Discussion Paper Series – CRC TR 224

Discussion Paper No. 309
Project A 03

The Intergenerational Correlation of Employment

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July 2021

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Funding by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) through CRC TR 224 is gratefully acknowledged.

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July 6, 2021

Abstract

We document a substantial positive correlation of employment status between mothers and their offspring in the United States, linking data from the National Longitudinal Survey of Youth 1979 (NLSY79) and the NLSY79 Children and Young Adults. Relative to a never employed mother, one who is employed throughout her working-age life increases the probability of her offspring's employment by 11 percent in each given year, after controlling for ability, education, fertility, and wealth. The intergenerational transmission of maternal employment is stronger to daughters than to sons, and it is higher for low-educated and low-income mothers. Investigating potential mechanisms, we provide suggestive evidence for a role-model channel, through which labor force participation is transmitted. Offspring, especially daughters, seem to emulate the example of their mother when they observe her working. By contrast, we are able to rule out several alternative candidate explanations such as network effects, occupation-specific human capital and local conditions of the labor market.

JEL Code: J21, J22, J62

Keywords: Intergenerational transmission, preferences for work, female employment

*This paper has greatly benefited from discussions with professors and students at the European University Institute, Université de Montréal, UC Berkeley and Bank of Canada, as well as from presentations at the 2016 Barcelona GSE Summer Forum, the EUI Macro Working Group, the Séminaire-midi CIREQ-Université de Montréal, and the Bank of Canada Brown Bag Lunch, among others. We are deeply indebted to Árpád Ábrahám, Juan J. Dolado, Baris Kaymak, Lian Allub, Inés Berniell, Nezih Guner, Césaire Meh, Youngmin Park, Dominik Sachs and Jan Stuhler for their fruitful comments. David Koll gratefully acknowledges funding through the German Research Foundation (through the CRC-TR-224 project A3 and the Gottfried Wilhelm Leibniz-Prize), the German Academic Scholarship Foundation, and the German Academic Exchange Service. The data used in this article can be obtained from the website of the National Longitudinal Surveys, Bureau of Labor Statistics. The views expressed in this paper are those of the authors. No responsibility for them should be attributed to the Bank of Canada.

1 Introduction

For several decades, the intergenerational correlation of labor market outcomes has been a subject of interest among both academics and policy-makers. As a key determinant of socio-economic mobility, the correlation of labor earnings between subsequent generations has received particular attention. An extensive literature documents that earnings of individuals are highly correlated with those of their parents (see the comprehensive surveys by Solon, 1999; Bowles and Gintis, 2002; Black and Devereux, 2011; Björklund and Jäntti, 2011). The focus of this literature is on the identification and quantification of channels through which the "potential" to earn is transmitted. Such channels include, among others, the genetic inheritance of cognitive skills, higher investments into children's education by parents with higher income, and parents' social networks, which the offspring can take advantage of.

However, labor earnings do not exclusively depend on the potential to earn but also on exerted work effort. For example, in the standard Neoclassical labor supply model, labor earnings are the product of the wage and some measure of working time. The former can be seen as a sufficient statistic for earnings potential. Interestingly, much less attention has been given to the latter component, labor supply.

In this paper we focus on a particular measure of working time: the fraction of individual's lifetime spent in employment, or the extensive margin of labor supply. Employment is an important labor market outcome not only from the perspective of socio-economic mobility. Also from a Macroeconomic point of view, the aggregate employment rate is a key predictor of GDP and, to the extent that the employed pay income taxes while the non-employed receive welfare benefits, it crucially affects governments' public finances.

Main Results and Contributions. The main contribution of this paper is the documentation of a – to the best of our knowledge – novel fact: the fraction of individuals' working-age life spent in employment is highly correlated with their mothers'. This correlation remains significant even after controlling for the main determinants of the intergenerational correlation of earnings.

Why has this fact been overlooked so far? Perhaps the reason is that the empirical literature on intergenerational earnings correlations typically restricts the analyzed sample to individuals and periods for which earnings are observed, thereby neglecting the variation in employment status (i.e. the extensive margin of labor supply) by con-

struction. Such data, of course, still capture some variation in labor supply, namely the variation in hours worked, or the intensive margin of labor supply. The intergenerational correlation of working hours is indeed studied by a small literature, in particular Altonji and Dunn (1991) and Toledo (2010). Both studies document a significant correlation in working hours between fathers and sons. While the data in Toledo (2010) does not comprise mothers, Altonji and Dunn (1991) don't find a significant correlation between the working hours of mothers and their offspring. We complement these studies on the intensive margin of labor supply using richer and more recent data. Contrary to Altonji and Dunn (1991) we do find a significantly positive intergenerational hours correlation between mothers and their offspring. Yet, once we exclude those mother-offspring pairs with mothers in the lowest quintile of life-time employment, this correlation drops to zero. Hence, even the correlation of working hours is driven by mothers who are at the margin of labor market participation, emphasizing the importance of studying the extensive margin of labor supply.

We obtain our results by linking data from the National Longitudinal Survey of Youth 1979 (NLSY79) and the Children and Young Adults (CNLSY79) cohort. These data are designed to link mothers from a representative sample born in the US between 1957 and 1964 with their offspring. Since more mothers than fathers are at the margin between labor force participation and non-participation, we believe the focus on mother-offspring pairs is reasonable given our goal. Exploiting the longitudinal structure of the data, we first estimate the permanent component of employment status along the life cycle for both, mothers and offspring. This permanent component measures how much of their active life individuals spend in employment. The information included in this component is different from the permanent component of earnings, which is based only on periods of employment when earnings are observed.

We find a robust, statistically significant and positive correlation of employment status.[1] The unconditional correlation is 0.19, implying that, relative to a never employed mother, one who is employed all her active life increases her offspring's probability of employment by 19 percent in each given year. After netting out the influence of ability, education, wealth, and some other relevant covariates, the incremental employment prob-

[1] In the Appendix we provide results for an extensive set of different specifications, all of which confirm our main result.

ability of the offspring remains at 11 percent.[2] This is what we call *residual* correlation of employment.[3]

Furthermore, by splitting the sample into different sub-samples, we find that the residual employment correlation between mothers and their offspring is heterogeneous across several dimensions. It is significantly higher for daughters (0.17) than for sons (0.07). Moreover, the intergenerational correlation of employment tends to decrease in the degree of maternal education and family income.

Potential Mechanisms and Policy Implications. The positive and strong intergenerational correlation of employment has important implications not only for the analysis of social mobility but, potentially, also for the optimal design of tax-transfer policies. It is particularly important in light of several existing policies, such as the Earned Income Tax Credit (EITC) in the United States, which aim to encourage labor force participation. This is especially the case since we find the correlation to be higher at the bottom of the income distribution, the target group of the these policies. Our results suggest that there may be a, perhaps unintended, dynamic fiscal benefit of such policies through increased labor market participation of future generations.

However, before such conclusions can be drawn, an understanding of the channels determining this correlation is needed. For example, if the intergenerational transmission of employment was not affected by mothers' behavior but rather the result of a direct transmission of preferences for work,[4] none of the government's costs, of a policy encouraging parental employment, will be recovered through higher participation of their offspring. In such a situation, the offspring will have the same attitude towards work independent of the existence of such a policy. However, the very opposite is true if the offspring emulate the *behavior* of their parents. Then a policy that increases parental employment, even if it is currently costly, may amortize through increased participation of future generations.

Using a correlational study to argue in favor or against a specific channel is always difficult as alternative explanations may be compatible with the observed correlations. Nevertheless, we offer three pieces of evidence suggesting that indeed such a role-model

[2]Ability for mothers is measured via the Armed Forces Qualification Test (AFQT), ability for the offspring via the Math score in the Peabody Individual Achievement Test (PIAT).

[3]To put these numbers into perspective, estimates for the intergenerational earnings elasticity in the US have oscillated around 0.4 (see, for example, Solon, 1992; Zimmerman, 1992; Chetty et al., 2014).

[4]By direct preference transmission we refer to a situation in which the mother transmits her preference for work to her offspring independently of her work behavior.

effect is in place and that therefore, from a public finances' point of view, policies that move mothers into the labor force may result in increased revenues from future generations. First, as mentioned above, the correlation of employment status is higher for mother-daughter pairs than for mother-son pairs, and role models tend to be more pronounced within the same gender (Bettinger and Long, 2005). Second, exploiting certain survey questions, we are able to construct a measure for *female* work preferences that represents the disutility of work. While we find that maternal disutility of work has a small direct impact on the offspring's employment, the coefficient on maternal employment remains unaffected. This suggests that actually observing the mother working is important for the offspring to develop a more positive attitude towards work. This is confirmed by our third and last piece of evidence, which disentangles the direct transmission of preferences from the role-model channel by controlling for periods in which the mother does not cohabit with her offspring. This measure serves as a proxy for mothers' work preferences. It turns out that the correlation is mainly driven by periods of cohabitation, in which it is arguably easier for the offspring to emulate the behaviour of the mother.

Finally, we study alternative explanations for this residual correlation, such as the effect of networks, occupation-specific human capital, or local conditions of the labor market. Particularly, we analyze the heterogeneity in the intergenerational correlation of employment across mother-offspring pairs that do or do not share industries, occupations, or regional labor markets. The lack of difference across groups shows that these explanations are unlikely to drive the intergenerational correlation of employment status.

Related literature. Our paper contributes to many different branches of the empirical literature studying the transmission of preferences for work across generations. Methodologically, we use tools of the well-established literature on the intergenerational correlations of labor market outcomes (Solon, 1992, 1999; Haider and Solon, 2006; Grawe, 2006; Lee and Solon, 2009; Nybom and Stuhler, 2016, 2017; Mazumder, 2005).

The gender literature has analyzed the transmission of preferences for work from the perspective of gender roles. An important part of this literature uses the so-called epidemiological approach. This approach considers the intergenerational transmission of cultural traits when outcomes of second-generation migrants and those of the parents' country of origin are correlated. Fernandez (2007) and Fernandez and Fogli (2009) interpret such correlation in female labor force participation as cultural transmission of

women's roles. Another, more structural, strand of the gender literature also looks at cultural transmission. For instance, Fernandez (2013) explains the S-shape in the female labor force participation during the second half of the 20$^{\text{th}}$ century with a model that introduces learning across generations about the returns to female work. These studies deal with the transmission of society-wide preferences. We instead analyze preference transmission within the family, from mothers to their offspring. Furthermore, our paper does not limit attention to the transmission of gender roles, as we do not restrict the analysis to mothers and daughters. In this last sense, our paper distances itself from others that have analyzed the transmission of gender roles (see, for example, Binder, 2020; Olivetti et al., 2020).

Another related strand of literature documents that parental welfare benefit reception results in an increased probability of the offspring claiming the benefits themselves. In the context of the Norwegian disability insurance (DI) system, Dahl et al. (2014) exploit variation in the leniency of appeal judges, who are randomly assigned to decide on cases where individuals were originally denied disability insurance. The authors find that when a parent is allowed DI at the appeal stage, their adult offspring's DI participation rate increases by 12 percentage points over the following 10 years. This number is surprisingly similar to what we find for employment. Furthermore, their results are consistent with our suggested mechanism. In particular, in both their paper and ours, differential outcomes of the offspring are not explained by differences in what parents want – all parents in their paper apply for DI – but rather by differences in what parents actually do. Two similar recent contributions are Dahl and Gielen (2021), who use a regression discontinuity design induced by a reform of DI in the Netherlands, which tightened eligibility criteria, and Hartley et al. (2017), who exploit cross-state variation in the timing of welfare and income support program reforms in the US. We see our contribution complementary to these papers. On the one hand, the quasi-experimental design in these three papers allow them to make causal inferences. On the other hand, the findings of these papers are very specific to the respective institutional setting and restricted to the receipt of a certain kind of welfare benefit. In contrast, we document the transmission of employment between mothers and their offspring for a representative sample of the US population. The evidence from these papers does not allow for inferences on the transmission of employment, an important labor market outcome.

As mentioned above, closely related to this paper are also studies that infer transmission of work preferences from the intensive margin of labor supply. Estimating an overlapping generations model with data from the Panel Study of Income Dynamics, Toledo (2010) attributes the correlation in hours worked between fathers and sons to the transmission of preferences for work.[5] Altonji and Dunn (1991) use data on both fathers and mothers. As Toledo (2010) they do find a significant correlation between labor supply of fathers and sons. However, contrary to our study, they do not find a significant correlation between mothers and their offspring. We explain this discrepancy by the fact that we use much more recent data and that in the decades since their study, the structure of the economy with respect to female labor force participation changed significantly. Furthermore, while their focus lies on the intensive margin, ours lies on the extensive margin of labor supply, which, given the results mentioned above, seems to be the more relevant one for the transmission of maternal labor supply.

Outline. The remainder of the paper is structured as follows. In Section 2, we present the data, followed by the empirical strategy in Section 3. Section 4 documents the main results. In Section 5, we discuss potential mechanisms. Section 6 concludes.

2 Data

We use the National Longitudinal Survey of Youth 1979 cohort (NLSY79) and the Children and Young Adults cohort (CNLSY79). These data are widely used in the analysis of inequality and labor market research. The NLSY79 surveys a representative sample of individuals born in the US between 1957 and 1964. Respondents are 14 to 22 years old in 1979 and are followed since then. Our last observation is 2018, when they are 56 to 62 years old. The frequency is annual between 1979 and 1994, and biannual thereafter. The offspring of the women in this cohort are surveyed on a biannual basis since 1986, constituting the CNLSY79. They are linked to the original cohort by a unique identifier provided by the US Bureau of Census.[6]

[5] Altonji and Dunn (2000) reach a similar conclusion using the National Longitudinal Survey of Labor Market Experience and relying on a factor model that allows preferences to influence labor market outcomes.

[6] Although in the NLSY79, only mothers (and not fathers) can be linked to CNLSY79 data, this does not challenge the objective of our paper. As we focus on the extensive margin of the labor supply decision, using maternal employment information is reasonable because female labor force participation is typically lower (through more elastic labor supply) than male labor force participation, particularly

We restrict the analysis to the cross-sectional sub-sample of the NLSY79 that is designed as a representative sample of the US population in 1979. We exclude other sub-samples that oversample particular groups of the population, to avoid weighting the estimates. We restrict to observations during ages 25 to 45 for both cohorts to keep the representativeness of the lifetime employment experience (the oldest individual in the second cohort is 44 years old in 2018). We obtain a final sub-sample of 1,922 mothers paired to 3,748 offspring.

The data are particularly rich. They provide detailed information on labor market outcomes, education, and further demographic and socio-economic characteristics. Importantly, they contain widely used indicators of ability, which is a key confounder for the estimation of intergenerational transmission of labor market outcomes: the Armed Forces Qualification Test (AFQT) for the mothers and the Peabody Individual Achievement Test (PIAT) for the offspring; we use the Math score of the latest PIAT assessment for the offspring cohort, in line with the literature (Abbott et al., 2019). We use information on wealth (net worth), computed as assets (savings, home and vehicle ownership) minus debts (credit cards, students loans, mortgages, vehicle loans, and others).[7]

Table 1 provides descriptive statistics of the data (additional descriptives are summarized in Table C.12 in the Appendix). For most variables, we report the means across individual averages for those observations over the 25 to 45 years old range in our sample. The last two columns refer to the sample of mothers and their offspring, and the first one shows the characteristics of the total sample of women in the NLSY79 cohort for reference. All monetary values are deflated using the Consumer Price Index (CPI) and expressed in prices of 1980.

Mothers are observed on average for 14 waves, and offspring for 3.2 waves. The average age is 33 for mothers and 28 for the offspring. The sample of mothers is representative of women with children by design. As compared with the total sample of women in the NLSY79, mothers are slightly less educated and live in poorer households. Women are 24 years old on average when they give birth. The offspring's cohort is relatively younger than the mothers' by construction, as reflected in the age and other characteristics associated to the life cycle (for example, the proportion married and cohabiting is lower

during the period of observation of the first cohort.

[7]We winsorize the values of total wealth at the 1 percent and 99 percent each year to eliminate extreme values.

Table 1: Summary statistics for women and mother-offspring pairs in NLSY79 and CNLSY79

	Women	**Mothers**	**Offspring**
Demographics			
Age	32.9	33.2	28.4
	(1.7)	(1.0)	(2.1)
Female	100%	100%	50%
Married/cohabiting	67%	77%	32%
Number of children	1.9	2.5	1.1
	(1.4)	(1.2)	(1.2)
Maternal age at birth			24.2
			(4.6)
Education and Ability			
Years of education	13.7	13.3	14.8
	(2.6)	(2.4)	(2.5)
High-school drop-out	7%	8%	9%
High-school	40%	45%	22%
Some college	25%	26%	26%
College	28%	21%	42%
Percentile in cognitive test	48.8	44.9	51.6
	(28.5)	(28.1)	(28.7)
Age at test	18.0	18.1	11.8
	(4.0)	(4.0)	(4.2)
Labor Market Outcomes			
Employment	79%	76%	85%
Hours/week	37.7	36.5	41.0
	(8.2)	(8.3)	(10.4)
Hourly wage (in USD)	8.1	7.6	8.5
	(8.2)	(9.3)	(11.3)
Annual earnings (in 1,000 USD)	12.8	11.1	15.4
	(9.0)	(7.7)	(10.7)
Wealth and Income			
Net worth (in 1,000 USD)	50.8	47.4	9.9
	(84.3)	(79.5)	(17.7)
Family income (in 1,000 USD)	33.5	31.8	28.2
	(35.4)	(35.1)	(23.2)
Welfare participation	16%	21%	7%
Health limitations for work	7%	7%	5%
Number of interviews	13.2	14.0	3.2
	(3.1)	(2.0)	(1.5)
Individuals	3,040	1,922	3,748

Notes: Averages for quantitative variables (standard deviations in parentheses), percentages for dichotomous variables, for observations in the 25 to 45 years old range in our sample. Cognitive tests are AFQT for parents and PIAT Math for offspring. Monetary variables are in 1980 USD, and net worth is winsorized at the percentiles 1 and 99 to avoid outliers.

in the offspring's cohort, and the wealth level as well). Observations of older offspring correspond to younger mothers at the time of birth. The Offspring are slightly more educated than mothers.

Questions about employment status vary across waves in the survey. Our choice of the particular question used in our analysis balances two objectives: (i) we want to have a measure that is as homogeneous as possible between the samples of mothers and offspring; (ii) at the same time, the questions should be consistent along the different waves and minimize the number of non-responses. We consider mothers to be employed if they declare that they worked for 10 or more weeks in the year before the interview. We categorize offspring as employed if their earnings in the year before the interview were equivalent to at least two months of a part-time job at the minimum salary.[8] The employment rate is 76% for mothers and 85% for the offspring cohort (73% for daughters). Although these figures seem high as compared with official statistics of female employment, they are not at odds, considering that we are taking an annual window for the measurement of employment.

Employed mothers and offspring work on average 37 and 41 hours a week at an hourly wage rate of \$8 and \$8.5 (in 1980 USD), respectively. Earnings amount to \$11,100 and \$15,400 annually. Net worth is higher for the mothers' than for the offspring's cohort (\$47,400 vs. \$9,900), a difference potentially due to the composition of the offspring's sample explained above, as well as because most offspring had not inherited yet at the time they were surveyed. No such differences are observed in family income across cohorts, though (\$31,800 and \$28,200, respectively). Higher welfare participation is observed for mothers (21% of the periods) than for the offspring (7%), and health limitations for work affect 7% of mothers' observations and 5% of offspring's. The average percentile of maternal cognitive test scores is 45, while it is 52 for offspring. Mothers take the test when they are 18 years old and offspring when they are 12. Further details on the data can be found in Appendix B.1.

[8]The lower bound for earnings is arbitrary, although reasonable. It corresponds to 2 months of work (9 weeks) in a part-time job (20 hours a week) at the minimum salary (\$4.25 in the first year of our sample, 1994, deflated). The main purpose is to exclude casual jobs. We also show that the results are robust to other measures of employment.

3 Empirical strategy

We follow the literature on intergenerational correlations of labor market outcomes to quantify the persistence in employment status across generations. The unit of observation is the mother-offspring pair i and our main regression specification relates the permanent component of employment – which can be interpreted as the fraction of the lifetime spent in employment – of the mother l_{Mi} to the permanent component of employment of the offspring l_{Ci}. The reduced-form specification is

$$l_{Ci} = \alpha + \beta l_{Mi} + \phi_M X_{Mi} + \phi_C X_{Ci} + \epsilon_i. \tag{1}$$

Our coefficient of interest, β, summarizes the intergenerational persistence of employment. X_{Mi} and X_{Ci} are control variables for mothers and offspring, respectively. We consider different specifications and control for several confounders, including education (maximum level attained), ability,[9] wealth (permanent component of winsorized value, standardized), the number of children of individuals in both generations, and the age of the mother at birth.

Computation of permanent components. Equation (1) relies on measures of lifetime employment status. The literature on intergenerational correlations is quite rich in terms of how to compute these lifetime or long-run measures. Given the nature of our data, we take an approach that allows for the use of information from all periods. Following Zimmerman (1992) and Toledo (2010), we obtain these lifetime or permanent components of employment as the fixed effects in a statistical model for the probability of being employed in each period under observation.[10]

We specify a linear probability model,

$$l_{kit} = l_{ki} + \sum_{n=1}^{2} \pi_{nk} A_{kit}^n + \lambda_{kt} + \upsilon_{kit}, \tag{2}$$

[9] We include the residual of ability after regressing it on a square polynomial of the age at which individuals took the test. This is to correct for differences in age of ability tests within and across cohorts.

[10] Using multiple periods has been shown to reduce measurement error (see, for example, Solon, 1992; Mazumder, 2005; Haider and Solon, 2006). This strategy is simpler than a factor model that explicitly models such error (see, for example, Lochner et al., 2018), but we consider it effective, particularly for employment, the main focus of this paper. Lee and Solon (2009) recommend an efficient approach by using all the offspring's observations in a version of the intergenerational equation (1). Our approach also uses all the information of the offspring, but in a two-step procedure that we deem accurate according to the Frisch-Waugh-Lovell theorem.

which we run for both generations $k \in \{M, C\}$. Specifically, we assume that the probability of individual i to be employed in year t is a function of a second-order polynomial of the individual's age A_{kit}, a year fixed effect λ_{kt}, and an individual fixed effect l_{ki}. This individual fixed effect represents the permanent component of employment status, abstracting from life-cycle fluctuations (absorbed by age effects), and from business-cycle fluctuations (absorbed by year effects). We can interpret the permanent component of employment as the proportion of lifetime each individual is in employment.

Regression versus correlation coefficient. An alternative to the regression coefficient β for measuring persistence in labor market outcomes across generations is the correlation coefficient,[11]

$$\rho = \beta \frac{\sigma_M}{\sigma_C}, \tag{3}$$

where σ_M (σ_C) denotes the standard deviation of mothers' (offspring's) employment. Because the variability of mothers' and offspring's employment is very similar, there is not a big difference between the reported regression coefficients and the correlation coefficients.[12] We hence present only the regression coefficients throughout the main text and refer to the coefficient of interest, β, as the correlation of intergenerational employment status. More details about methodological issues in measuring the intergenerational persistence of labor market outcomes can be found in Appendix B.2.

4 Results

4.1 Intergenerational correlation of employment

In this section, we document the intergenerational correlation of employment status for the United States. Table 2 shows the regression coefficients for maternal employment and covariates estimated using equation (1). Standard errors are clustered at the mother level to account for possible auto-correlation in siblings' error terms.

The first column (without controls) shows an unconditional correlation of employment of 0.19. Relative to their peers with never employed mothers, offspring of mothers, who

[11] Note that the correlation coefficient is conditional on covariates X_{Mi} and X_{Ci} if included in the regression.

[12] The standard deviations of the permanent components l_{Mi} and l_{Ci} are $\sigma_M = 0.29$ and $\sigma_C = 0.30$.

are employed throughout their working-age life, are on average employed an additional 19 percent of their own active life. Similarly, an increase in the maternal employment probability by 10 percent, increases the employment probability of her offspring by, on average, 1.9 percent.[13] This finding of a substantial association in employment across generations is, to the best of our knowledge, a novel fact.

In the remaining specifications, we further include covariates that typically influence the outcome variable, i.e. employment. In specification (2) we control for ability and education, of both mother and offspring; in specification (3) we include net worth to control for potential wealth effects on labor supply; and in specification (4) we additionally control for the number of offspring of both generations and the age of the mother at birth using dummies.

Our main result is robust across all three specifications. While, relative to the unconditional correlation, the coefficient on the mother's employment declines from 0.19 to 0.11, it remains statistically significant at the 1% level. This means that, controlling for the factors which the literature on intergenerational transmission found to be important, a large and significant residual intergenerational correlation of employment remains. Specifically, each additional year of maternal employment increases employment of the offspring by almost six weeks, on average.

Across all specifications, the mother's ability does not have an influence on the offspring's employment. By contrast, the mother's education does. Specifically, relative to high-school drop-outs, the offspring of a mother with a high-school degree or some (incomplete) college education has 6-7% higher probability of being in employment in a given year, while the offspring of mothers with a college degree do not show any higher probability of employment.

We observe that the main predictors, however, are ability and education of the offspring. Contrary to the mother's education level we see that the correlation between the offspring's education level and their employment is monotonic. Relative to high-school drop-outs, an offspring with a high-school degree is employed 5-6% more, one with some (incomplete) college education is employed 12-13% more, and one with a college degree

[13] As a comparison, estimates for the intergenerational elasticity of income for the US have oscillated around 0.4 in early work based on survey data (Solon, 1992; Zimmerman, 1992) to above 0.5 in recent work using administrative data (Chetty et al., 2014). Smaller figures correspond to other outcomes related to employment; for example, Toledo (2010) estimates 0.2 intergenerational correlation in hours, and Macmillan (2011) finds a correlation of 0.1 for non-employment.

Table 2: Baseline regression

Dependent variable: Employment - offspring (l_{Ci})

Specification	(1)	(2)	(3)	(4) Baseline
Employment - mother l_{Mi}	0.19***	0.11***	0.11***	0.11***
	(0.022)	(0.020)	(0.020)	(0.020)
Ability - mother		0.01	0.00	-0.00
		(0.021)	(0.022)	(0.022)
Ability - offspring		0.12***	0.12***	0.12***
		(0.020)	(0.020)	(0.021)
High-school - mother		0.07***	0.07***	0.06**
		(0.025)	(0.025)	(0.025)
Some college - mother		0.07***	0.07***	0.07**
		(0.026)	(0.026)	(0.026)
College - mother		0.05*	0.04	0.04
		(0.028)	(0.028)	(0.028)
High-school - offspring		0.06**	0.06**	0.05*
		(0.026)	(0.026)	(0.026)
Some college - offspring		0.13***	0.13***	0.12***
		(0.025)	(0.026)	(0.026)
College - offspring		0.17***	0.16***	0.15***
		(0.025)	(0.025)	(0.025)
Net worth - mother			0.00	0.00
			(0.004)	(0.004)
Net worth - offspring			0.01*	0.01**
			(0.005)	(0.006)
Control mother's age at birth and number of children	NO	NO	NO	YES
Observations	3,748	3,597	3,582	3,582
Adjusted R^2	0.03	0.10	0.10	0.11

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Mother's age at birth and number of children of mothers and offspring are controlled by introducing a set of dummies for each value.

is employed 15-17% more. All these coefficients are estimated quite precisely with a standard error of around 2.5%. The simple explanation is that wages, and hence the opportunity cost of non-employment, are increasing in both the offspring's ability and education. By contrast, there is no sign of a wealth effect as net worth does not have any

substantial correlation with employment.

In specification (4) we additionally control for the number of children of both generations and the age of the mother at birth using dummies. This is the specification we will use in everything that follows, unless stated otherwise. However, the inclusion of these controls does not have a significant impact on any of the other estimated coefficients.

The coefficient on maternal employment is equal to 0.11 across all specifications (2)-(4). Human capital variables (education and ability) seem to play an important role in the intergenerational correlation of employment. Specifically, the whole difference between the coefficient of 0.11 in the regression with all the controls and the coefficient of 0.19 in the regression without controls occurs when these variables are included (specification (2)). In any case, a big part of the intergenerational correlation of employment cannot be explained by either human capital or the other controls.

Extensive versus intensive margin of labor supply. In the baseline results in Table 2, we focus on the extensive margin of labor supply, the main interest of our investigation. To put these results into perspective, we include now a measure of the intensive margin of labor supply: weekly working hours. The first two columns in Table 3 repeat the estimates of β for employment status (specification (1) and (4) in Table 2).

Table 3: Margins of labor supply

Dependent variable (offspring)	Employment		Log weekly hours		Log weekly hours	
Employment - mother	0.19***	0.11***				
	(0.022)	(0.020)				
Log weekly hours - mother			0.17***	0.09***	0.02	0.00
			(0.024)	(0.022)	(0.039)	(0.036)
Controls	NO	YES	NO	YES	NO	YES
Sample (quint. emp.-mother)	Q1-Q5		Q1-Q5		Q2-Q5	
Observations	3,748	3,582	3,849	3,679	3,078	2,954
Adjusted R^2	0.03	0.11	0.02	0.13	0.00	0.10

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In columns five and six we restrict the sample to mother-offspring pairs where the mothers' permanent employment component is in the top 80%. In columns two and four, we use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

The middle two columns show the analogous coefficients of a regression using log

hours worked per week instead of employment (we include the periods of non-employment with zero hours worked).[14] Both the unconditional and the conditional correlation are of the same order of magnitude as the ones for employment. However, the positive intergenerational correlation in working hours is entirely driven by mothers, who are in the lowest employment quintile. Specifically, the last two columns restrict the sample to mother-offspring pairs where the mother's permanent employment component is higher than for which one of the twentieth percentile. We observe that when restricting the sample in this way, the intergenerational correlation of working hours becomes zero.[15]

It is useful to relate our results to the (very small) literature on the intergenerational correlation of labor supply. Altonji and Dunn (1991) use a similar methodology as we do, but much older data from the National Longitudinal Survey of Labor Market Experience. Specifically, their offspring generation is, on average, about ten years older than our mothers' generation. Contrary to us, the authors find no significant correlation between mothers' working hours and those of their offspring – both daughters and sons – after appropriately controlling.[16] They also do not find a substantial intergenerational correlation in hours between fathers and their daughters. Only the father-son correlation in hours is significantly positive in their data, a result that is also confirmed by Toledo (2010).

In sum, using more recent data, we are the first to document a significant intergenerational correlation in the labor supply of mothers and of their offspring, both at the extensive and the intensive margin. Furthermore, we show that the correlation in working hours is driven by mother-offspring pairs, where the mother is only marginally attached to the labor market, that is where the mother's life-time spent in employment is in the lowest quintile. Hence, the transmission in labor force participation from mothers to their offspring is mainly driven through the extensive margin of labor supply. Previous studies may not have detected this because they restricted data to periods where mothers were employed, ruling out such transmission by design.[17]

[14]Zero hours were treated by adding a very small constant, 0.001, to hours data before taking the logarithm. Results remain unaffected if we use the inverse hyperbolic sine transformation of hours.

[15]By contrast, the same restriction leaves the intergenerational correlation of employment significantly positive at 0.08 (unconditional), respectively 0.06 (with controls).

[16]In an older version of our paper, which included the NLSY79 waves up to 2012 only, also our correlation when adding controls was insignificant, though positive.

[17]Altonji and Dunn (1991) do study the correlation in weeks worked but find a negative (non-significant) correlation of weeks worked between mothers and their sons.

Spousal employment. So far, we have focused exclusively on maternal labor supply variables. It is important to determine whether a father's labor supply choices also influence the employment status of the offspring. It may be that the unexplained association between employment of mothers and offspring is due to the influence of the father. Unfortunately, the NLSY79 is not designed to match fathers to their offspring. However, the data provide information on the employment status of spouses as reported by mothers, which we use as a proxy for fathers' employment.

Table 4: Spousal employment status

Dependent variable: Employment - offspring (l_{Ci})				
Employment - mother	0.11***		0.11***	0.11***
	(0.022)		(0.022)	(0.022)
Employment - spouse		0.09	0.07	0.06
		(0.063)	(0.064)	(0.067)
Emp. - mother × Emp. - spouse				-0.05
				(0.196)
Controls	YES	YES	YES	YES
Observations	3,583	3,583	3,583	3,583
Adjusted R^2	0.10	0.10	0.10	0.10

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth. The regressions correspond to the triplets spouse-mother-offspring for which a spouse is reported. Note that not all mothers report having a spouse in all the waves, nor are their spouses the same across waves.

The first column of Table 4 repeats the baseline result for the sub-sample in which we also observe the spousal employment status (specification (4) in Table 2). Column two shows the regression output when we regress offspring employment on the spouse's employment status. While the point estimate is almost the same as the one for mothers, it is not significant because the standard error is three times as high. In the third column, we include both the maternal and spousal employment status and observe that the coefficient on maternal lifetime employment is the same as in the baseline specification, whereas the coefficient on spousal employment remains insignificant. Finally, when we also introduce an interaction term between mothers' and spouses' employment status

(fourth column), this coefficient is insignificant, suggesting that there is no complementarity in the transmission of mothers' employment status and the one of their spouses.

Self-employment. It is also interesting to study the intergenerational correlation of self-employment, a particular form of employment. In Table C.13 we repeat our baseline regressions but with the permanent components of mothers' and children's self-employment status instead of employment, where we define self-employment analogously to our employment measure above with the additional restriction that mothers, respectively offspring, report to be self-employed at the date of the interview. This correlation of 0.04, though significant, is lower than the one for employment. Hence, our main result is not driven by self-employment.

4.2 Robustness

Different Methodologies. The main result of a positive and significant correlation between maternal and offspring's lifetime employment is robust to several changes in the specification. Variants in the specification are presented in more detail in the Appendix (Section B.3 explains additional details of some exercises, and the tables with results are shown in Section C.1). First, as is usual for the estimation of earnings correlations, we estimate equation (1) with logs of the permanent components (Table C.14). Second, following Chetty et al. (2014), we estimate rank-rank regressions for average employment status of mothers and offspring (Table C.15). Third, we adopt two alternatives in computing the permanent components: (i) simple averages of the employment status as the permanent component (without controlling for life-cycle or business-cycle fluctuations) as in the early literature (for example, Solon, 1992); and (ii) including controls for demographic events into the calculation of the permanent components (Table C.16). Finally, we also show that our results are robust to the use of other questions in the survey that allow for the inference of employment status but are less comparable across cohorts or less complete across years (Table C.17).[18]

Welfare Benefits and Health Limitations. As mentioned in the introduction, there is a growing literature documenting that welfare benefit reception is correlated across generations (Dahl et al., 2014; Dahl and Gielen, 2021; Hartley et al., 2017). In Ta-

[18]Further robustness exercises, such as using ability quartile dummies or including interactions of covariates, also confirm the findings of the baseline estimation. They are not included in the paper but are available upon request.

ble C.18 we also document a significantly positive intergenerational correlation of benefit receipt with our data (first column). Yet, controlling for welfare reception does not significantly change the intergenerational employment correlation, though the point estimate is somewhat reduced (second column). Furthermore, the interaction term between employment of the mother and welfare reception is not statistically significant, which rules out that the correlation of employment is mainly driven by welfare reception. Another concern may be the correlation in employment could be coming from healthy mothers and offspring working more and health being passed on from one generation to the next. While we do find a significantly positive intergenerational correlation in health limitations (third column), controlling and interacting for those does again not significantly change the employment correlation (last column).

Quality of Work. One may also wonder whether controlling for measures of work quality affects the intergenerational employment correlation. We do not find an indication of that. While the quality of a job depends also on non-monetary aspects, the hourly wage is arguably the most objective measure to compare different quality of jobs. In Table C.19 we control for the permanent component of the hourly wage of both mothers and offspring (first two columns). We observe that the intergenerational correlation of employment is not significantly different when adding these controls.

4.3 Heterogeneous employment correlations

In this section, we analyze whether the established fact of a significant and positive intergenerational correlation of lifetime employment differs across relevant dimensions, such as gender (daughters in comparison to sons) and socio-economic background (maternal education and income). We hence partition the sample in three different ways:

(i) according to the offspring's gender: $\mathcal{G}_1 = \{\text{sons, daughters}\}$

(ii) according to the highest formal maternal education: $\mathcal{G}_2 = \{\text{incomplete high-school, complete high-school, incomplete college, complete college}\}$

(iii) according to the mother's family income quintile: $\mathcal{G}_3 = \{\text{quintile 1,..., quintile 5}\}$

For all $k \in \{1, 2, 3\}$ the estimated models follow the specification,

$$l_{Ci} = \alpha + \sum_{G \in \tilde{\mathcal{G}}_k} \alpha_G \mathbb{I}_{i \in G} + \beta l_{Mi} + \sum_{G \in \tilde{\mathcal{G}}_k} \beta_G \mathbb{I}_{i \in G} l_{Mi} + \phi_M X_{Mi} + \phi_C X_{Ci} + \epsilon_i, \tag{4}$$

where the first group of each partition is our reference group (for example, sons in partition $\mathcal{G}_1$) and $\tilde{\mathcal{G}}_k$ denotes the partition without this first group (for example, $\tilde{\mathcal{G}}_1 = \{\text{daughters}\}$). The indicator variable $\mathbb{I}_{i \in G}$ takes the value one when offspring i belongs to group G and zero otherwise. In the following we discuss the coefficient β_G and/or the marginal effect $\beta + \beta_G$ of mother's employment on the employment of their offspring in the corresponding group G.

Gender. The first column of Table 5 shows the results of estimating equation (4) with $\mathcal{G}_1 = \{\text{daughters, sons}\}$. The coefficient on the interaction between employment of mothers and the daughter dummy is positive and statistically significant. The intergenerational correlation of employment is 0.17 for girls and 0.07 for boys.[19] The stronger link between mothers and daughters in terms of employment is interesting in light of the findings in the literature on intergenerational correlations of earnings that report lower estimates for daughters than for sons (see, for example, Chadwick and Solon, 2002; Olivetti and Paserman, 2015). It is also suggestive of a role-model effect, as role models are intuitively more likely to be gender specific. Nevertheless, the correlation between mothers' and sons' employment is still significantly positive, suggesting that the role-model effect exceeds a pure transmission of gender roles.

Maternal education. The intergenerational correlation of employment status is stronger the more disadvantaged the educational background of the mother. Figure 1 depicts the marginal effects of mothers' employment for each education level in $\mathcal{G}_2$. It is the highest and significantly positive for mothers with no degree (0.24) or a high-school degree (0.12). It is only insignificantly positive for mothers who attended college but did not complete it. Interestingly, if they obtained a college degree, the coefficient of 0.1 is again significantly positive.[20]

[19] Note that the coefficient for boys coincides with the marginal effect, as boys are the reference group in the regression. The numbers are the regression coefficients. The corresponding correlation coefficients (see equation (3)) are 0.15 and 0.07, respectively. The difference across genders increases as a consequence of disparities in standard deviations of lifetime employment.

[20] The corresponding regression results are reported in Table C.20 in the Appendix. It can be seen that the interaction of mothers' employment with incomplete college is statistically significant.

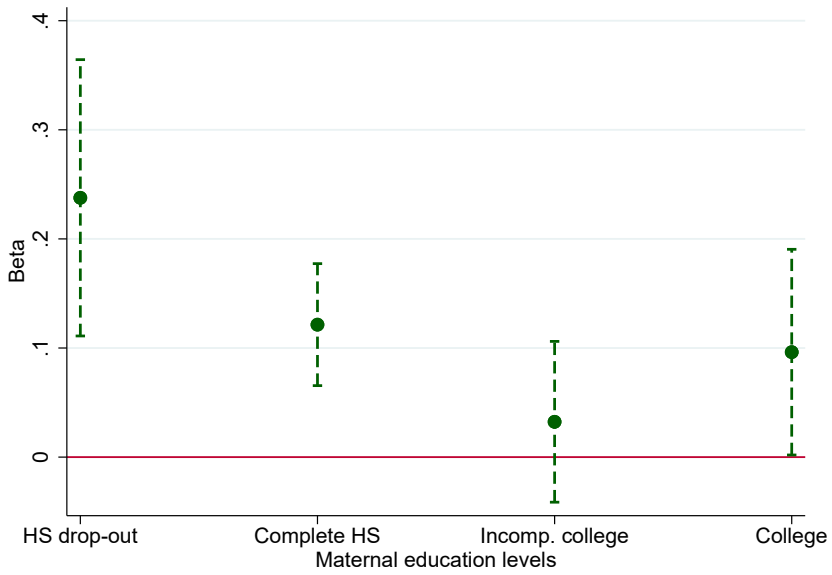
Table 5: Gender differences

Dependent variable: Employment - offspring (l_{Ci})

	Equation (4)	Marginal effect
Employment - mother	0.07**	0.07**
	(0.026)	(0.026)
Employment - mother × Daughter	0.10***	0.17***
	(0.036)	(0.028)
Controls	YES	
Observations	3,582	
Adjusted R^2	0.13	

Notes: Standard errors clustered at the mother level in parentheses; standard errors calculated using the delta method for the marginal effects. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

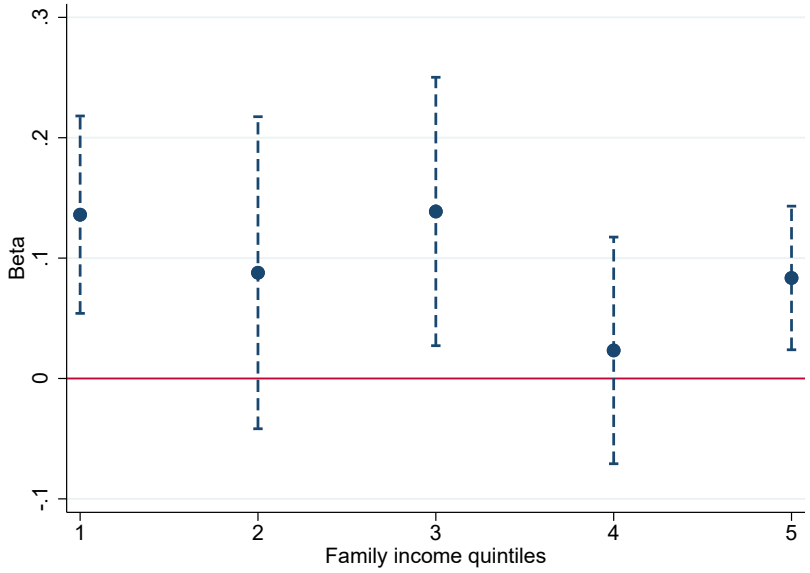
Figure 1: Intergenerational correlation of employment status by maternal education



Notes: Standard errors clustered at mother level, determined using the delta method. 95% confidence level intervals. The dependent variable is the permanent component of the employment status of the offspring. The maternal education is the maximum attained and observed education level. We use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

Maternal family income. Figure 2 shows the marginal effects of mothers' employment on the offspring for each income quintile. The estimated coefficient is highest for offspring from mothers in the lowest income quintile and third income quintile (0.14) and only insignificantly lower for the second and fifth quintile. Only for the fourth quintile is it close to zero and insignificant. Overall the positive correlation seems to be present across the whole income distribution, but higher in the lower half.

Figure 2: Intergenerational correlation of employment status by family income quintiles



Notes: Standard errors clustered at mother level, determined using the delta method. 95% confidence level intervals. The dependent variable is the permanent component of the employment status of the offspring. Quintiles of family income correspond to the quintile observed in the majority of the survey years. We use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

This pattern – a somewhat higher transmission of employment status at the bottom of the income distribution – is similar for daughters and sons, as Figure C.5 in the Appendix shows.[21] In particular, mothers from low-income families tend to transmit their employment status to their daughters much more than mothers with higher family income. By contrast, Olivetti et al. (2020) find that gender roles are transmitted more at the top of the income distribution. This discrepancy supports our claim that the residual employment correlation we document is not entirely the result of a transmission of gender roles.

[21] Figure C.5 further shows that education also affects the transmission of employment to girls and boys similarly.

The fact that the transmission of employment status is strong for low-income earners is particularly interesting in light of existing income tax credits for low-income families with children, such as the EITC in the United States. Such programs directly encourage labor force participation of eligible recipients. If participation of these recipients is transmitted to their offspring (and hence their offspring's children, etc.), it may indirectly generate higher labor income tax revenues in the following generations. Hence, there may be a dynamic fiscal benefit of such programs. However, before drawing normative conclusions from our – so far positive – analysis, it is necessary to get a better understanding of the precise mechanism through which employment status is transmitted. This is the focus of the remainder of this paper.

5 Potential mechanisms

In this section we evaluate potential mechanisms that could explain the significantly positive intergenerational correlation of employment status between mothers and their offspring. In the first part we discuss how far the transmission of attitudes toward work – or *work culture* – could explain the observed results. Particularly, we provide some evidence suggesting that there may be a role-model effect.

In the second part, we rule out several other mechanisms that could in theory explain the facts: neither networks, occupation-specific human capital nor regional labor markets seem to be a driving force behind the main result in Section 4.

5.1 Work culture

One way to interpret the results is that parental preferences for work or employment of parents affect the attitude that their offspring have towards work.[22] Therefore, when offspring inherit work attitudes from their parents, it is important to distinguish two potential channels, through which these attitudes may be transmitted. They are schematically represented in Figure 3. First, it could be that preferences are transmitted directly: a mother who dislikes working tends to have offspring who dislike working independent of

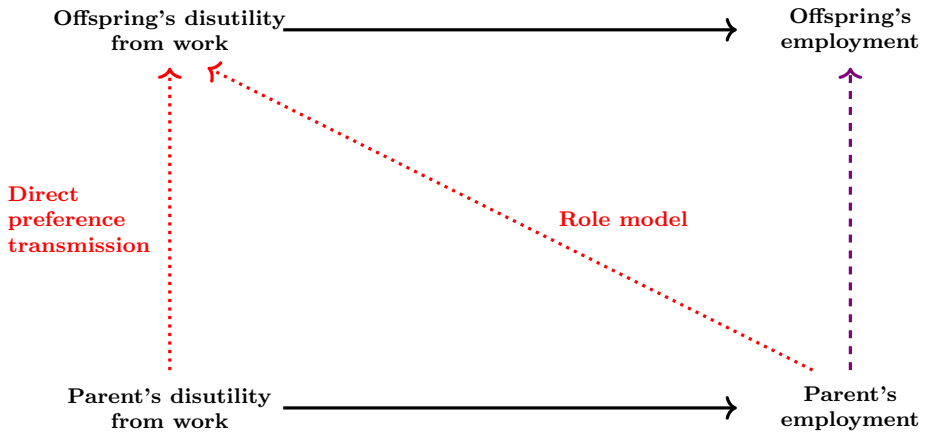
[22]In Appendix A we formalize this idea within a simple two-generations model based on Solon (1999). In this model, we allow offspring's preferences to be affected by parental employment. The offspring's optimality condition is an intergenerational equation comparable to the one estimated above, with the coefficient on parent's (lifetime) employment precisely capturing this effect. A theory of work culture is hence consistent with the observed significant correlation between mothers' and offspring's employment.

her working behavior. Second, it could be a role-model effect: observing the mother participating in the labor market influences the offspring to develop a more positive attitude towards work.

This differentiation is important for policy analysis or dynamic scoring. For example, when evaluating the desirability of in-work benefits, only in the presence of a role-model channel will such benefits lead to higher income tax revenue raised from future generations. By contrast, if preference transmission does not operate through a role model, for example if the offspring learn from what parents express or if genes play a role, such policies may increase the employment of mothers, but this increase will not spill over to their offspring and hence will have no effect on future income tax revenue.

Figure 3 illustrates these ideas. We observe a link between parents' and offspring's employment choices (dashed purple line), and we infer that, after controlling for relevant observed factors (mainly ability, education, and wealth), there is a relation with preferences for work generating this link (dotted red lines). The relation may arise either through direct preference transmission (relating parents' preferences and offspring's preferences directly) or through a role model (parents' employment choices influence offspring's preferences) or through a combination of both.

Figure 3: Direct preference channel versus role-model channel



Disentangling the two potential channels is a difficult task because preferences are not directly observable. However, our data provide three pieces of evidence favouring the existence of a role-model channel.

Role models are more pronounced within the same gender. The first piece of evidence was already presented above in the context of our heterogeneity analysis (see

Section 4.3). Specifically, we showed that the intergenerational correlation in employment between mothers and daughters is significantly higher than the one between mothers and sons (Table 5). Role models are more pronounced within the same gender. For example, Bettinger and Long (2005) document that having a female instructor in an initial course at university makes female students more likely to select courses or to major in the same subject later on. If preferences were transmitted only directly, we should not observe such an effect.

Measures of work preferences. To obtain the second piece of evidence, we create a measure of work preferences for mothers and directly control for this measure in our regression analysis. While, as mentioned above, preferences cannot be directly observed, two questions in the NLSY79 are related to work preferences and we will make use of them in the following analysis:[23]

(i) Women's place is in the home, not in the office or shop.

(ii) Women are much happier if they stay at home and take care of the children.

While these survey questions relate foremost to gender roles, they also contain information on women's preferences for work. The answers in the survey are given qualitatively. We hence construct a quantitative variable, for which we code the answers of each question such that a higher value represents a higher disutility of work.[24] The same questions do not contain information on men's work preferences.

Table 6 shows the results of the regression of the maternal employment (first column) and the offspring's employment (second column) on the measure of disutility of work. Our measure of *disutility of work* for mothers is significantly correlated with maternal employment with a negative sign as expected. Also, the disutility of work for daughters is negatively correlated with the employment of daughters. However, since the questions only relate to female employment, the same measure constructed for sons is uncorrelated with their employment (see the coefficient of the base category in the first line of the second column).

In the upper panel of Table 7 we partition the sample of mothers into terciles of disutility of work, using our measure. The first column shows the average share of years,

[23] See Appendix B.4 for details.

[24] The resulting variable is directly comparable to the disutility parameter θ in the model of Appendix A.

Table 6: Evaluation of work preferences effect on employment

Dependent variable: Employment - mother or offspring (l_{Mi}, l_{Ci})

Specification	Maternal employment	Offspring employment
Disutility of work - Offspring		-0.00
		(0.016)
Disutility of work - Offspring × Daughters		-0.08***
		(0.024)
Disutility of work - Mother	-0.09***	
	(0.017)	
Controls	maternal	offspring
Observations	3,688	3,664
Adjusted R-squared	0.22	0.12

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. We use the same covariates as in the baseline specification in Table 2 but restrict them for mothers (offspring) to the maternal (offspring's) controls: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers, respectively the offspring, as well as mother's age at birth. Disutility of work computed from questions on women's roles: (i) Women's place is in the home, not in the office or shop, and (ii) Women are much happier if they stay at home and take care of the offspring. Included in survey years 1979, 1982, 1987, and 2004 for mothers and 1994, 1996, 1998, 2002, 2006, 2010, 2014, 2016, and 2018 for offspring. We assign the values: (a) strongly agree 1.5, (b) agree 0.5, (c) disagree -0.5, and (d) strongly disagree -1.5. We average across questions and across years. For further details on the measure of disutility of work, see Appendix B.4.

in which mothers in the respective terciles are employed. Mothers with low disutility of work (first tercile) are employed on average 80% of time, those with medium disutility (second tercile) are employed 74% of time and those with high disutility of work (third tercile) are employed only 61% of time. The second column restricts the computation to mothers with daughters, for whom we do not observe any substantial difference. The third column shows the employment of the daughters from mothers in the respective groups. Daughters from mothers with low disutility of work are employed 85% of time, those from mothers with medium disutility of work 84% of time, and those from mothers with high disutility of work only 76% of time. Hence, mothers' disutility of work seems to affect daughters' employment.

The lower panel of Table 7 partitions the mother-daughter pairs by the terciles of daughers' disutility of work. Daughters with low disutility of work are employed 89% of time, those with medium disutility of work 82% and those with high disutility of

Table 7: Employment of mothers and offspring by terciles of disutility of work

	Employment		
	Mothers	Mothers w/ daughters	Daughters
Mothers's disutility of work			
1^{st} Tercile	0.80	0.80	0.85
2^{nd} Tercile	0.74	0.75	0.84
3^{rd} Tercile	0.61	0.62	0.76
Daughter's disutility of work			
1^{st} Tercile		0.76	0.89
2^{nd} Tercile		0.74	0.82
3^{rd} Tercile		0.66	0.72

Notes: Employment of mothers and offspring correspond to the averages across years and individuals. For details on the measure of disutility of work, see Appendix B.4.

work only 72%. We observe the same qualitative intergenerational employment behavior. Specifically, mothers of daughters with lower disutility of work tend to be employed longer.

In sum, the measure we construct seems to capture preferences to work well for both mothers and daughters. Specifically, women with higher disutility of work, tend to be employed less. We now want to understand whether daughters from mothers with high disutility of work, are employed less because of a direct transmission of work preferences, or whether their mothers' employment decisions affect their preference for work. Specifically, using our measure for work preferences, in Table 8 we disentangle the two channels that are depicted in Figure 3 above. In the first two columns we observe that the daughters' disutility of work is significantly correlated with both their mothers' employment and their mother's disutility of work. Regressing the daughters' disutility of work on both simultaneously shows that both correlations remain significant. In particular, when controling for maternal disutility of work, the correlation between the daughters' disutility of work and the mothers' employment remains significantly negative. This suggests that it is not exclusively the genetic transmission of preferences that is responsible for the daughters' employment but instead that the employment decisions of mothers affect daughters attitude towards work.[25]

[25]Note that this last regression corresponds also to the intergenerational preference equation (6) of our structural model in Appendix A.

Table 8: Direct preference channel versus role-model channel

Dependent variable: Disutility of work - daughter (θ_{Ci})			
Employment Mother	-0.23***		-0.14***
	(0.046)		(0.049)
Disutility of work - Mother		0.24***	0.21***
		(0.026)	(0.028)
Observations	1,872	1,872	1,872
Adjusted R-squared	0.02	0.06	0.06

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The results are unconditional, i.e., no controls are used in this specification. For details on the measure of disutility of work, see Appendix B.4.

Using our constructed measure for disutility of work θ_{Mi} we can control for mothers' work preferences in our main regression, that is we can run the regression[26]

$$l_{Ci} = \alpha + \beta l_{Mi} + \omega\theta_{Mi} + \phi_M X_{Mi} + \phi_C X_{Ci} + \epsilon_i. \tag{5}$$

Table 9 shows the results. The first column repeats the baseline estimation for comparison. The second column introduces our measure of disutility of work of the mother and excludes employment of the mother. The third column shows the results of including the preferences for work of the mother in our baseline specification, i.e. the estimation results of equation (5). The coefficient on employment of the mother does not change significantly, and the coefficient on the disutility of work is close to zero. Finally, column four shows the same estimation but restricts the sample to mother-daughter pairs. The results are qualitatively the same, and the previous finding of a higher coefficient of maternal employment for daughter's employment behavior is confirmed. Again, the coefficient on mother's work preferences is close to zero and insignificant.

Importantly, while our measure of maternal disutility of work is significantly negatively correlated with the employment behavior of mothers, it does not affect the employment behavior of their offspring. Furthermore, including this measure in the baseline specification does not affect the coefficient on the mother's employment. These results suggest

[26]This equation is more general than the equation (12) emanating from the intergenerational model of Appendix A as the set of controls is richer. However, estimating equation (12) (without additional controls) does not significantly change our coefficients of interest.

that the role-model channel is an important driver of the intergenerational correlation of employment, while there seems little or no direct transmission of work preferences.

Table 9: Direct preference transmission vs. role model: Measures of work preferences

Dependent variable: Employment - offspring (l_{Ci})

Specification	Baseline	Maternal preferences (disutility of work)	Full	Only daughters
Employment - mother	0.11***		0.12***	0.17***
	(0.020)		(0.021)	(0.030)
Disutility of work - mother		0.02	0.03**	0.01
		(0.012)	(0.012)	(0.017)
Controls	YES	YES	YES	YES
Observations	3,582	3,582	3,582	1,776
Adjusted R^2	0.11	0.10	0.11	0.17

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. We use the same covariates as in the baseline specification in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth. For details on the measure of disutility of work, see Appendix B.4.

Cohabitation. The third and last piece of evidence, supporting the existence of a role-model channel, results from controlling for mothers' permanent component of employment based on periods when they do not live together with the offspring. This measure serves as another proxy for mothers' work preferences that would be transmitted directly. The idea is that a role-model channel is at work only when offspring actually observe the behavior of their mothers, which is facilitated during cohabitation.

For each offspring, we split the observations of the mother into those when they are both cohabiting and those when they are not. Non-cohabitation includes periods before the offspring's birth and after the offspring leaves home, independent of whether other children are living in the household.[27] We estimate the permanent component for mothers using only the non-cohabitation period and re-estimate the intergenerational equation introducing this variable to control for mothers' preferences for work. We only use those mother-offspring pairs for which we have periods of both cohabitation and non-cohabitation.[28]

The results are presented in Table 10: when controlling for maternal preferences for

[27]When restricting the cohabitation period to the offspring's age between six and eighteen, results are

Table 10: Direct preference transmission vs. role model: Periods of non-cohabitation

Dependent variable: Employment - offspring (l_{Ci})

Specification	Baseline	Maternal preferences (periods w/o cohabitation)	Full
Employment - mother	0.12***		0.11***
	(0.025)		(0.029)
Employment - mother when...		0.06***	0.01
...not cohabiting with offspring		(0.020)	(0.024)
Controls	YES	YES	YES
Observations	2,411	2,411	2,411
Adjusted R^2	0.12	0.11	0.12

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. We use the same covariates as we do in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth. Periods of non-cohabitation are specific for each mother-offspring pair. Only pairs with both periods of cohabitation and non-cohabitation are included. As this affects the composition of mother-offspring pairs included in the regression, the baseline results change slightly compared to Table 2.

work in the described way, the role of maternal lifetime employment remains relevant and predominant. Furthermore, these periods of non-cohabitation do not seem to add information once lifetime employment is taken into account. This supports the preponderance of the role-model channel.

5.2 Mechanisms that can be ruled out

While the presented evidence suggests that work culture, or, more specifically, a role-model channel, is responsible for the observed intergenerational correlation in employment status, there are other factors that may well explain this correlation. In this section we briefly discuss three other candidate mechanisms and provide evidence that neither of them is likely to be the driving force behind the results.

unaffected.

[28] In an alternative specification, we use the periods of cohabitation and non-cohabitation to compute two distinct permanent components (see Appendix B.5). The results, shown in Table C.23, are perfectly in line with the findings in Table 10: the effect of maternal employment during periods of cohabitation has a positive and significant effect (0.09) on the offspring's lifetime employment, while employment during non-cohabitation periods is not significantly different from zero.

5.2.1 Networks or occupation-specific human capital

Parents might help their offspring find a job through their connections, or even transmit occupation-specific human capital or preferences leading to correlations in job-finding probabilities across generations.[29] In order to test whether those mechanisms are plausible explanations for the residual intergenerational correlation of employment, we do the following: we split the sample between mother-offspring pairs who are employed in the same type of business (proxied by industry and sector) or have the same occupation, and those who have different industry/occupations.[30] Industries, sector and occupation are assigned to the individuals according to the category observed most of the survey years. In particular, we estimate equation (4) using the partitions $\mathcal{G}_4 =$ {different industry-sector, same industry-sector} and $\mathcal{G}_5 =$ {different industry-occupation, same industr

The first two columns of Table 11 show the results. They suggest that the correlation of employment is not different for mother-offspring pairs who share the same type of business or occupation. This evidence does not support a story of employment correlations driven by networks or specific human capital transmission.

5.2.2 Local conditions of the labor market

As a last exercise, we evaluate whether local conditions of the labor market could explain our correlation. So far, our argumentation has revolved around labor supply decisions. However, the estimated correlation could also be driven by market conditions that are determined by labor demand: if mothers and offspring live in the same region, both generations face similar labor market conditions, i.e. similar separation and job-finding probabilities.

The general version of the NLSY79 contains three different geographic variables but not a precise regional identifier. We hence undertake the following strategy. First, we condition our analysis on the mother-offspring pair living in the same broadly defined region.[31] Second, we define a variable that indicates if both the mother and the offspring

[29]The role of nepotism and preferences for occupations in the intergenerational correlation of earnings has been documented in the literature. See, for example, Corak and Piraino (2011) and Lo Bello and Morchio (forthcoming).

[30]Industries according to the three-digit Census classifications are grouped in 14 aggregate categories, and a similar aggregation is done for occupations to 18 categories. The sectors considered are private, public, self-employment, and family businesses.

[31]The variable region indicates whether the individual lives in one of four areas, Northeast, North Central, South or West. 92% of the mother-offspring pairs share the region of residence.

Table 11: Intergenerational correlation of employment status by (i) same industry-sector, (ii) same industry-occupation, (iii) same region, and (iv) same region-SMSA-urban/rural

Dependent variable: Employment - offspring (l_{Ci})

	Networks/Occupation		*Regional Labor Markets*	
	Industry-sector	Industry-occupation	Region	Region-SMSA-urban/rural
Employment - mother	0.11***	0.12***	0.16**	0.10***
	(0.023)	(0.021)	(0.066)	(0.023)
Employment - mother × Same	0.02	-0.07	-0.05	0.06
	(0.048)	(0.080)	(0.069)	(0.044)
Controls	YES	YES	YES	YES
Observations	3,582	3,582	3,582	3,582
Adjusted R^2	0.11	0.11	0.11	0.11

Notes: Standard errors clustered at the mother level in parentheses; standard errors calculated using the delta method for the marginal effects. *** p<0.01, ** p<0.05, * p<0.1. Industry, sector, occupation, region, SMSA and urban/rural are assigned as the category that is observed in the majority of the survey years. In all columns, we use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

live in the same region as well as in an urban or rural area and in a Standard Metropolitan Statistical Area (SMSA).[32] We assign residence according to the category observed in the majority of survey years, and we compute the intergenerational correlation of employment distinguishing mother-offspring pairs for which their categories coincide or not. Formally, we again estimate equation (4) using the partitions $\mathcal{G}_6 = \{\text{different region, same region}\}$ and $\mathcal{G}_7 = \{\text{different region-SMSA-urban/rural, same region-SMSA-urban/rural}\}$.

The last two columns of Table 11 present the estimates. Residence in the same region does not significantly affect the employment correlation. Again, the marginal effects for pairs that share geographical variables are smaller than the effects for pairs whose variables differ. Importantly, the estimates for mother-offspring pairs, who do not share the same region remain significantly positive and are not significantly different from our baseline estimates. Our regions definitions are coarse, since the data does not allow us to map individuals into very granular localities. However, those mother-offspring pairs,

[32]The measure is still imperfect because it could be that, for example, both live in an urban area within the same broad region and in an SMSA that could be a different metropolitan city. But only 30% of the observations correspond to pairs living in the same combination of geographical variables.

which by definition live far apart from each other, exhibit the same significantly positive intergenerational correlation of employment as the whole population. We conclude that also local labor markets are unlikely to be the reason behind the positive intergenerational correlation in employment.

6 Conclusion

This paper contributes to the literature on the intergenerational correlation of labor market outcomes. Differently from the existing literature, we focus on the extensive margin of labor supply. Using the NLSY79 and the CNLSY79 we document a robust, statistically significant, and positive intergenerational correlation of employment status between mothers and their offspring. The correlation is higher for mother-daughter pairs than for mother-son pairs. Furthermore, it is lower when maternal education and family income are higher.

While the analysis of this paper is a purely positive one, it has potentially important normative implications. For example, in-work benefits, such as the EITC in the United States, paid to the currently working generation may indirectly increase the employment – and thus income tax revenue – of future generations. This is especially the case if these programs are targeted to low-income families with children. More generally, dynamic scoring of any redistributive policy that affects incentives to work should take this transmission channel into account. This discussion is also relevant when designing policies for the recovery after a prolonged shock such as COVID-19, which has particularly affected women (Alon et al., forthcoming). The policies in response to it may have effects on future generations.

However, a comprehensive policy analysis requires a clear understanding of the mechanism through which employment status is transmitted across generations. We show that the results are consistent with a theory of work culture and provide suggestive evidence that in their employment decisions, mothers act as a role model for their offspring, especially for their daughters. We are able to rule out network effects, occupation-specific human capital, and local labor markets as driving forces behind the result.

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Appendix

A Two-Generations Model

The model is a simple two-generations framework based on Solon (1999). The main addition to it is that the offspring's preferences towards work are (potentially) affected by parental labor force participation.

There is a continuum of families, each consisting of one parent and one offspring.[33] Generations are indexed by $k \in \{M, C\}$ for parents and offspring, respectively. Parents are altruistic but discount their offspring's expected utility by a factor $\alpha \in [0, 1)$. They decide on consumption c_M, labor supply l_M, and human capital investment for their offspring H. The offspring decide on consumption c_C and labor supply l_C, but they do not have any offspring and hence do not invest in human capital. Agents are heterogeneous in ability e_k and disutility of labor θ_k.[34] Abilities are correlated across generations, accounting for genetic inheritance.

The parents' optimization problem is given by

$$
\begin{aligned}
V_M(\theta_M, e_M, v_M) = \max_{c_M, l_M, H} \; & \frac{c_M^{1-\sigma}}{1-\sigma} - \theta_M \frac{l_M^{1+\chi}}{1+\chi} + \alpha \mathbb{E}\big[V_C(\theta_C, w_C)\big] \\
\text{s.t.} \quad & c_M + pH = w_M \, l_M \\
& \log(w_M) = \log(e_M) + v_M \\
& \log(\theta_C) = \kappa_0 + \kappa_1 \log(l_M) + \kappa_2 \log(\theta_M) + \eta_C. \qquad (6)
\end{aligned}
$$

We assume that utility is additively separable in consumption and labor. The parameter $\sigma > 0$ is the coefficient of relative risk aversion and $\chi > 0$ is the inverse of the Frisch elasticity of labor supply. Parents finance consumption c_M and investment in their offspring's human capital H, a unit of which costs p, with labor earnings $w_M l_M$. The wage of the parent is determined through ability e_M and a random term v_M, which captures labor market luck.

[33] The exposition of the model uses the word parent for the sake of generality, even if we use mothers in the empirical analysis. For consistency with the notation in the empirical setup, we denote the parents with the indicator M.

[34] Whereas differences in productivity among offspring are captured explicitly by both e_C (ability) and H (education), e_M represents for parents a combination of abilities and education, the latter not being modeled.

The last equation (6) is the process of intergenerational transmission of preferences for work. The offspring's disutility of labor, θ_C, (potentially) depends on the parental labor supply decision l_M, through a parameter κ_1. A value of κ_1 different from zero means that parents' labor supply has an effect on the offspring's preferences for work. We do not impose any prior on the direction of the effect. If $\kappa_1 > 0$, then the more parents work, the less the offspring dislike working, and the opposite is the case for $\kappa_1 < 0$. If $\kappa_1 = 0$, then parental employment does not have any influence on the offspring's preferences for work. The parameter η_C is an idiosyncratic preference shock.

Similarly, the offspring's optimization problem is given by

$$V_C(\theta_C, w_C) = \max_{c_C, l_C} \frac{c_C^{1-\sigma}}{1-\sigma} - \theta_C \frac{l_C^{1+\chi}}{1+\chi} \tag{7}$$

$$\text{s.t.} \quad c_C = w_C \, l_C \tag{8}$$

$$\log(w_C) = \log(e_C) + \psi \log(H) + v_C \tag{9}$$

$$\log(e_C) = \lambda \log(e_M) + u_C. \tag{10}$$

The offspring finance their consumption with labor earnings. Wages w_C of the offspring (children) depend on their ability, e_C, on the acquired human capital H (which has a return ψ), and v_C, which captures labor-market luck. The last equation states that ability is partially inherited. To be specific, the parent's and offspring's ability are linked via an AR(1) process with persistence $\lambda \in (0, 1)$.

Note that in the model, l_M and l_C are continuous variables, although we focus on the extensive margin of labor supply. In the model, we think of l_M and l_C as the time share in employment over the whole lifetime. This maps well into our empirical analysis, in which we employ the permanent component of employment status.

The Solution. We focus on the solution of the offspring's problem because it enables us to summarize the relevant model predictions. To be specific, we take parental decisions and realizations of shocks as given. Then, the first-order condition for labor supply l_C can be written as

$$\log(l_C) = -\frac{1}{\sigma + \chi} \log(\theta_C) + \frac{1-\sigma}{\sigma + \chi} \log(w_C). \tag{11}$$

We can substitute for $\log(\theta_C)$ with (6) and $\log(w_C)$ with (9) and obtain

$$\log(l_C) = \alpha + \beta_1 \log(l_M) + \beta_2 \log(\theta_M) + \gamma \log(e_M) + \delta \log(H) + \epsilon, \tag{12}$$

where the coefficients α, β, γ and δ are functions of structural model parameters. Specifically,

$$\beta_1 = -\frac{\kappa_1}{\sigma + \chi}. \tag{13}$$

This resulting intergenerational equation of employment status (12) is similar in many respects to the models we estimated in Section 4.1. It relates the offspring's and parents' employment decisions once human capital decisions and ability transmission have been taken into account. Importantly, employment decisions conditional on human capital and ability are related across generations through the coefficient β. β is proportional to, and has the same sign as, κ_1, which determines how parents' labor supply translates into the offspring's attitude towards work. Equation (12) thus provides an empirical test for the presence of the transmission of preferences for work. Because in our estimation $\beta > 0$, according to our theory the offspring's disutility of work decreases with parental labor supply.

Although the essence of the solution (12) coincides with the type of estimated models in Section 4.1 (see Table 2), there are some differences. Apart from some factors not present in the model, for simplicity (for example, wealth, fertility), the specification in the model is in logs, whereas the empirical specification is linear. This choice responds to simplicity both in the model and in the empirical estimation.[35] As we showed already, the empirical results are robust to a vast set of changes in the specification.

[35]Using the linear relationship has the advantage of avoiding arbitrary transformations of the data. Not all permanent components are above 0. Hence, to be able to use the log-specification, we need to shift all permanent components to ensure that they are above 0. But these shifts complicate the interpretation of the coefficients because they are not invariant to the size of the shift. Furthermore, the interpretation of results is very intuitive in the linear setup.

B Details on the empirical analysis

B.1 Details on the data

NLSY79 and CNLSY79. The data is collected and provided freely by the Bureau of Labor Statistics (BLS) in the US. The NLSY79 consists of three sub-samples: (i) the cross-sectional sample (6,111 individuals) is a representative sample of the US population in 1979, (ii) the supplemental sample (5,295 individuals) over-samples disadvantaged groups (Hispanic or Latino, black and poor people), and (iii) the military sample (1,280 individuals) over-samples the population participating in the army. As explained in the main text, we use only the cross-sectional sample and restrict ages to 25 to 45 years old. Figure C.1 provides an example for a mother-offspring pair in the data.

It is worth noting some features of the sample we use for the analysis. Figure C.2 shows the distribution of the number of interviews. The mode for mothers is 14, with around 75% of the mass concentrated between 14 and 17 interviews. For the offspring, the mode is 3, and 66% have 3 or more interviews. The left panel of Figure C.3 shows the distribution of the age of mothers at birth. Of the observations, 75% come from mothers who gave birth between 19 and 29 years old. The right panel of Figure C.3 shows the same distribution, broken down by number of interviews of the offspring. Mothers of offspring with more interviews were younger when their offspring were born. Figure C.4 shows the employment-age profiles of mothers and offspring. The composition of the offspring's sample, biased towards younger offspring, as explained in the main text, is also behind the atypical employment-age profile for the cohort. Employment rates decline and become more volatile with age because older offspring are fewer and belong to mothers who were younger at birth, something the empirical strategy accounts for when computing the permanent components. Furthermore, the dip in the employment rate at the age of 35 to 36 for offspring reflects the 2008 crisis, which particularly affected younger cohorts.

Ability is measured in the 1979 cohort by the Armed Services Vocational Aptitude Battery (ASVAB), which was collected around 1980 when mothers were between 15 and 23 years old. The scores correspond to the AFQT, which is a composite of test results in arithmetic reasoning, word knowledge, paragraph comprehension, and numerical operations. We use the version of the AFQT revised in 2006 to control for differences in cohorts within the NLSY79. Similar measures of cognitive abilities have been collected

for the offspring cohort since 1986. In particular, we use the latest measurement for each offspring of the Peabody Individual Achievement Test (PIAT) for Math, considered the most appropriate measure of ability among the test scores available in the data for the younger cohort (Abbott et al., 2019). These measures may capture not only genetic ability, but also some components of scholastic skills. This is not a problem for our analysis, as we are interested in accounting for productivity jointly with education.

Another relevant variable in the analysis, wealth, is introduced as net worth, i.e. assets minus debts. The variable is provided by the BLS for the NLSY79 cohort, and we follow the definition in the CNLSY79, where such a computed variable is not provided. In terms of assets, we include savings in liquid accounts and in financial assets, the market value of the main house and other properties, and the market value of own vehicles. The debts comprise credit card balances, outstanding mortgage value and other property debts, debts for vehicles, and other debts. The net worth variable constructed by the BLS uses imputed assets and debts when there is no response, and values are top-coded. No such procedures are followed in the offspring's cohort, and also there are some slight changes in the definitions of assets and debts over time.

Earnings is also a variable used throughout the analysis. We use an annual measure, the most comparable variable across cohorts: wages and salaries received during the last calendar year. Earnings are top-coded for both the parents' and offspring's cohorts. We construct weekly hours of work, dividing total annual hours by total number of weeks worked during the last calendar year for the mothers' cohort. For the offspring's cohort, we use weekly hours worked in all jobs, as reported in the survey.

Industries are available according to different versions of the three-digit US Census classification. For the comparison of industries across generations, they are grouped into 14 categories: agriculture, forestry, fisheries; mining; construction; manufacturing of non-durables; manufacturing of durables; transportation, communications, and other public utilities; wholesale trade; retail trade; finance, insurance, and real estate; business and repair services; personal services; entertainment and recreation services; professional and related services; public administration. Similarly, the classification of occupations also corresponds to three-digit US Census classification. They are collapsed into 18 categories: management, business, and financial operations; computer and mathematical; architecture and engineering; life, physical, and social services; community and social services;

legal; education, training, and library; arts, design, entertainment, sports, and media; health-care practitioners and technical and support; protective service; food preparation and serving related; building and grounds cleaning and maintenance; personal care and service; sales and related; office and administrative support; farming, forestry, and fishing; construction and extraction, installation, repair and maintenance, and production; transportation and material moving. The variable accounting for sectors refers to private, public, self-employment, and family businesses.

The geographical information on the publicly available version of the NLSY79 is not very detailed. The variables are limited to region (Northeast, North Central, South, or West), urban or rural, and an indicator of residence in an SMSA, which are highly populated areas. Whenever we need to construct a measure of location, we use a combination of these three variables.

B.2 Methodological challenges in the measurement of intergenerational persistence of labor market outcomes

The data we use feature desirable characteristics for coping with some estimation issues identified in the literature on the intergenerational correlation of earnings. First, Zimmerman (1992) and Solon (1992) show that early estimations based on single-year measures of parents' and offspring's outcomes are subject to substantial measurement error. This is because single-year measures are subject to transitory deviations from the long-run means. This means that single-year measures are not good proxies for lifetime or permanent components, which yields attenuation bias as a consequence. This problem is particularly relevant for parental outcomes, the explanatory variables in the intergenerational equations. Mazumder (2005) estimates the potential reduction in the bias by increasing the number of observations. The longitudinal nature of the NLSY79 allows for the use of several observations for both generations, particularly in the case of mothers, who are observed on average in 14 waves in our sample (only 4% of the sample has fewer than 10 interviews).

Second, the lack of heterogeneity in the samples aggravates the measurement error (Solon, 1992, 1999).[36] We use a representative sample of the US population in 1979,

[36]The interaction between, on the one hand, transitory fluctuations and measurement error, and, on the other hand, the homogeneity in the sample, is discussed in Solon (1989).

namely the cross-sectional sub-sample of the NLSY79, which is several times bigger than cohorts formed from the Survey Research Center (SRC) component, the analogous of the PSID typically employed in empirical studies of intergenerational earnings' correlations (see, for example, Solon, 1992).

Finally, the literature emphasizes a life-cycle bias that arises when parents' and offspring's observations are not representative of their lifetime outcomes due to non-stable trajectories along the life (Haider and Solon, 2006; Grawe, 2006; Nybom and Stuhler, 2016, 2017). Measurement error is not homogenous along the life cycle, with higher noise for early and late years (Mazumder, 2005). To mitigate this problem, the literature recommends using observations for ages between 30 and 50 (Black and Devereux, 2011). Our sample restriction to individuals between 25 and 45 years old and the netting out of age effects from the permanent components are intended to mitigate this bias.

B.3 Details on the robustness exercises

In order to provide scale-invariant estimates of the persistence in employment, we follow the literature by providing a log-log and a rank-rank specification. It is worth noting that for the log-log specification, we take the logarithm of the permanent components, which are the fixed effects backed out in the estimation of (2). As these permanent components include negative values, to take the natural logarithm we add a constant such that the minimum value for each generation is 0.001. For the rank-rank specification, we sort individuals within each generation in ascending order in terms of proportion of periods employed during the 25 to 45 years old window. We assign each individual their position, divided by the total number of individuals (when an employment value is repeated, we average across positions corresponding to that value).

For the robustness exercise, in which we control for demographic events when computing the permanent components, we estimate the following slightly modified model,

$$l_{kit} = l_{ki} + \sum_{n=1}^{2} \pi_{nk} A_{kit}^{n} + \lambda_{kt} + Demo'_{kit}\varsigma + \upsilon_{kit},$$

where $k \in \{M, C\}$ and $Demo_{kit}$ are controls for demographic events, including births, couple formation and dissolution, job loss and finding by partner, presence of offspring 0 to 3 years old in the household with/without child care, and presence of older offspring

in the household. We also include controls for education level, region, urban area, living in own dwelling, conjugal status, and whether the partner works.

The alternative variables used to measure employment status are (i) the preferred employment questions without including the requirement of a minimum time or earnings as in the main estimation; (ii) answers to the Current Population Survey (CPS)-type employment status question in the mothers' cohort, and response to whether they have any employer at the time of the survey, for the offspring's cohort; (iii) questions about hours and earnings (employment corresponds to a positive number of hours and earnings, in the last year for the mother's cohort, and in the year of the survey for the offspring); and (iv) questions about hours only (last year for mothers, current year for the offspring). As discussed, these questions are less comparable across generations than our preferred measure, and are only available for fewer periods. We also include labor force status for mothers, for whom unemployment questions are also available (this is not the case for the offspring's cohort).

B.4 Details on the preferences for work in NLSY79 and CNLSY79

As referred to in the main text, the questions about women's roles that provide information on preferences for work are (i) Women's place is in the home, not in the office or shop, and (ii) Women are much happier if they stay at home and take care of the offspring. The questions are included in survey years 1979, 1982, 1987, and 2004 for mothers and in 1994, 1996, 1998, 2002, 2006, 2010, 2014, 2016, and 2018 for offspring. These are qualitative questions, which we quantify with a range centered at zero. We assign the following values: (a) strongly agree 1.5, (b) agree 0.5, (c) disagree -0.5, and (d) strongly disagree -1.5. We average across the two questions for each year and across the years.[37]

Figure C.6 depicts the distribution of the resulting variable of *maternal disutility of work*. It is slightly skewed to the right, which means that there is an over-representation of mothers with low disutility of work, which is in agreement with a considerably high employment rate (76%). Figure C.7 shows the distribution of *daughters' disutility of work*.

[37] If information on a variable is missing in a year, we use only the available information for the other variables for that year. This way, we put equal weight on all years. Alternatives such as averaging only the information on the first or the second question do not change the results.

Furthermore, we take terciles of the variable, which gives us three classes that we describe as low, medium, and high preferences for work. Summary statistics for the maternal disutility of work by terciles are shown in Table C.21, respectively for daughters in Table C.22.

B.5 Evidence favoring role model: Employment during periods of cohabitation versus non-cohabitation

As mentioned in the main text, we perform an additional exercise whose results support the existence of role models to drive the intergenerational correlation of employment. Differently from the exercise in the last part of Section 5.1, we include the permanent components of mothers' employment both when cohabiting and when not cohabiting with each respective offspring.

The idea behind this exercise is that the role model will only be transmitted when mother and offspring cohabit, but the direct transmission of preferences for work is independent of the status of cohabitation. Then, the permanent component of the mother's employment during non-cohabitation with the offspring will control for maternal preferences for work. Consistent with the results documented in the main text (see Table 10), in Table C.23 we show that the coefficient of employment during cohabitation is significantly different from zero and of similar size as the baseline correlation in Table 2. In contrast, employment during periods of non-cohabitation does not play a crucial role. These results are additional evidence for the empirical relevance of the role-model channel.

C Additional Tables and Figures

C.1 Additional Tables

Table C.12: Additional summary statistics for women and mother-offspring pairs in NLSY79 and CNLSY79

	Women	**Mothers**	**Offspring**
White	80%	78%	75%
Black	13%	15%	16%
Hispanic	7%	8%	8%
Migrant	5%	4%	0%
Public sector employees	11%	10%	4%
Private sector employees	85%	85%	92%
Self-employed	4%	4%	2%
Part-time	18%	21%	14%
Marginal job (incl. self-employed and odd jobs)	20%	23%	14%
Father at home			63%
Living in own dwelling	92%	94%	77%
Partner works	64%	71%	41%
Offspring 0 to 3 y.o. not in child care	19%	24%	24%
Offspring 0 to 3 y.o. in child care	7%	8%	4%
Offspring 4 to 5 y.o.	16%	21%	15%
Offspring 6 to 12 y.o.	40%	54%	25%
Offspring 13 to 15 y.o.	15%	22%	5%
Offspring 16 to 18 y.o.	11%	17%	3%
Births	13%	17%	16%
Couple dissolution	4%	4%	6%
Couple formation	5%	5%	17%
Partner job loss	5%	5%	5%
Partner job finding	6%	5%	8%
Individuals	3,040	1,922	3,748

Notes: Percentages for observations in the 25 to 45 years old range in our sample. For the sector of employment the category most often observed is assigned to the individual. Similar criterium applies for the variable regarding the father living at home. The variables living in own dwelling, partner works, offspring of different ages, births, couple dissolution and formation, and partner job loss and job finding capture the number of observations for which they take the value 1 (the event occurs); they help understanding the nature of our sample.

Table C.13: Self-employment

Dependent variable: Self-employment - offspring (l_{Ci})		
	Self-employment	Self-employment
Self-employment Mother	0.04**	0.04*
	(0.019)	(0.019)
Controls	NO	YES
Observations	3,169	3,040
Adjusted R-squared	0.00	0.05

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

Table C.14: Robustness: Log-log regressions

Dependent variable: Log-employment - offspring ($\log(l_{Ci})$)

Specification	(1)	(2)	(3)	(4)
Log-employment - mother	0.17***	0.11***	0.11***	0.10***
	(0.030)	(0.028)	(0.028)	(0.028)
Ability - mother		-0.03	-0.03	-0.02
		(0.065)	(0.067)	(0.068)
Ability - offspring		0.37***	0.37***	0.36***
		(0.065)	(0.065)	(0.066)
High-school - mother		0.19**	0.19**	0.19**
		(0.077)	(0.077)	(0.079)
Some college - mother		0.18**	0.18**	0.19**
		(0.081)	(0.081)	(0.083)
College - mother		0.13	0.13	0.17*
		(0.085)	(0.086)	(0.089)
High-school - offspring		0.18**	0.18**	0.15*
		(0.085)	(0.085)	(0.084)
Some college - offspring		0.39***	0.39***	0.36***
		(0.084)	(0.084)	(0.083)
College - offspring		0.47***	0.47***	0.43***
		(0.081)	(0.082)	(0.082)
Net worth - mother			0.01	0.00
			(0.011)	(0.011)
Net worth - offspring			-0.01	0.02
			(0.016)	(0.018)
Control mother's age at birth and number of children	NO	NO	NO	YES
Observations	3,748	3,597	3,582	3,582
Adjusted R^2	0.02	0.08	0.08	0.09

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as we do for the main results in Table 2, except that we also take the logarithm of maternal employment.

Table C.15: Robustness: Rank-rank regressions

Dependent variable: Employment rank - offspring

Specification	(1)	(2)	(3)	(4)
Employment rank - mother	0.12***	0.06***	0.06***	0.06***
	(0.015)	(0.014)	(0.014)	(0.015)
Ability - mother		0.03**	0.02	0.00
		(0.017)	(0.017)	(0.017)
Ability - offspring		0.07***	0.07***	0.08***
		(0.015)	(0.015)	(0.015)
High-school - mother		0.06***	0.06***	0.05***
		(0.017)	(0.016)	(0.016)
Some college - mother		0.07***	0.07***	0.05***
		(0.018)	(0.018)	(0.018)
College - mother		0.05**	0.04**	0.02
		(0.020)	(0.020)	(0.019)
High-school - offspring		0.04**	0.04**	0.03
		(0.017)	(0.017)	(0.017)
Some college - offspring		0.09***	0.09***	0.08***
		(0.017)	(0.017)	(0.017)
College - offspring		0.12***	0.11***	0.09***
		(0.016)	(0.016)	(0.017)
Net worth - mother			0.00	-0.00
			(0.004)	(0.003)
Net worth - offspring			0.02***	0.01***
			(0.004)	(0.004)
Number of children - mother				0.00
				(0.004)
Number of children - offspring				-0.03***
				(0.004)
Control age at birth - mother	NO	NO	NO	YES
Observations	3,748	3,597	3,582	3,582
Adjusted R^2	0.03	0.10	0.11	0.13

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as we do for the main results in Table 2.

Table C.16: Robustness: Alternative measures of the permanent components

Dependent variable: Alternative permanent component employment - offspring ($\overline{l_{Ci}}$)

	Simple averages		Demographics	
Specification	(1)	(4)	(1)	(4)
Employment - mother (averages)	0.19***	0.11***		
	(0.022)	(0.020)		
Employment - mother (demographics)			0.20***	0.14***
			(0.024)	(0.024)
Controls	NO	YES	NO	YES
Observations	3,748	3,582	3,276	3,125
Adjusted R^2	0.04	0.12	0.03	0.08

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In columns one and two, we use simple averages for l_{Ci} and l_{Mi}. In columns three and four, we add to the standard estimation of the permanent components demographic events as additional controls.

Table C.17: Robustness: Alternative survey questions for employment status of offspring and mothers

Dependent variable: Alternative data measure of employment - offspring ($\widehat{l_{Ci}}$)

	Alternative measure of offspring employment				
	1	2	3	4	LFP
Employment - mother (different measure)	0.11***	0.08***	0.07***	0.13***	
	(0.020)	(0.020)	(0.018)	(0.024)	
Controls	YES	YES	YES	YES	
Observations	3,582	3,680	3,680	3,582	
Adjusted R^2	0.10	0.13	0.09	0.11	

Notes: Robust standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as we do for the baseline specification (4) in Table 2. The employment variables in each column are the following: (1) mothers with a positive number of weeks employed in the last year and offspring with positive earnings in the last year (no minimum time or earnings); (2) employment status at the day of the interview (constructed by the Bureau of Labor Statistics); (3) employed if a positive number of hours and earnings declared in last year for mothers and in current year for offspring; (4) employed if a positive number of hours declared in last year for mothers and in current year for offspring.

Table C.18: Robustness: Welfare recipients and health limitations

VARIABLES	(1) Welf. rec.	(2) Emp.+Welf.	(3) Health limit.	(4) Emp.+Health
Employment Mother		0.07***		0.12***
		(0.022)		(0.021)
Employment Mother × Welfare recipient		0.06		
		(0.054)		
Welfare reception Mother	0.05***			
	(0.013)			
Health limitations Mother			0.07***	
			(0.019)	
Employment Mother × Health limitations				-0.01
				(0.088)
Observations	3,680	3,582	3,316	3,541
Adjusted R-squared	0.03	0.12	0.04	0.11
Controls	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table C.19: Robustness: hourly wages

Dependent variable: Employment - offspring

VARIABLES	(1) Cont. hrly. wage	(2) Cont. hrly. wage	(3) Low-wage	(4) Low-wage
Employment - mother	0.14***	0.10***	0.22***	0.13***
	(0.020)	(0.019)	(0.054)	(0.045)
Hourly wage - mother	-0.01**	-0.02***		
	(0.005)	(0.006)		
Hourly wage - offspring	0.04***	0.02***		
	(0.003)	(0.003)		
Employment - mother × low-wage			-0.08	-0.02
			(0.062)	(0.054)
Observations	3,520	3,370	3,748	3,582
Adjusted R-squared	0.06	0.10	0.03	0.11
Controls	NO	YES	NO	YES

Notes: Robust standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. In all columns, we use the same covariates as we do for the baseline specification (4) in Table 2. Hourly wages in 10 USD. *Low-wage* refers to mothers in the bottom two quintiles of the hourly wage distribution.

Table C.20: Heterogeneity: Intergenerational correlation of employment status by (i) family income (quintiles) and (ii) mother's education level

Dependent variable: Employment - offspring (l_{Ci})

	Baseline	Family income	Maternal education
Employment - mother	0.11***	0.14***	0.24***
	(0.020)	(0.042)	(0.065)
Employment - mother × Quintile 2		-0.05	
		(0.079)	
Employment - mother × Quintile 3		0.00	
		(0.071)	
Employment - mother × Quintile 4		-0.11*	
		(0.063)	
Employment - mother × Quintile 5		-0.05	
		(0.051)	
Employment - mother × High-school			-0.12*
			(0.070)
Employment - mother × Some college			-0.21***
			(0.075)
Employment Mother × College			-0.14*
			(0.079)
Controls	YES	YES	YES
Observations	3,582	3,582	3,582
Adjusted R^2	0.11	0.11	0.11

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Quintiles of family income correspond to the quintile of family income observed most often. The maternal education is the maximum attained education level. In all columns, we use the same covariates as we use in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

Table C.21: Descriptive statistics for mothers' disutility of work by terciles

	min	max	mean	sd	Observations
Low disutility of work	-1.500	-0.750	-0.972	0.195	1425
Medium disutility of work	-0.667	-0.375	-0.520	0.099	1242
High disutility of work	-0.333	1.375	0.030	0.308	1156
All observations	-1.500	1.375	-0.526	0.462	3850

Notes: For details on the measure of disutility of work, see Appendix B.4.

Table C.22: Descriptive statistics for daughters' disutility of work by terciles

	min	max	mean	sd	Observations
Low disutility of work	-1.500	-1.000	-1.132	0.170	642
Medium disutility of work	-0.900	-0.500	-0.649	0.134	816
High disutility of work	-0.400	1.333	-0.036	0.313	414
All observations	-1.500	1.333	-0.679	0.449	1872

Notes: For details on the measure of disutility of work, see Appendix B.4.

Table C.23: Direct preference transmission vs. role model: Periods of cohabitation versus periods of non-cohabitation

Dependent variable: Employment - offspring (l_{Ci})

Specification	Baseline	Non-Cohabitation	Cohabitation	Both
Employment - mother	0.12***			
	(0.025)			
Employment - mother when...			0.10***	0.09***
...**cohabiting** with offspring			(0.022)	(0.023)
Employment - mother when...		0.06***		0.03
...**not cohabiting** with offspring		(0.020)		(0.021)
Controls	YES	YES	YES	YES
Observations	2,411	2,411	2,411	2,411
Adjusted R^2	0.12	0.11	0.12	0.12

Notes: Standard errors clustered at the mother level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. We use the same covariates as we do in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth. Periods of non-cohabitation are specific for each mother-offspring pair. Only pairs with both periods of cohabitation and non-cohabitation are included. As this affects the composition of mother-offspring pairs included in the regression, the baseline results change slightly compared to Table 2.

C.2 Additional Figures

Figure C.1: Visual example of a mother-offspring pair

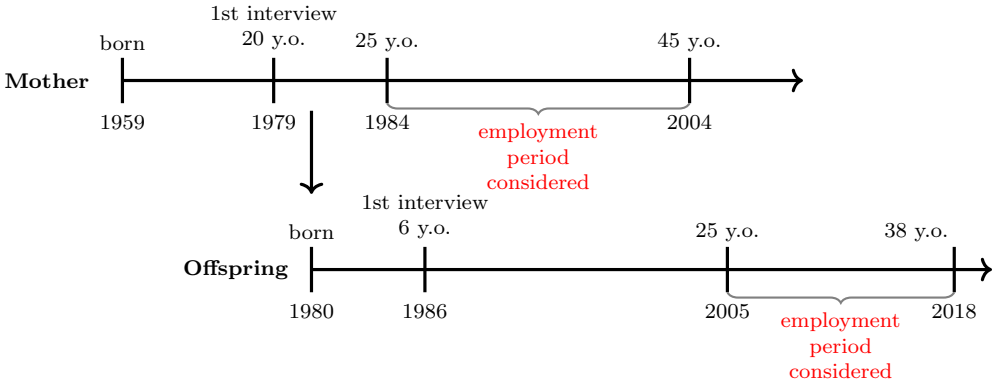


Figure C.2: Number of interviews of mothers (left) and offspring (right)

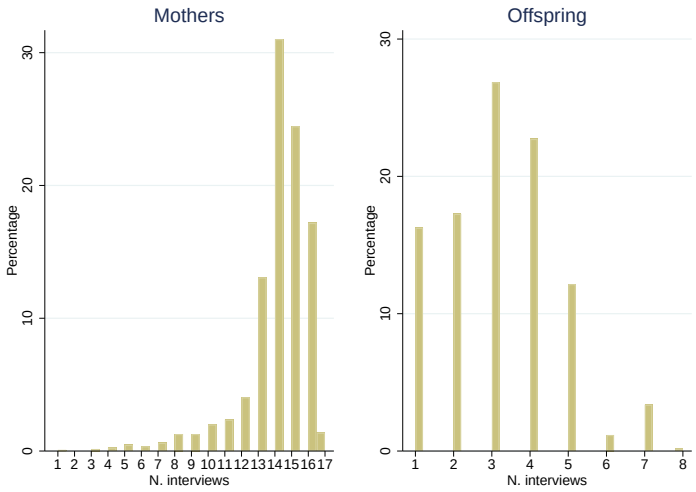


Figure C.3: Age of mothers at birth of offspring

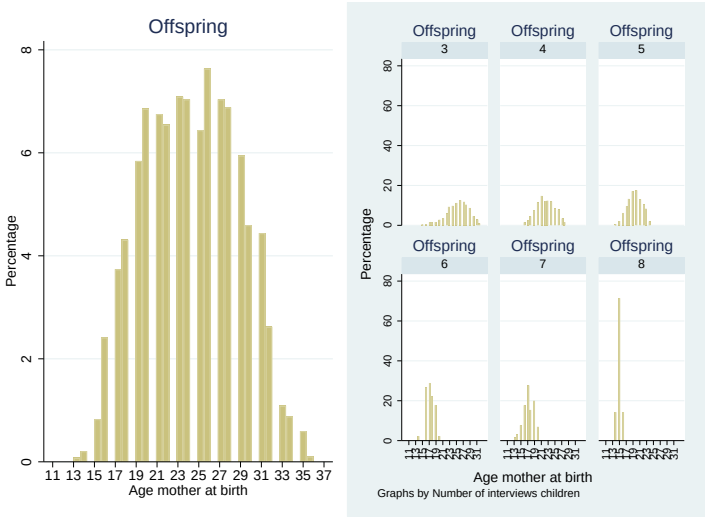


Figure C.4: Employment-age profiles of mothers (left) and offspring (right)

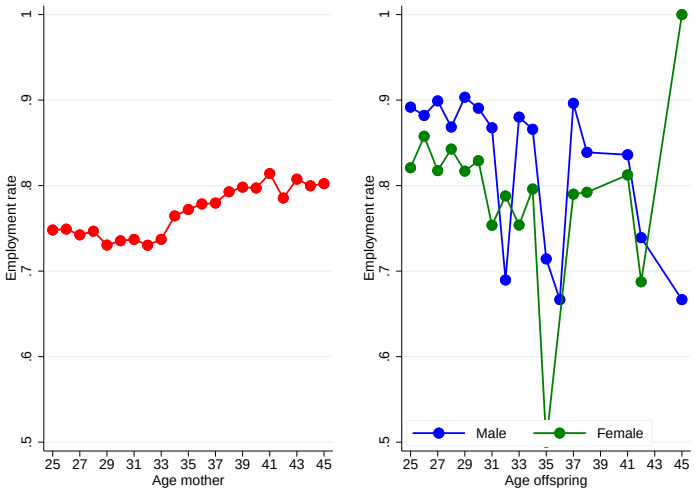
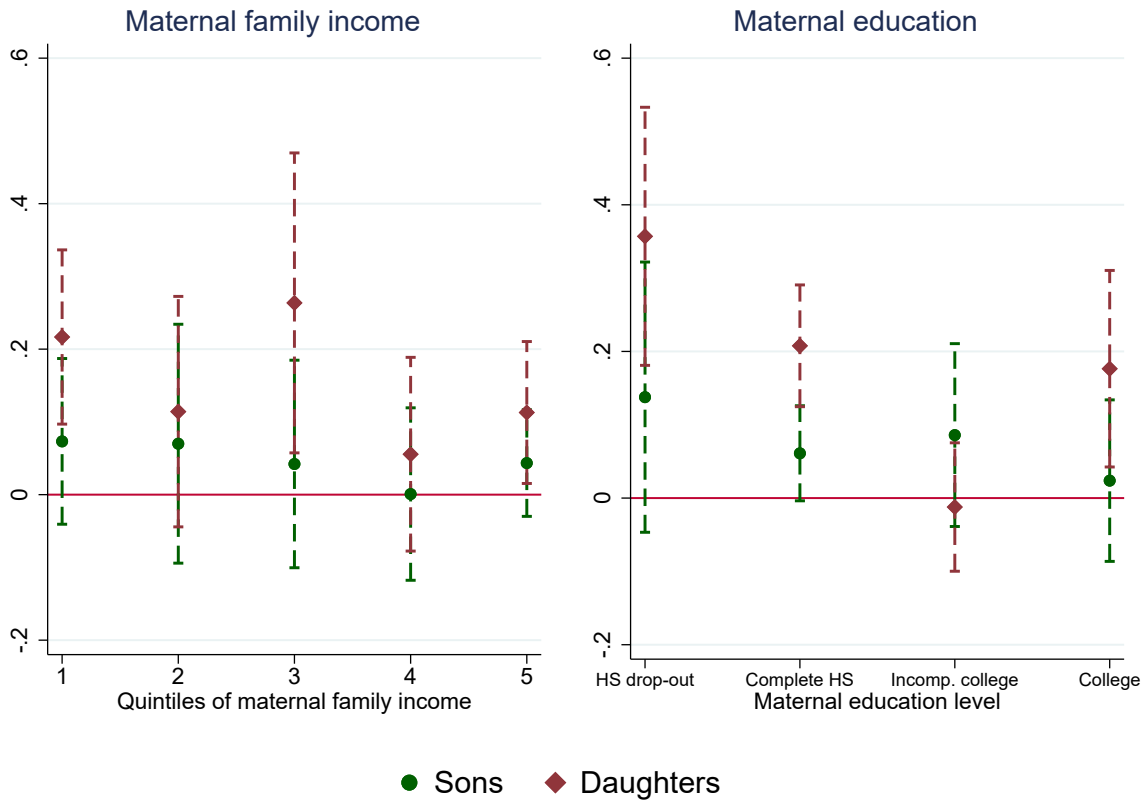
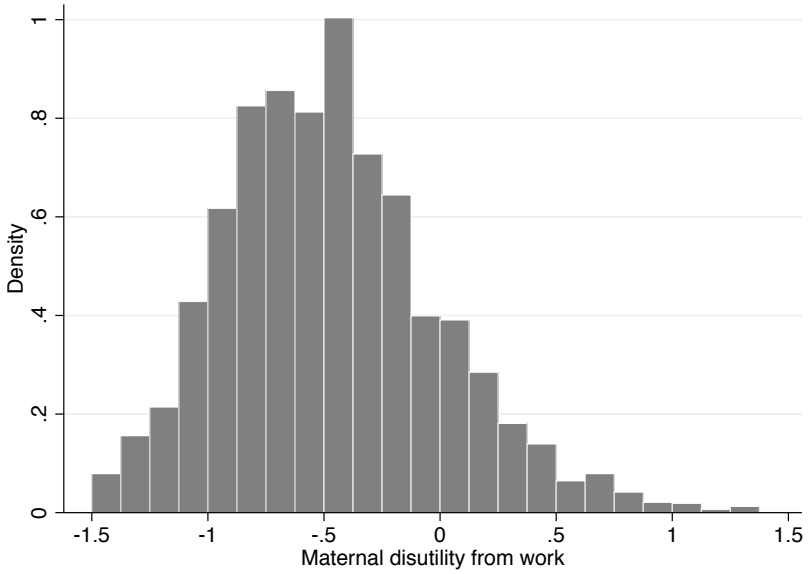


Figure C.5: Intergenerational correlation of employment status by mother's income (left) and education (right) for sons and daughters



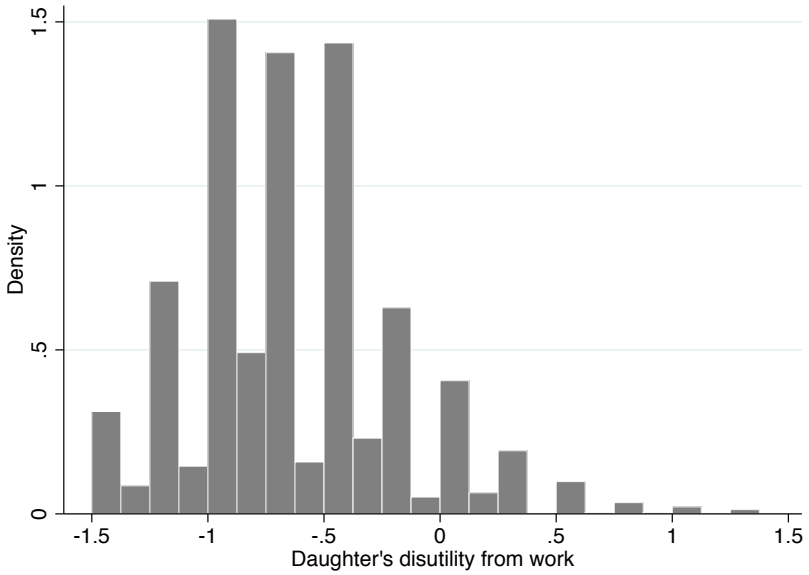
Note: Standard errors clustered at mother level, determined using the delta method. 95% confidence level intervals. The dependent variable is the permanent component of the employment status of the offspring. The maternal education is the maximum attained and observed education level. Quintiles of family income correspond to the quintile observed in the majority of the survey years. We use the same covariates as in the baseline specification (4) in Table 2: ability, education dummies (high-school, some college, college), net worth, and number of children for mothers and offspring, as well as mother's age at birth.

Figure C.6: Distribution of maternal disutility of work



Notes: Disutility of work is computed from questions on women's roles. Resulting values range from strong disutility (1.5) to weak disutility of work (-1.5). We plot the distribution of the individual averages (over questions and years). For details on the measure of disutility of work, see Appendix B.4.

Figure C.7: Distribution of daughters' disutility of work



Notes: Disutility of work is computed from questions on women's roles. Resulting values range from strong disutility (1.5) to weak disutility of work (-1.5). We plot the distribution of the individual averages (over questions and years). For details on the measure of disutility of work, see Appendix B.4.