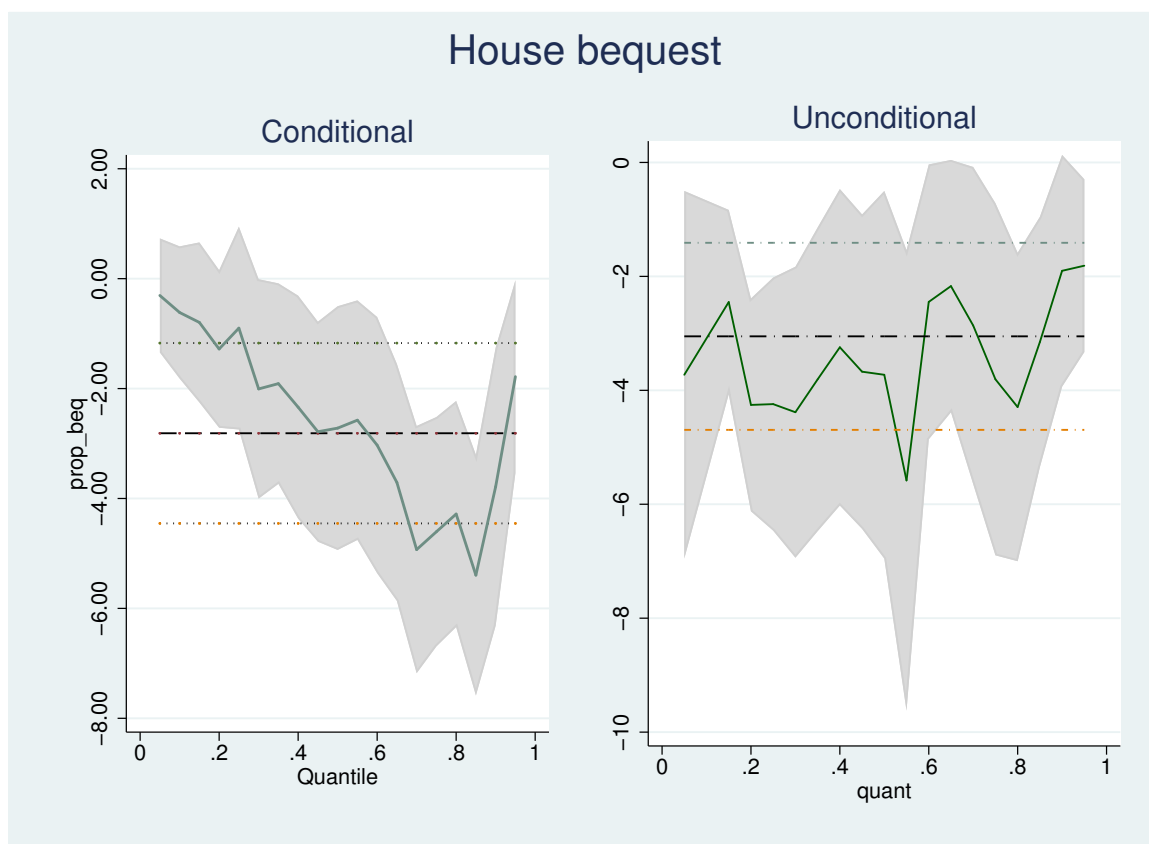


Figure 6: Quantile regression estimates of house acquired as bequest



5 Robustness check

One important concern of the analysis presented so far is the endogeneity determined by observables and unobservables that have not been included in the analysis but are relevant for intergenerational occupational linkages and correlated with the father's occupations or child inherited wealth. Among the unobservables, genetic factors, like ability and risk aversion and non-genetic ones, like cultural-related role models and childhood environment are expected to play a role.

5.1 Selection on unobservables

It is difficult to find suitable instruments that provide exogenous variation in father's occupation which does not directly affects children's occupation. In a relevant work [Björklund et al. \(2006\)](#) use the differences between adoptees' biological versus adopted parents and find that both nature and nurture affect intergenerational transmissions. In absence of experimental and quasi-experimental data, [Emran and Shilpi \(2011\)](#) utilise the method put forward by [Altonji et al. \(2005\)](#), according to which the amount of selection on the observables can serve as a guide to the amount of selection on the unobservable, provided that observables are a random subset of a large set of factors that affect both outcome and the endogenous variable.

Similarly, we follow [Oster \(2019\)](#) that extends [Altonji et al. \(2005\)](#), in order to assess the robustness of our results.

- Let X : variable of interest (father rank)
- W_1 = observable set controls; W_2 = unobservable set controls; $W_1 \perp W_2$

Assume:

$$\delta \frac{Cov(W_1, X)}{Var(W_1)} = \frac{Cov(W_2, X)}{Var(W_2)} \quad (10)$$

Denote:

$\tilde{\beta}$ coefficient resulting from reg Y on X and W_1

$\dot{\beta}$ coefficient resulting from reg Y on X

If $\delta = 1$

$$\beta^* = \tilde{\beta} - [\dot{\beta} - \tilde{\beta}] \frac{R_{max} - \tilde{R}}{\tilde{R} - \dot{R}} \quad (11)$$

If $\delta \neq 1$

$$\beta^* \approx \tilde{\beta} - \delta[\dot{\beta} - \tilde{\beta}] \frac{R_{max} - \tilde{R}}{\tilde{R} - \dot{R}} \quad (12)$$

$$R_{max} = 1$$

$$R_{max} = \Pi \tilde{R}$$

Empirical rule: $\Pi = 1.3$. Threshold at which 90% of random-based paper results are robust

Π	prop_beq	perc_fa
1	-4.043	0.0784
1.1	-3.447	0.0518
1.2	-2.843	0.0251
1.3	-2.228	-0.0018
1.4	-1.604	-0.0289
1.5	-1.06	-0.055
1.6	-0.329	-0.0831
1.7	0.323	-0.1104
1.8	0.986	-0.1378
1.9	1.658	-0.1653
2	2.36	-0.1937

The test of selection on unobservables hints that the whereas the role of father's rank is likely to be explained away by unobservables (genetic factors), the role of house bequest is robust.

5.2 A different ranking

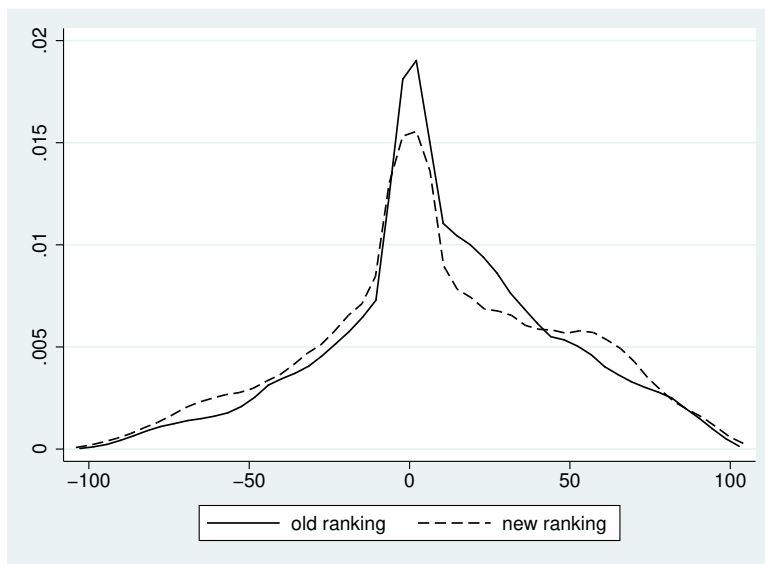
The particular year used, depending on the year in which the interview carried out, implies a specific ranking of occupation. To the extent that task complementarity or substitutability with technological innovations produced changes in the ranking of occupation, then the

choice of the year on which the rank of occupations is based, may affect the results.

As robustness check we move from the ranking based on conditions prevailing at the time children are at work (the year of the interview address to children)' to the ranking that was likely to prevail at the time fathers' were at work. To this end, we employ the data on the retrospective section available in SHARE wave 7. We select all work episodes dating to the period between 1979-1991 and rank occupations (for which information is given at 4 digit) according to the monthly wage gained at that time, as declared by respondents' and then converted in dollar PPP.

For both fathers and children, we then computed the child-father difference in the percentiles obtained on the basis of this alternative ranking and compare it with the difference obtained using the previous ranking. The comparison of the two measures is shown in Figure 7.

Figure 7: Father-child difference in occupation percentiles using two different rankings



Drop in observations and in explicative power; robustness of key variables

	wave ranking	alternative
father's pctl	0.072***	0.113***
house bequest	-3.533***	-3.199***
gift	1.236	-0.871
fem	-3.179***	8.708***
perc_fa_sex	-0.002	-0.067**
age	0.493*	-0.249
age2	-0.004**	0.002
years of education	2.335***	0.194
area_sub	-2.587**	-0.554
area_lt	-2.922**	-0.391
area_st	-4.733***	-3.065**
area_ru	-7.999***	-5.167***
region fe	Yes	Yes
Rsq	0.33	0.06
N	7589	4941

6 Conclusions

This paper investigated occupational intergenerational mobility and the role played by inherited housing. Occupations have been ranked according to the median hourly wage in the year of the survey. Data are taken from SHARE that provides, in two waves, detailed 4 digit ISCO information on parents' job. We find evidence that occupational mobility across generations varies by countries, cohorts and main tasks in occupations. Specifically, it is lower in Mediterranean and higher in Nordic countries; the cohorts 1942-56 enjoyed a greater mobility than previous and following cohorts; manual occupations tend to persist across generations more than routine and abstract occupations. According to the econometric analysis, the estimated coefficient on the father's occupation rank is positive and statistically significant across all specifications indicating intergenerational occupational links. Rank to rank correlation is 0.26; conditioning on observables the correlations is around 0.09 indicating that one decile increase of the father rank is associated to around 1 percentile of the child's rank. House bequest is associated to a reduction of the child's

position in the occupational ladder, although this is not the case for the bottom quartile of the child's occupational distribution. A test of selection on unobservables hints that the role of father's rank is likely to be explained away by unobservables (genetic factors), whereas the role of property bequest is robust to the test and to a different base year for ranking occupations.

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