Are intergenerational connections wealth related?
Evidence from lifecycle data

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In this paper, I use lifecycle patterns to distinguish between wealth-related and wealth-independent intergenerational transmission mechanisms. Using data from the PSID, I compare the difference in the strength of intergenerational connections as parental earnings are measured at different points in time. I also exploit the relationship between the strength of intergenerational connections and the age of fathers at the birth of their sons. The basic empirical patterns are consistent with wealth-independent intergenerational connections. Due to data limitations, it is not possible to rule out a direct effect of parental earnings on the educational attainment or earnings of their children.

(J-31, I-20, J-13)

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1. Introduction

An extensive literature in economics and sociology (see Solon (1999) for a survey) investigates the magnitude and causes of the persistence of economic status across generations. Numerous explanations for the intergenerational persistence of income or education have been suggested. Bowles and Gintis (2001) differentiate the 'genetic and cultural transmission of traits' and the 'inheritance of income-enhancing group memberships and property'. Piketty (2000) distinguishes transmission of ability, imperfect capital markets, local segregation, and self-fulfilling beliefs. Policy makers are particularly interested whether there is a direct effect of parental wealth on children. Such an effect could be overcome by – and therefore warrant – redistribution of resources. For example, limited access of low income families to certain education opportunities is frequently cited as a reason for government intervention.

The importance of such wealth effects is hard to quantify. We face a fundamental identification problem. The income of parents is correlated with - frequently unobserved - characteristics, like abilities or work ethic. These characteristics may be transmitted across generations through various channels and are subsequently reflected in the income of the children. Consequently, the simple correlation between parental income and an outcome of the children does not imply that parental wealth matters. Therefore, exogenous variation or exclusion restrictions have to be used to obtain meaningful empirical insights. Black et al. (2005) exploit a change in Norwegian schooling laws and find that "the high correlations between parents' and children's education are due to family characteristics and inherited ability and not education spillovers." Plug and Vijverberg (2003) report that IQ is an important determinant of educational attainment. They compare biological and adopted children and find that 55 to 60 percent of parental ability is genetically transmitted. A recent study by Plug and Vijverberg (2005) directly addresses the question whether parental wealth matters. Using data from adoptees, they find that parental income affects the educational attainment of children. Previous studies that try to quantify the direct effect of parental wealth are Shea (2000) and Mayer (1997). In this paper I built on the methodology of the latter.

I use lifecycle patterns to distinguish between wealth-related and wealth-independent intergenerational transmission mechanisms. I develop a statistical model that relates parental earnings at different points in the lifecycle to the strength of intergenerational connections[1]. I derive two sets of testable implications that make it possible to distinguish different intergenerational propagation mechanisms. One is based on the variation in the strength of intergenerational connections as the parental earnings are measured at different points in time. The other one uses the relationship between the strength of intergenerational connections and the age of parents at the birth of their sons.

The first argument was proposed by Mayer (1997). The idea is to compare the influence of parental income while the child is still dependent on the parents, to the influence of parental income after the child is no longer financially dependent on the parents. For example, depending on their wealth, parents are able to afford more or less college tuition, but after the child has completed her college education additional parental earnings have no effect on the education of the child[2]. The statistical model used in this paper is illustrated in Figure 1. Parental earnings are determined by permanent characteristics and random, transitory income shocks. I assume that only the permanent earnings component is transmitted through wealth-independent intergenerational connections. The transitory earnings component of parents affects the development of a child only through wealth-related earnings mechanisms. I further assume that parents are limited in their ability to borrow against future, uncertain earnings and that the impact of parental wealth ends at a certain age of the child. The intergenerational relationships based on earnings of the parents measured late in the life of a child capture only connections due to the permanent earnings component of the parents. Intergenerational connections observed early in the life of a child are due to effects of both the permanent and the transitory earnings component. If wealth-related intergenerational propagation mechanisms play no role, the transitory earnings component does not matter at any time and the observed intergenerational connections in both phases are only due to the permanent component. Therefore, comparing the strengths of

[1] See Grawe (forthcoming) for a discussion of the relationship of parental age and intergenerational connections.
[2] Persico, Postlewaite and Silverman (2004) and use similar methodology and compare the influence of height at different ages.

intergenerational connections based on the parental earnings measured at different ages of the child provides a way to quantify the importance of wealth-related intergenerational transmission mechanisms.

The variation in earnings increases over the lifecycle (Mincer, 1974 or Mayer, 2006). Mayer (2006) finds that the variation in earnings due to permanent characteristics increases over the lifecycle. The first contribution of this paper is to model that the evolution of intergenerational earnings connections depends on the changing contributions of both, the permanent and transitory component, to the variation of parental earnings.

I use data from the Panel Study of Income Dynamics (PSID). I measure the relationship between educational attainment or wages of sons and parental income or wages of the father at different points in the lifecycle. Therefore, outcomes of both sons and their parents have to be observed. In addition, the parents have to be observed at different points in their lifecycle. These requirements lead to a small sample size and imprecise results. In addition, the contribution of the permanent component to the variation in earnings is not precisely established. Therefore, the difference in the strength of intergenerational connections as parental earnings are measured at different points in time can not be used to quantify the direct effect of parental earnings on the earnings or educational attainment of children.

The second contribution of this paper is to realize that the lifecycle patterns of the variation in earnings provide a way to identify different intergenerational propagation mechanisms by using the ages of parents at the time of the child's birth. The variation in earnings increases over the lifecycle. If parental earnings are responsible for the development of children, one should observe stronger intergenerational connections for sons born to older parents – holding the age of the parents at which parental earnings are observed fixed. If intergenerational persistence is due to wealth-independent connections, the intergenerational link between parents and their children does not depend on the realized earnings. Hence, the age of the parents at which the children are born does not matter. This assumes that the age of the parents at which his son is born is not otherwise related to intergenerational relationships or the evolution of lifecycle earnings. I find no relationship between the age of parents at the birth of the child and the strengths of

intergenerational connections. This is consistent with wealth-independent intergenerational connections. However, given the data limitations it is not possible to rule out wealth-related intergenerational connections.

2. Model

I present a simple statistical model of wealth-related and wealth- independent intergenerational transmission mechanisms. I derive distinct implications of different intergenerational transmission mechanisms. I model the influence of parental income, Y_{ki}^f, and other, observed and unobserved, parental characteristics on sons.[3] The log-income of parents *i*, and observed at age *k* of the son, is given by Y_{ki}^f:

$$Y_{ki}^f = \varphi_k X_{ki}^f + y_{ki}^f .$$

Y_{ki}^f is determined by observable person specific characteristics, year effects (both summarized in X) and an individual specific residual y_{ki}^f.

$$y_{ki}^f = \alpha_k m_i^f + \beta_k u_{ki}^f .$$

The wage residual, y_{ki}^f, is determined by a permanent component (abilities), m_i^f, which does not change over time and a transitory component, u_{ki}^f. The variances of the permanent component, m_i^f, and the transitory component, u_{ki}^f, are normalized to one:

$$\text{var}\left(m_i^f\right) = 1 \quad \text{and} \qquad \text{var}\left(u_{ki}^f\right) = 1$$

[3] I focus on sons only to avoid complications through the labor force participation decision of daughters. In the empirical part I consider both wages of fathers and joint parental income. Income depends on the wage level and also on the number of hours worked. Considering the wages of fathers circumvents the issue of labor force participation of the mothers.

The contributions of m_i^f and u_{ki}^f to the overall earnings variation are given by α_k and β_k, and may vary over the lifecycle. The transitory component u_{ki}^f may be serially correlated.

We are interested in the effect of the parents' income on the outcome *S* of the sons. In the empirical part of this paper, I consider the sons' wages and educational attainment. The connection between parental characteristics and income and S is described by equation (1):

$$S_i = gm_i^f + \sum_{k=k_0}^{K} d_k y_{ki}^f = gm_i^f + \sum_{k=k_0}^{K} d_k \alpha_k^f m_i^f + \sum_{k=k_0}^{K} d_k \beta_k^f u_{ki}^f . \qquad (1)$$

Parents and their sons are linked through a wealth-independent connection between their permanent abilities, which may be the result of genetics, exposure, etc. This link is captured by the coefficient *g*. Sons may also be directly affected by parental income. The effect of the parental income on a son while the son is *k* years old is denoted by d_k. It may vary with the age of the son. I assume is that once the son reaches a certain age the wealth of the parents has longer any impact, i.e. $d_k = 0$ for $k>K$. The first and the last year of potential influence of the parents on the son are given by k_0 and *K*.

Using the independence of m_i^f and u_{ai}^f, the connection between the child and the father's earnings can be broken down into the effect of the permanent component and the transitory component:

$$\operatorname{cov}\left(S_i, y_{ki}^f\right) = \alpha_k^f \operatorname{cov}\left(S_i, m_i^f\right) + \beta_k^f \operatorname{cov}\left(S_i, u_{ki}^f\right).$$

As seen in equation (1) the abilities of parents affect their sons through both, earnings independent mechanisms (captured by *g*) and mechanisms related directly to earnings (captured by d_k):

$$\operatorname{cov}\left(S_i, m_i^f\right) = g + \sum_{k=k_0}^{K} d_k \alpha_k^f .$$

The transitory component of parental earnings affects the son only through the effect of parental income:

$$\operatorname{cov}\left(S_i, u_{ki}^f\right) = E\left[u_{ki}^f \sum_{l=k_0}^{K} d_l \beta_l^f u_{li}^f\right] = \sum_{l=k_0}^{K} d_l \beta_l^f \operatorname{cov}\left(u_{ki}^f, u_{li}^f\right).$$

Combining the above expressions, intergenerational connections can be expressed as:

$$\operatorname{cov}\left(S_i, y_{ki}^f\right) = \alpha_k^f g + \alpha_k^f \sum_{l=k_0}^{K} d_l \alpha_l^f + \beta_k^f \left(\sum_{l=k_0}^{K} d_l \beta_l^f \operatorname{cov}\left(u_l^f, u_a^f\right)\right). \quad (2)$$

Equation (2) expresses the observed covariance between the earnings of fathers and their sons in terms of the parameters of the model. Intergenerational relationships are due to wealth-independent connections – the first part of the sum – and wealth-related effects of parental earnings – the latter two parts of the sum.

Only wealth-independent connections

If there is no direct effect of parental earnings on the development of the child (i.e. $d_k = 0$ for all *k*) equation (2) collapses to:

$$\operatorname{cov}\left(S_i, y_{ki}^f\right) = \alpha_k^f g\,. \quad (3)$$

Only wealth-related connections

If only money matters (*i.e.* $g = 0$) the intergenerational covariance becomes:

$$\operatorname{cov}\left(S_i, y_{ki}^f\right) = \alpha_k^f \sum_{l=k_0}^{K} d_l \alpha_l^f + \beta_k^f \left(\sum_{l=k_0}^{K} d_l \beta_l^f \operatorname{cov}\left(u_k^f, u_l^f\right)\right). \quad (4)$$

The effect of the permanent earnings component is given by the first part in the sum above. It is determined by the strength of the effect of parental wealth d_k and the variation in earnings due to the permanent component for both the father, α_k^f. The effect of d_k is magnified by the value of α_k^f in the respective year. The effect of the transitory component is captured by the second part of the sum above. The serial correlation of the transitory component leads to some persistence in the observed intergenerational connections. If money matters at *t=1* but not at *t=2*, there is still an observed effect of the transitory component at *t=2* because u_1 and u_2 are correlated. The intergenerational relationship is stronger in the years with a positive *d* and the adjacent years.

Wealth related and wealth independent transmission mechanisms have different implications for differences in $\text{cov}\left(S_i, y_{ki}^f\right)$, as y_{ki}^f is measured, once when the son is young and living with the parents, $y_{(Young)i}^f$, and again when the son has finished his education and entered the labor force, $y_{(Old)i}^f$. This difference, Δ, is given by:

$$\Delta = \text{cov}\left(S_i, y_{(Old)i}^f\right) - \text{cov}\left(S_i, y_{(Young)i}^f\right).$$

Δ depends not only on the importance of wealth-related and wealth-independent intergenerational connections, but also on the evolution of α_k^f over the lifecycle.

Constant α_k^f

The simplest case arises when we assume that α_k^f is constant over the lifecycle[4]. If money doesn't matter equation (3) implies that the covariance between the outcome of the son and parental income is constant over the lifecycle, and $\Delta = 0$. If money does matter, equation (4) applies. Intergenerational

[4] Mayer (1997) makes this assumption.

relationships should be stronger when the parental income is measured during the years where it impacts the outcome of the child and $\Delta < 0$. Hence, the observed value of Δ can be used to identify the importance of parental wealth. However, this identification strategy only works if α_k^f doesn't change over the lifecycle.

Increasing α_k^f

Mayer (2006) and Grawe (forthcoming) point out that the contribution of permanent characteristics to the variation in wages increases over the lifecycle. This would imply an increase in α_k^f over the lifecycle. Therefore, if money doesn't matter, equation (3) implies an increase of $\text{cov}\left(S_i, y_{ki}^f\right)$ over the lifecycle and $\Delta > 0$. If money does matter, the sign of Δ is ambiguous. According to equation (4) an increase in α_k^f over the lifecycle leads to an increase in $\text{cov}\left(S_i, y_{ki}^f\right)$, at the same time the diminishing direct effect of money leads to a decrease. The importance of wealth-related effects can be derived by comparing the actual value of Δ to the value implied by changes in α_k^f according to equation (3). Precise knowledge of the evolution of α_k^f is necessary to separate wealth-related from wealth-unrelated effects.

Age of parents at the birth of the child

An increase of α_k^f over the lifecycle generates a link between the age of parents at birth of the son and a direct effect of money. Let the age of the father be given by $q=k+h$, where h is the age of the father at birth of the son. Expressing equation (3) in terms of the age of the father gives:

$$\text{cov}\left(S_i, y_{qi}^f\right) = \alpha_q^f g \, .$$

This expression does not depend on h. If there is no effect of money, the age of the parents at which the son was born does not matter for the strength of the intergenerational covariance. If money is important

the age of the father at birth of the son matters. Rewriting equation (4) to incorporate the age of the father gives:

$$\operatorname{cov}\left(S_i, y_{qi}^f\right) = \alpha_q^f \sum_{l=(q-h+k_0)}^{(q-h+K)} d_l \alpha_l^f + \beta_q^f \left(\sum_{l=(q-h+k_0)}^{(q-h+K)} d_l \beta_l^f \operatorname{cov}\left(u_q^f, u_l^f\right) \right).$$

An increase of α_q^f over the lifecycle leads to an increase of $\operatorname{cov}\left(S_i, y_{qi}^f\right)$ in *h*. If money matters, the strength of intergenerational connections is increasing in the age of the parents at the birth of the child. This is a testable prediction. It does, however, hinge on the assumption that the age of the parents at the birth of the child does not otherwise affect child outcomes, e.g. through health effects or traits that are correlated with late marriage.

3. Data and Results

In this section, I compare the predictions of the model to data from the Panel Study of Income Dynamics (PSID). The PSID is conducted by the Survey Research Center, Institute for Social Research at the University of Michigan. The PSID is a longitudinal study, which began in 1968 with approximately 5000 families and includes information about various economic and demographic variables. I restrict myself to the core sample of 3000 families that was selected to be representative of the US population. All members of the original families and their offspring are interviewed annually. If an individual establishes or joins a new household, the members of this household are interviewed as well. I construct a sample of 1128 males who are sons of heads of households in the original 1968 PSID families. The sons' own wages can be observed in some of the years from 1975 to 2000[5] and I have information about their parents' income while the sons were growing up. These sons can be matched to 572 different fathers[4] and mothers. The sons were born

[5] The sample includes individuals with observed wage rates in at least 2 years in which they where working more than 100 hours.

between 1951 and 1976, their fathers and mothers were born between 1905 and 1953. I construct two outcome measures for the sons. One is the number of years of education at age 25. The other one is the average of wage residuals for the ages 31 to 34. I obtain the residuals from a regression of log-wages on calendar year, region, and race dummies. I do not include marital status or other controls that may be endogenous choices related to parental background. I compute two measures of parental background, parental income and the wage of the father, both controlled for region and calendar year. I calculate 4 year averages for both measures at various points in the lifecycle. Not all parents can be observed at all the different points in the lifecycle. This decreases the sample size for intergenerational comparisons at each given point in the lifecycle.

a) Intergenerational connections over the lifecycle of the father

In section 2, two methods to distinguish wealth related and wealth independent transmission mechanisms were presented. The first method uses the value of Δ, which captures changes in the strengths of intergenerational connections when the parental income is measured at different points in the lifecycle.

Table 1 presents the results of regressions of sons' log-wages on parental log-income and fathers log-wage measured at different ages[6]. The intergenerational elasticities, reported in columns 1 and 2, are of the same order of magnitude as in previous studies (Solon, 1999). As seen in columns 1, 2, and 3 the elasticity of sons' wages with respect to parental income is higher if parental income is measured at ages 14 to 17, rather than at ages 22-25[7]. This difference decreases slightly when a control for the education level of the son is introduced in column 4. Controls for parental age at birth and education reduce the overall effect of parental income, but the difference of the effects at different ages is maintained (see column 5). Column 6 reveals that

[6] The requirement that parental income has to be observed at two different points in time reduces the sample size to 707. Parental income and father's wage are controlled for year and region. The son's wages are controlled for race, region and year and averaged over the ages 31 to 34.

[7] This pattern is also reported by Mayer (1997, p. 93), who reports a drop in intergenerational correlations when the parental income is measure at ages 14-17 vs. 25-29 of the son.

the same pattern holds when father's wages are used instead of total parental income. Table 2 reports similar results with education of the son as the dependent variable.

As pointed out in section 2, such a drop in the magnitude of intergenerational connections can indicate a direct effect of parental wealth. However, this is only true if the income variation due to the permanent and transitory components, α_k^f and β_k^f, remains fixed. If there are no wealth-related effects, the elasticity measured in the regressions in columns 1 and 2 of Tables 1 and 2 is given by:

$$\varphi = \frac{\operatorname{cov}\left(S, y_{ki}^f\right)}{\operatorname{var}\left(y_{ki}^f\right)} = \frac{\alpha_k^f g}{\alpha_k^{f2} + \beta_k^{f2}}. \qquad (5)$$

If α_k^f and β_k^f were unchanged over the lifecycle, equation (5) implies that φ does not depend on the point in the lifecycle at which y_{ki}^f is measured. A drop in φ as reported in Tables 1 and 2 indicates a direct effect of parental wealth. However, it has been established that the variation in earnings increases over the lifecycle (see Mayer, 2006 and the cites therein). This increases the denominator in (5) and reduces φ as the age of the parents increases. Therefore, the pattern reported in Tables 1 and 2 does not imply the presence of wealth-related intergenerational connections.

Mayer (2006) also reports that the variation in earnings due to the permanent component increases substantially over the lifecycle. This implies an increase of the numerator in (5), $\operatorname{cov}\left(S_i, y_{ki}^f\right)$. The exposition in section 2 is in terms of $\operatorname{cov}\left(S_i, y_{ki}^f\right)$. Figure 2 a) displays this covariance between the earnings of sons at ages 31 to 34 and parental income measured at different ages[8]. Figure 2 b) presents the equivalent relationship, using father's wage instead of parental income. In both cases the intergenerational covariance increases by almost 50% as the age of the son, at which the parental feature is observed, is increased from 2-

[8] Figures 2 and 3 are based on an unbalanced panel.

5 years to 30-33 years. Figures 3 a) and 3 b) confirm this trend when replacing the wage of the son with educational attainment.

According to equation (3), an increase of α_k^f can explain the patterns in Figures 2 and 3 in the absence of wealth-related intergenerational connections. As discussed in section 2, one needs to look at deviation from path implied by changes in α_k^f to quantify the importance of wealth-related transmission channels. Mayer (2006) reports that the variation in earnings due to a permanent component increases substantially over the lifecycle. But, his estimates for the evolution of α_k^f are imprecise. This makes it impossible to reliably estimate of the importance of wealth-related effects based on the changes in $\text{cov}\left(S_i, y_{ki}^f\right)$, as implied by equation (4). I conclude that the difference in the strength of intergenerational connections as parental earnings are measured at different points in time can not be used to quantify the direct effect of parental earnings on the earnings or educational attainment of children.

b) The effect of the parents' age on intergenerational connections

As pointed out in section 2, another way to distinguish wealth-related and wealth-independent transmission mechanisms is to consider the interaction between parental age at the birth of the son and intergenerational connections. If wealth does not matter, the age of the parents does not affect the magnitude of intergenerational relationships. If there is an effect of parental wealth on the child, the intergenerational relationships are stronger for children born later in the life of the parents.

Table 3 reports the results of the regression of log wages of sons (controlled for year, race, region and education and measured at ages 31 to 34) on parental log-income - measured at age 46 to 49 of the father - and the age of the parents at the birth of the son. As seen in column 3, the interaction terms between parental income and the ages of the father and the mother at birth of the son are not significantly different from zero. This is also true when controlling for education of the son in column 4. There is also no statistically significant effect of the interaction term between fathers' wage and fathers' age at birth of the

son (see Table 4). The fact that the age of the parents at birth of the son does not influence the strength of intergenerational connections is consistent with the absence of a wealth related intergenerational transmission channel. But, the sample sizes are small and standard errors are high. Additional factors not considered in the model may play an important role. As seen in column 2 of Table 3, the age of the parents at birth of the son is directly related to the wages of the son. This suggests that parental age operates through other channels that may be more important than the one through differences in the permanent component of earnings variation derived in section 2. Hence, it is not possible to rule out wealth-related effects.

4. Conclusion

I present two ways to use lifecycle variation in intergenerational connections to quantify the importance of wealth-related and wealth-independent intergenerational connections. I generalize Mayer's (1997) idea of measuring parental income at different ages of the child and comparing resulting intergenerational connections. I allow for a change in the variation of earnings due to permanent characteristics over the lifecycle. In addition, I show that this change implies an effect of the age of the parents at the birth of the child, if and only if, there are wealth-related intergenerational connections. Data from the PSID is consistent with the absence of wealth-related intergenerational connections. However, given the available data, it is not possible to rule out wealth-related intergenerational transmission mechanisms.

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Table 1

Regression of log-wage residual of son on parental income and father's wage

Dependent Variable:	Average Log - Wage residual son (age 31 -34)						
	1	2	3	4	5	6	7
Education				0.023 0.016	0.020 0.005		0.020 0.014
Parental Income (son age 14 -17)	0.331 0.039		0.210 0.051	0.182 0.054	0.149 0.056		0.087 0.079
Parental Income (son age 22 -25)		0.285 0.038	0.165 0.049	0.154 0.048	0.119 0.048		0.061 0.058
Father Wage (son age 14 -17)						0.187 0.056	0.070 0.076
Father Wage (son age 22 -25)						0.137 0.052	0.068 0.062
Father Education					0.012 0.008		0.010 0.008
Mother Education					0.007 0.012		0.009 0.012
Age father at birth					-0.009 0.007		-0.009 0.008
Age mother at birth					0.010 0.007		0.010 0.008
R^2	0.087	0.083	0.104	0.127	0.136	0.098	0.142

Notes:

Huber / White standard errors in small print
707 observations
Log wage residuals of son are average of residuals for ages 31-34
Residuals from regression of log-wage of son on Year, Race and Region dummies
Parental income and wage are in logs and controlled for Year and Region

Table 2

Regression of years of education of son on parental income and father's wage

Dependent Variable: Years of education Son

	1	2	3	4	5	6
Parental Income (son age 14 -17)	1.635 0.130		1.301 0.162	0.598 0.333		0.555 0.237
Parental Income (son age 22 -25)		1.201 0.122	0.446 0.149	0.053 0.286		-0.084 0.168
Father Wage (son age 14 -17)					0.995 0.233	-0.004 0.349
Father Wage (son age 22 -25)					0.436 0.202	0.212 0.221
Father Education				0.172 0.050		0.169 0.027
Mother Education				0.200 0.070		0.201 0.047
Age father at birth				0.045 0.040		0.044 0.081
Age mother at birth				-0.025 0.042		-0.025 0.092
R^2	0.052	0.036	0.055	0.098	0.043	0.099

Notes:

Huber / White standard errors in small print
856 observations
Years of education of son measured at age 25
Parental income and wage are in logs and controlled for Year and Region

Table 3

Regression of log-wage residual of son on parental income and parental age at birth

Dependent Variable:	Average Log - Wage residual son (age 31 -34)				
	1	2	3	4	5
Education				0.025	
				0.016	
Parental income	0.263		0.171	0.170	0.149
	0.049		0.212	0.206	0.204
(Parental income) *					
(age father at birth of son)			0.012	0.008	0.006
			0.012	0.011	0.011
(Parental income) *					
(age mother at birth of son)			-0.010	-0.007	-0.006
			0.012	0.011	0.011
Age father at birth of son		-0.018	-0.015	-0.014	-0.011
		0.007	0.007	0.007	0.007
Age mother at birth of son		0.020	0.014	0.013	0.010
		0.007	0.007	0.007	0.006
Father's education					0.027
					0.007
Mother's education					0.009
					0.010
R^2	0.064	0.012	0.072	0.101	0.100

Notes:

Huber / White standard errors in small print
826 observations
Log wage residuals of son are average of residuals for ages 31-34
Residuals from regression of log-wage of son on Year, Race and Region dummies
Parental income measured at age 46 to 49 of father
Parental income in is logs and controlled for Year and Region

Table 4

Regression of log-wage residual of son on father's wage and father's age at birth

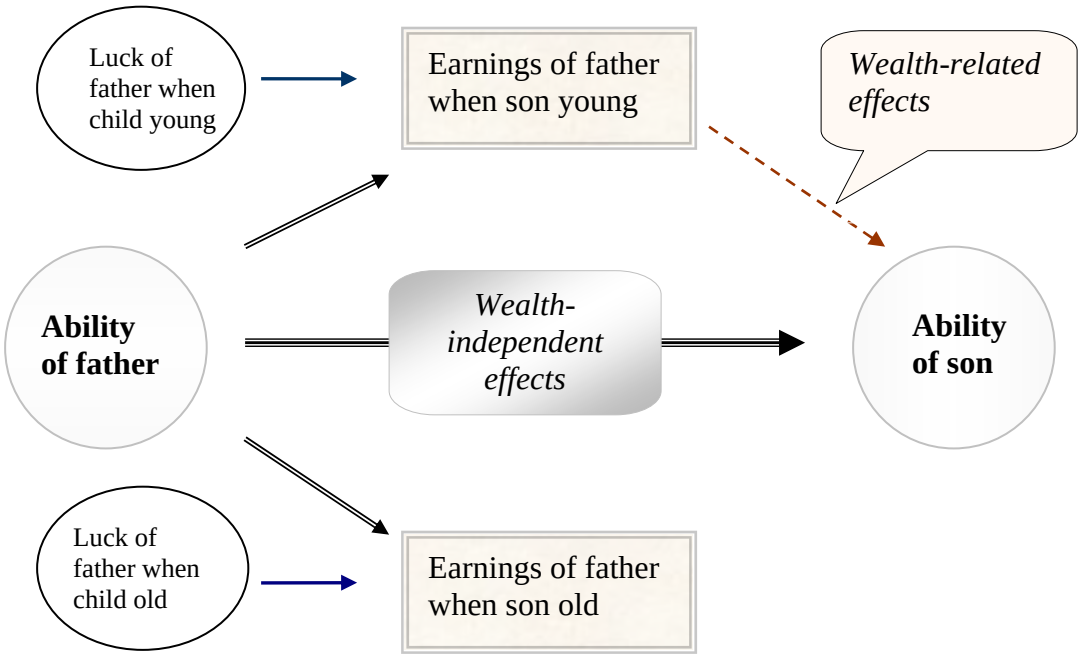
Dependent Variable:	Average Log - Wage residual son (age 31 -34)			
	1	2	3	4
Education			0.025	
			0.016	
Wage Father	0.288	0.307	0.298	0.337
	0.034	0.172	0.169	0.173
(Wage Father) *				
(age father at birth of son)		-0.001	-0.001	-0.004
		0.006	0.006	0.006
Age father at birth of son		-0.004	-0.004	-0.004
		0.003	0.003	0.003
Father's education				0.029
				0.006
R^2	0.090	0.091	0.119	0.115

Notes:

Huber / White standard errors in small print
813 observations
Log wage residuals of son are average of residuals for ages 31-34
Residuals from regression of log-wage of son on Year, Race and Region dummies
Father's wage measured at age 46 to 49 of father.
Father's wage is in logs and controlled for Year and Region

Figure 1

Wealth-related and wealth-independent intergenerational connections



Note: This figure is based on a similar figure in Mayer (1997, p. 176)

Figure 2a

Covariance between parents' income measured at different points in the lifecycle
and log-wage residual of the son at age 31-34. Wages controlled for year, race and region.

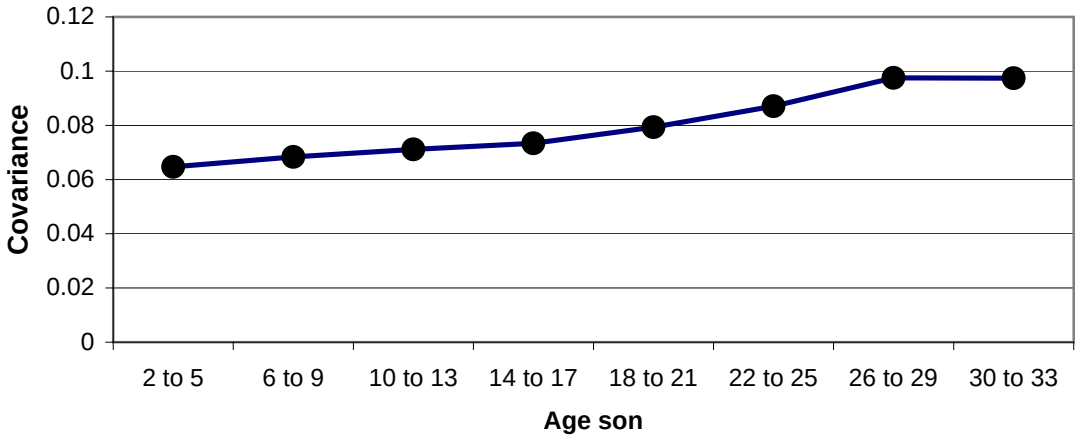


Figure 2b

Covariance between father's wage measured at different points in the lifecycle
and log-wage residual of the son at age 31-34. Wages controlled for year, race and region.

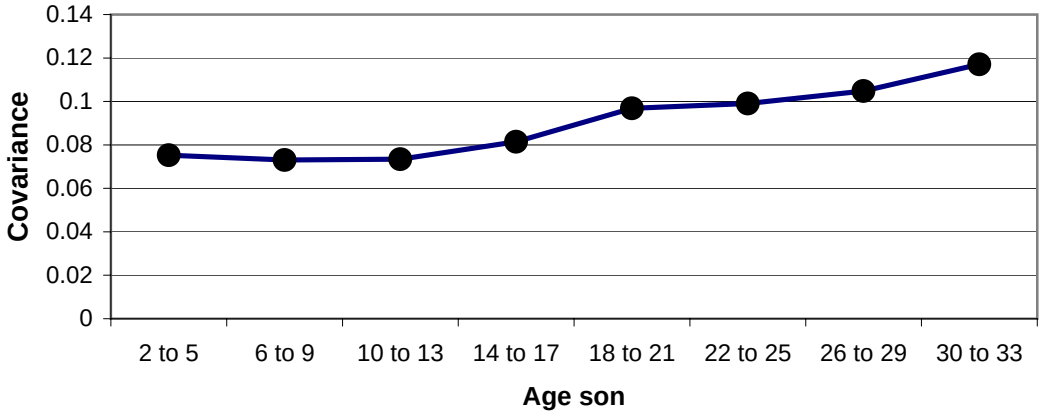


Figure 3a

Covariance between parents' income measured at different points in the lifecycle and years of education of the son at age 25.Wages controlled for year, race and region.

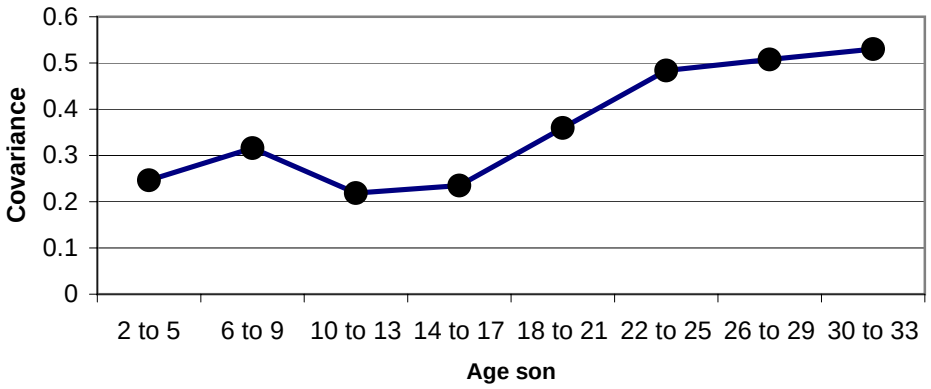


Figure 3b

Covariance between father's wage measured at different points in the lifecycle and years of education of the son at age 25.Wages controlled for year, race and region.