Why Do Entrepreneurial Parents Have Entrepreneurial Children?

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We explore the origins of the intergenerational association in entrepreneurship using Swedish adoption data that allow us to quantify the relative importance of prebirth and postbirth factors. We find that parental entrepreneurship increases the probability of children's entrepreneurship by about 60%. For adoptees, both biological and adoptive parents make significant contributions to this association. These contributions, however, are quite different in size. Postbirth factors account for twice as much as prebirth factors in our decomposition of the intergenerational association in entrepreneurship. We investigate several candidate explanations for this large postbirth factor and present suggestive evidence in favor of role modeling.

I. Introduction

Why do some people become entrepreneurs but not others? The entrepreneurship literature asserts a number of factors that influence this choice.

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The most prominent among these factors is parental entrepreneurship. Having an entrepreneur for a parent increases the probability that a child ends up as an entrepreneur by 30%–200% (Dunn and Holtz-Eakin 2000; Arum and Mueller 2004; Sørensen 2007; Colombier and Masclet 2008; Andersson and Hammarstedt 2010, 2011).[1]

While this stylized fact is widely accepted, there is no consensus concerning the origins of this intergenerational transfer of entrepreneurship. Thus far, none of the studies that explore various environmental explanations control for the transfer of genes from parent to child. This may bias their results given that recent twin studies find a large genetic component in the choice to become an entrepreneur (Nicolaou et al. 2008; Zhang et al. 2009; Nicolaou and Shane 2010, 2011).[2] On the other hand, twin studies do not address environmental determinants of entrepreneurship.

We contribute to this literature by decomposing the intergenerational transmission of entrepreneurship into prebirth factors (genes, prenatal and perinatal environment) and postbirth factors, using Swedish adoption data that include information on entrepreneurship for all four parents of adopted children.[3] This allows us to gauge the relative importance of nature and nurture in the reproduction of entrepreneurship from one generation to the next. We also run comparable exercises for a large, representative sample of nonadoptees.

We find that having an entrepreneur for a parent increases the probability that own-birth children become entrepreneurs by 60%. The size of this association is consistent with earlier studies.[4] Our decomposition exercise with adopted children reveals that both biological and adoptive parents make significant contributions. However, the impact of postbirth factors (i.e., the influence of adoptive parents) is approximately twice as large as the impact of prebirth factors (i.e., the influence of biological par-

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[1] Andersson and Hammarstedt (2010) and Laspita et al. (2012) report correlations across three generations.

[2] Genome-wide studies have thus far been unable to find specific genetic markers affecting entrepreneurship (see Koellinger et al. 2010; Van der Loos et al. 2013).

[3] The four-parent adoption methodology we use was pioneered by Björklund, Lindahl, and Plug (2006), who studied the intergenerational transmission of income and education. Other recent papers using the Björklund et al. (2006) methodology and similar data include Hjalmarsson and Lindquist (2013), who study intergenerational correlations in crime, and Cesarini, Johannesson, and Oskarsson (2014), who study voting behavior.

[4] For Sweden, see Andersson and Hammarstedt (2010, 2011).

ents). This difference is significant and is robust to several definitions of "entrepreneur."

We then go on to examine several candidate explanations of this large postbirth effect. After controlling for the transfer of genes, we find little evidence in support of inheritance of the family business, access to cheap capital, and parent-offspring similarities in choice of industry as explanations of our estimated postbirth effect. But we do find large same-sex associations in entrepreneurship, which we argue is indirect evidence in favor of role modeling.

Our results suggest that there is scope to sway people in the direction of entrepreneurship, either by public policies or within the education system, as postbirth factors play an important role in determining this occupational choice. This may be desirable because of the positive effects of entrepreneurship on job creation and innovation (see, e.g., Birch 1979; Acs 1999; and Van Praag and Versloot 2007). In addition, our findings suggest that a further exploration of the effects and determinants of role models for entrepreneurship may be fruitful; Bosma et al. (2012) take a first step in this direction.

In the following section, we present the four-parent adoption methodology used to estimate prebirth and postbirth effects. In Section III, we describe the Swedish adoption procedure and the data. Our baseline results are presented in Section IV, which is followed by a sensitivity analysis in Section V. Section VI examines the plausibility of several nurture explanations for the postbirth transmission of entrepreneurship. Section VII concludes.

II. Empirical Methodology

We begin by regressing our measure of entrepreneurship for a nonadopted child (E_i^{bc}) born into family i on our measure of entrepreneurship for the parents (E_i^{bp}), in order to obtain an estimate of the intergenerational association in entrepreneurship, β_1:

$$E_i^{bc} = \beta_0 + \beta_1 E_i^{\mathrm{bp}} + v_i^{\mathrm{bc}}. \tag{1}$$

Previous research has found strong intergenerational associations in entrepreneurship. Thus, we expect β_1 to be significantly positive.

The key question addressed in this paper is why we find an intergenerational association in entrepreneurship. Potential mechanisms can be placed into two broad categories that we label prebirth and postbirth factors. The Björklund et al. (2006) methodology makes use of adoption data with information on all four parents of adopted children in order to estimate these prebirth and postbirth factors directly. Thus, we can assess the relative importance of prebirth and postbirth factors for generating the observed intergenerational association in entrepreneurship, β_1.

Using our adoption data, we estimate the following linear regression model:

$$E_j^{ac} = \alpha_0 + \alpha_1 E_i^{bp} + \alpha_2 E_j^{ap} + v_j^{ac}. \quad (2)$$

We regress our measure of entrepreneurship for a child (E_j^{ac}) born into family i but then adopted by family j on the entrepreneurship status of both sets of parents. Under certain assumptions (spelled out and tested in Sec. V), the coefficient on biological parents' entrepreneurship (E_i^{bp}), α_1, is a consistent estimate of prebirth factors, and the coefficient on adoptive parents' entrepreneurship (E_j^{ap}), α_2, is a consistent estimate of postbirth factors. An additional set of assumptions is required to generalize our estimates of the relative importance of prebirth and postbirth effects beyond our sample of adopted children (these are also spelled out and tested in Sec. V).

We estimate equations (1) and (2) using ordinary least squares (OLS). The terms v_i^{bc} and v_j^{ac} in equations (1) and (2) are the OLS regression error terms. Since entrepreneurial activities are bound to vary at different stages of the lifecycle, and since our data are partially censored by age (more on this in Sec. III), we include year of birth dummies for children and each parent in our regressions. We also include a county of residence dummy for the child at a young age (in 1965) and a gender dummy.

III. Institutions and Data

A. Adoptions in Sweden

The children we study were born during the 1940s, 1950s, and 1960s. At this time, adoption of small children was done anonymously and private adoptions were not allowed.[5] The formal nature of the adoption process implies that the biological mother is typically identified. Moreover, social workers attempted to identify the biological father. The identities of the biological parents (when known) and adopting parents were recorded in the court decision and kept in the census records.

There were very few explicit legal requirements concerning who was eligible to adopt. One had to be at least 25 years old and free of tuberculosis or sexually transmitted diseases. Informally, the social authorities used the following rules and recommendations. The adopting family must have adequate housing and a steady income, should be married, and the adopting mother should be able to stay at home while the child was small. In practice, as we shall see in the next section, adoptive parents tend to be somewhat positively selected in terms of education and income, but not as much as they are today.

Children were not placed into their new families at random. Whenever possible, the social authorities wanted to match children based on their

[5] Adoption by relatives was allowed but was very rare (Nordlöf 2001).

biological parents' intellectual capabilities, talents, and physical appearance. Their hope was that parents would "recognize" themselves in their adopted child, and vice versa. However, after conditioning on observable characteristics (age, marital status, income, and education), the evaluation literature (reviewed in Bohman [1970]) finds no evidence that the social authorities were able to predict which parents would provide the most stable homes and the needed emotional environment.

There were four initial placement possibilities for newborn children: a special nursery, a home for unwed mothers, temporary foster care, or directly with the adopting family. Children with visible handicaps, severe health problems, or whose parents suffered from severe cases of mental illness, alcoholism, or criminality were not always put up for adoption. This means that those children who were put up for adoption were a positively selected group from a somewhat negatively selected pool of children. These two countervailing effects make adopted children look quite "average." The sample of adoptees studied by Bohman (1970), for example, had the same average birth weight and health outcomes (at ages 10–11) as their nonadopted peers in school.

B. Data

Our data were assembled as follows. Statistics Sweden began by drawing a 25% random sample from Sweden's Multigenerational Register, which includes all persons born from 1932 onward who have lived in Sweden at any time since 1961. We call these our index persons. We also asked Statistics Sweden to identify all individuals adopted by at least one parent in Sweden. Adoptive as well as biological mothers and fathers and siblings of each adopted individual as well as each index person were matched onto the sample. This gives us a sample of more than 7.5 million individuals.

We can identify 85% of the biological mothers and 43% of the biological fathers of adoptees born in Sweden.[6] Knowing the identities of the biological parents of adopted children is quite unique to these Swedish data and is the key to our empirical strategy.[7] Register data concerning entrepreneurship, income, education, industry, place of residence, year of birth and death, and year of immigration and/or emigration were then matched to this sample using the unique identification number that each Swedish resident is assigned.

We use this data set to create two samples; an adoptive sample and a nonadoptive sample. Table 1 lists the sample restrictions that we impose and the corresponding impacts on sample sizes. Our raw data set contains

[6] In Sec. V, we address the issue of missing fathers.

[7] The only other (non-Swedish) data set that we are aware of that has information on all four parents is a new Taiwanese data set. Tsou, Liu, and Hammit (2012) use these data to study the intergenerational transmission of education in Taiwan.

Table 1
Sample Restrictions

Restriction	Nonadoptees	Adoptees	Changes in Nonadoptees	Changes in Adoptees
(1) All individuals adopted by at least one parent		143,490		
(2) Keep only those adopted by both parents (and both are identified)		91,447		−52,043
(3) All nonadopted individuals	7,408,044			
(4) All index nonadopted individuals	2,448,405		−4,959,639	
(5) Exclude children born abroad	1,987,817	46,807	−460,588	−44,640
(6) Exclude children with one or more parents born before 1920	1,524,512	20,720	−463,305	−26,087
(7) Exclude all children who died or emigrated from Sweden before 1985	1,491,342	20,540	−33,170	−180
(8) Exclude all children with one or more parents who died or emigrated from Sweden before 1985	1,437,623	17,639	−53,791	−2,901
(9) Exclude children born 1970 or later	449,750	10,000	−987,873	−7,639
(10) Exclude children with biological mothers missing	422,389	8,513	−27,361	−1,487
(11) Keep those for whom both biological parents are identified	412,183	3,941	−10,206	−4,572

7,408,044 nonadopted individuals and 143,490 individuals adopted by at least one parent. Restricting our adoption sample to those adopted by both parents reduces it to 91,447 individuals. We restrict our nonadoption sample to the 2,448,405 index persons (i.e., those in the original 25% random sample).

For both the adoption and nonadoption samples, we impose the following additional restrictions. Since we only have information on the biological parents of adopted children who were born in Sweden, we eliminate all children who were born abroad. We also omit all children with at least one parent born before 1920. These individuals are most likely too old to have a chance to show up in our data on entrepreneurship, which start in 1985. Children who died or emigrated from Sweden before 1985 are dropped from the sample, as they cannot show up in our data on entrepreneurship. Likewise, we omit any child who had at least one parent (biological or adoptive) die or emigrate from Sweden before 1985. We also eliminate individuals born in 1970 or later. We choose this year as our cutoff because (i) the birth control pill was approved in 1965 and (ii) legal abortions were gradually introduced in Sweden from 1965 to 1975. As a result of these medical and legal changes, the number of Sweden-born adoptees fell dramatically, and the biological parents of adopted-away children became more negatively selected over time. Finally, we drop all children for which we cannot identify both biological parents. Our base-

line sample includes 412,183 nonadopted children and 3,941 adopted children. Among the adoptees, we have 2,149 sons and 1,792 daughters.

Consistent with the Swedish tax authorities, we define individuals as entrepreneurs when they derive the majority of their taxable labor income from a business that they own in full or in part. For the years 1985–2008, we have information on (sole and shared) business ownership for unincorporated enterprises. For the years 1993–2008,[8] we also know if a person received the majority of his/her taxable labor income from an incorporated enterprise owned in part or in full by himself/herself (and possibly employing personnel). An incorporated business in our data is a privately owned (i.e., nonlisted) limited liability stock company.

We use these two pieces of information (business owners of an unincorporated or incorporated enterprise) in order to categorize people as entrepreneurs.[9] Our baseline measure of "entrepreneurship," *Entrepreneur*, is an extensive margin variable equal to one if the individual ever categorizes as entrepreneur and zero otherwise. We will use four stricter definitions of entrepreneurship as well, and these will be defined in Section IV.

We use tax register data for the years 1968–2007 for each person in our sample to create a measure of income, *Income*, based on the broadest definition of income available to us. It is equal to the log of an individual's average pretax net total factor income, measured in real terms, over all available years, where the very few zeros are treated as missing. For two of the stricter definitions of entrepreneurship, we create an auxiliary income measure *Entrepreneurial Income*, only based on those years an individual is labeled an *Entrepreneur. Education* is measured in seven levels, represented as dummies in the regression equations and compressed into *Years of Schooling* for the descriptive statistics.[10] We also have information concerning the *Industry* in which people work, comprised of 42 two-digit SNI industry codes.

Descriptive statistics for the baseline sample are shown in table 2. Panel A shows means and standard deviations, whereas panel B shows

[8] We do not have information before 1993 on those working in their own incorporated enterprise. This implies that we are underestimating the true extent of entrepreneurship for the years 1985–92. For the years 1993–2001, roughly 2% of the sample is in this position. This might be approximately true for the years 1985–92 as well.

[9] Note that farmers are included in Statistics Sweden's definition of business owners, since farms are typically run as companies (either incorporated or unincorporated). In 2004, Statistics Sweden changed their routines for collecting information on business ownership as well as its definition. Since then, it includes business owners who report zero profits or even losses.

[10] Most of this information has been taken from Sweden's national education register for the year 1990. If education was missing in this primary source, then secondary sources were searched. This was done in the following order: the national education registers for 1993, 1996, and 1999, and, finally, the 1970 Censuses.

Table 2
Descriptive Statistics

	Panel A: Variables with Means and Standard Deviations			
	Own-Birth Children		Adopted Children	
	Mean	SD	Mean	SD
Daughters:				
Entrepreneur	.14	.35	.14	.35
Income	11.70	.46	11.64	.48
Years of schooling	12.40	2.23	12.22	2.00
Age in 1985	24.9	6.44	22.3	4.28
Sons:				
Entrepreneur	.25	.43	.23	.42
Income	12.02	.49	11.90	.51
Years of schooling	11.96	2.33	11.67	1.99
Age in 1985	24.9	6.45	22.5	4.44
	Birth Parents			
	Own-Birth Children		Adopted Children	
	Mean	SD	Mean	SD
Mothers:				
Entrepreneur	.15	.36	.10	.30
Income	11.57	.57	11.59	.51
Years of schooling	9.52	2.72	9.37	2.46
Age in 1985	50.7	7.38	45.5	6.73
Fathers:				
Entrepreneur	.26	.44	.20	.40
Income	12.21	.45	11.96	.48
Years of schooling	9.69	2.98	9.17	2.52
Age in 1985	53.5	7.38	48.6	7.24
			Adoptive Parents	
			Mean	SD
Mothers:				
Entrepreneur				
Income			11.54	.56
Years of schooling			9.67	2.83
Age in 1985			53.6	5.97
Fathers:				
Entrepreneur			.27	.45
Income			12.33	.43
Years of schooling			10.20	3.10
Age in 1985			55.9	5.77

Table 2 (*Continued*)

	Panel B: Raw Correlations				
	Own-Birth Children				
	(1)	(2)	(3)		
(1) Respondent entrepreneur	1.000				
(2) Biological father entrepreneur	.120**	1.00			
(3) Biological mother entrepreneur	.112**	.381**	1.00		
	Adopted Children				
	(4)	(5)	(6)	(7)	(8)
(4) Respondent entrepreneur	1.000				
(5) Biological father entrepreneur	.045**	1.000			
(6) Biological mother entrepreneur	.025	.065**	1.000		
(7) Adoptive father entrepreneur	.090**	.002	.009	1.000	
(8) Adoptive mother entrepreneur	.079**	.005	−.027	.416**	1.000

NOTE.—Our data on self-employment start in 1985.
** Significant at the 5% level.

correlations of interest. The incidence of entrepreneurship is quite similar for own-birth and adopted children. The share of Entrepreneur is 14% for both adopted and own-birth daughters and 25% and 23% for own-birth and adopted sons, respectively. Adopted children have slightly lower levels of income and education than own-birth children. They are roughly 2.5 years younger, too, which highlights the importance of controlling for year of birth in the empirical specifications.

Adoptive parents and parents with own-birth children have nearly identical values for Entrepreneur, but the values are lower for birth parents who put a child up for adoption. The share of Entrepreneurs among birth mothers who adopt away their child is 10%, while for adoptive mothers and mothers with own-birth children the share is 15%. The share of Entrepreneurs among birth fathers who adopt away their child is 20%, while for adoptive fathers and fathers with own-birth children the shares are 27% and 26%, respectively. Note also that the adoptive parents are several years older (on average) than the parents with own-birth children, who are, in turn, several years older than the birth parents who adopt away their child. Adoptive fathers have a full year of schooling more than birth fathers of adopted children, and their incomes are also higher.

Panel B of table 2 shows that the likelihood of being an entrepreneur is higher for children with parents who were entrepreneurs. For own-birth children the correlation between their own entrepreneur status and their parents' status is between 11% and 12% and similar for both parents. For adopted children, the correlation between parental and own entrepreneurship is larger for adoptive parents than for the biological parents and, again, not much different for fathers and mothers.

Panel B of table 2 further shows that the entrepreneurship status of fathers and mothers is highly correlated, around 40%. This may be due to assortative mating or of setting up firms jointly. For the biological parents of adopted children, this correlation is much lower, but significant (6.5%), consistent with the fact that these parents have often been together for shorter periods of time. Finally, it is also notable that the entrepreneur status of biological and adoptive parents is unrelated. Children of entrepreneurial parents are not more or less likely to be placed with adoptive parents who are also entrepreneurs.

IV. Results: The Relative Importance of Nature and Nurture

Table 3 presents the results of the baseline regressions for the sample of own-birth children in the top panel and for the sample of adopted children in the middle panel. The dependent variable in all equations is a dummy that is one for "children" who are or have been entrepreneurs and zero otherwise (Entrepreneur). The explanatory variable of interest in column 1 is a dummy (defined likewise) that indicates whether either parent is or has been an entrepreneur. In column 2, only the fathers' entrepreneurial experience is considered, whereas column 3 does so for the mothers. Column 4 includes all parents in one regression. Besides the coefficients that indicate the effect of these variables on the child's likelihood of entrepreneurship in terms of percentage points, the table also shows the effect in percentages (in parentheses). All regressions include year of birth dummies for children and parents and gender and county of residence (in or around 1965) dummies for the child (coefficients are not reported). The bottom panel provides *F*-tests on the equality of prebirth and postbirth factors and a comparison of the estimates between the two samples.

First, consider the intergenerational transfer of entrepreneurship for own-birth children. Taken as a whole, the likelihood to experience a spell of entrepreneurship significantly increases by having an entrepreneur for a parent. Parental entrepreneurship raises the probability that the offspring will experience entrepreneurship by 11.6 percentage points (or 61%; see col. 1). Entrepreneurial experience of fathers and mothers is equally important (see cols. 2 and 3). The effects of parental entrepreneurship when fathers and mothers are included separately are similar in magnitude to column 1, but they decrease when both are included simultaneously (col. 4). The drop in the coefficients indicates that the entrepreneurship likelihood of the partners is correlated positively (see panel B of table 2). Still, either parent's experience with entrepreneurship significantly increases the probability that a child ends up as an entrepreneur by roughly 45%. Thus, the child is almost twice as likely to become an entrepreneur when both parents have experienced entrepreneurship.

Next, in the middle panel, we show the results for adopted children. The entrepreneurial experience of both biological parents and adoptive parents significantly raise the probability that an adoptee will be observed

Table 3
Baseline Results, Ever Been an Entrepreneur

	(1)	(2)	(3)	(4)
Own-birth children:				
Entrepreneur biological parent	.116***			
	(.001)			
	[61%]			
Entrepreneur biological father		.115		.088
		(.002)		(.002)
		[61%]		[46%]
Entrepreneur biological mother			.128	.089
			(.002)	(.002]
			[67%]	[47%]
Adopted children:				
Entrepreneur biological parent	.037**			
	(.015)			
	[19%]			
Entrepreneur biological father		.042**		.043**
		(.017)		(.017)
		[22%]		[23%]
Entrepreneur biological mother			.034	.030
			(.023)	(.023)
			[18%]	[16%]
Entrepreneur adoptive parent	.084			
	(.014)			
	[44%]			
Entrepreneur adoptive father		.087		.069
		(.015)		(.016)
		[46%]		[36%]
Entrepreneur adoptive mother			.093	.065
			(.019)	(.021)
			[49%]	[34%]
Sum of biological and adoptive parent coefficients	.121			
	(.021)			
	.080–.161			
Sum of biological and adoptive father coefficients		.129		.112
		(.022)		(.023)
		.085–.173		.066–.158
Sum of biological and adoptive mother coefficients			.128	.095
			(.030)	(.032)
			.069–.186	.033–.156
F-test of differential effects of biological and adoptive parents	4.97**	4.25**	4.10**	3.13*
Year of birth dummies child	Yes	Yes	Yes	Yes
Year of birth dummies parents	Yes	Yes	Yes	Yes
County of residence in 1965	Yes	Yes	Yes	Yes
No. of own-birth observations	412,183	412,183	412,183	412,183
No. of adoptive observations	3,941	3,941	3,941	3,941

NOTE.—Estimates are from the OLS regressions that include a gender dummy for the child. Robust standard errors are in parentheses. The numbers in brackets (shown as %) convert the estimated coefficients from percentage points to percentages relative to the prevalence of entrepreneurship in the relevant sample of children (19% for both samples; see table 2).

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

as an entrepreneur. Biological parents' entrepreneurship increases the offspring's tendency to become entrepreneurs by approximately 20%. The estimates are consistent across regressions, and they are significant at the 5% level except for the biological mothers' experience.[11] The impact of biological fathers and mothers is almost identical in size, which makes it unlikely that the in utero environment influences this occupational choice. The estimates for the effect of adoptive parents' entrepreneurship indicate that postbirth factors contribute about twice as much to the intergenerational transfer of entrepreneurship as prebirth factors do. A history with entrepreneurship among adoptive parent raises the likelihood that an adoptee will be observed as an entrepreneur by 45%.[12] The *F*-tests in the bottom panel show that the effect of the adoptive parent is significantly larger than the effect of the biological parent (for col. 1, the *p*-value is .026).

Finally, the bottom panel of table 3 presents the sum of biological and adoptive parent coefficients and the confidence intervals of these sums. The sum of the estimated prebirth and postbirth factors for adoptees is remarkably similar to the intergenerational association for own-birth children. That is, we find no evidence that being adopted has an impact on the intergenerational transfer of entrepreneurship.[13]

In summary, table 3 gives us the following insights. First, there is a significant parent-child transmission of entrepreneurship. The likelihood that someone is observed as an entrepreneur increases by about 45%–65% if the parent is or was an entrepreneur. This finding is consistent with earlier studies (e.g., Sørensen [2007] found an association of similar size in Denmark). Second, this transmission is the same for entrepreneurial fathers and mothers. Third, when considering adopted children, we see that both biological and adoptive parents have a significant contribution. Approximately one-third of the intergenerational association in entrepre-

[11] It may well be that the difference in significance is due to the lower occurrence of entrepreneurship among mothers than fathers (see panel A of table 2). In Sec. V.B, we show indeed that the effect of biological mothers turns significant once we extend our sample size to those adoptees for whom the information on the biological fathers is missing.

[12] Again, we see a drop in the coefficients when both adoptive fathers and mothers are included. This drop is not observed for the biological parents of adoptees: for them the entrepreneurship outcome of the father and the mother is much less strongly correlated (see panel B of table 2).

[13] As a robustness check, we test whether being adopted has an impact on the transfer of entrepreneurship in the pooled sample of own-birth children and adoptees. We regress entrepreneurship of children on entrepreneurship of their prebirth and postbirth parents (which only differ for adoptees) and a cross-term of entrepreneurship by either postbirth parent with an indicator for being adopted. The coefficient of this cross-term should be zero when the total effect of parental entrepreneurship is the same for adoptees and own-birth children. The results mimic those in table 3, col. 1, and the estimate for the cross-term is indeed insignificant and the size (0.005) is identical to the difference between the estimates in the top and bottom panel of col. 1 in table 3.

neurship is accounted for by prebirth factors, whereas two-thirds of the association can be attributed to postbirth factors. The difference between the estimated size of prebirth and postbirth factors is significant. Fourth, being adopted has no detectable impact on the intergenerational transfer of entrepreneurship.

The definition of entrepreneurship used in table 3 implies that observations are counted as entrepreneurs as soon as they have owned a business no matter how long, serious, or successful their spell of entrepreneurship was. As a check, we reestimated column 1 of table 3 using four stricter definitions of entrepreneurship. The first definition is equal to one whenever someone has been the owner of an incorporated firm and zero otherwise. It leaves us with 40% of the entrepreneurs in the base sample. The second definition restricts the original definition in terms of duration and equals one if someone has been an entrepreneur for at least 3 years and is zero otherwise, thereby cutting off 30% from the original sample of entrepreneurs. Third, we cut off the same percentage, that is, the bottom 30%, but in this case by using the entrepreneurial income distribution. The fourth definition combines the second and third; it is one for entrepreneurs who have been in business for at least 3 years and earned incomes belonging to the upper 70% of the income distribution. This is the case for 52% of the entrepreneurs. Both when applying the stricter definition of entrepreneurship to the children only and when applying it symmetrically to both the child and their parents, we find estimates resonating the results in table 3.[14] Thus, our main result holds regardless of the definition of "who is an entrepreneur," which is a much debated matter in the entrepreneurship literature (e.g., Parker 2009).

V. Internal and External Validity

A. Internal Validity

We run sensitivity analyses for two possible problems: (i) nonrandom assignment of adoptees to their adoptive parents;[15] (ii) age at adoption.[16]

[14] One notable exception are the results for incorporated, where the parental transmission is more than three times as large when the stricter definition of entrepreneurship is also applied to parents. This seems to manifest itself through postbirth factors only.

[15] Please note that, even if the assignment of adoptees was fully random, our decomposition exercise may not identify causal effects, as the parent's entrepreneurial status may be correlated with unobserved characteristics.

[16] We have also tested for nonlinear effects, i.e., gene-environment interaction, that could influence our estimates of prebirth and postbirth factors. We reestimated the baseline regressions for adoptees while including an interaction term that is equal to one when both the biological and the adoptive parent are entrepreneurs. The coefficients belonging to the interacted terms are all zero, and the estimated main effects are similar to the baseline results, implying no significant nonlinear effects.

In case nonrandom placement of children to adoptive families occurs, our estimates of the prebirth and postbirth factors might become biased, as we may pick up postbirth effects in our prebirth estimates, and vice versa. Fortunately, we can test the sensitivity of our results to the violation of this assumption (albeit only based on observable characteristics). Nonrandom placement with respect to entrepreneurship status does not seem to be an issue, as the biological and adoptive parents' entrepreneurship status are uncorrelated (see panel B pf table 2), even after controlling for other observable characteristics.[17] We further check the validity of this suggestion by assessing to what extent our baseline results (row 1 of table 4) for the adoptive parents change upon the exclusion of the biological parents' entrepreneurship status (row 2 of table 4). We perform the same test on the estimates of the coefficients of the biological parents' entrepreneurship status by excluding the adoptive parents' entrepreneurship status controls from the regression (row 3 of table 4). The resulting coefficients are very similar to the corresponding estimates of the baseline equation.

Finally, from Bjorklund et al. (2006), we know that the correlation between adoptive and biological parents is not zero when considering education level or income. Therefore, we check whether our baseline estimates for adopted children change upon the inclusion of controls for the education and income levels of the biological parents (row 4) and the adoptive parents (row 5), respectively. The results hardly change. All in all, our sensitivity analysis shows no evidence of nonrandom placement in terms of entrepreneurship nor does nonrandom placement in terms of education and income affect our results.

If late placements affect outcomes in a manner that is different from direct placements in the adopting family, then we may be underestimating the postbirth effects of these children's adopting parents or overestimating the prebirth effects of parents who adopt away. A nontrivial share of our sample of adopted children may have experienced postdelivery placements after more than 12 months. Using nationwide data drawn from the same sources as our own data, Björklund et al. (2006) report that 80% of adoptees born in the 1960s were living with their new families before age 1. Using the census data from 1960, 1965, and 1970, our analysis shows

[17] We estimate regressions of adoptive parent entrepreneurship status on the biological parents' entrepreneurship status in three specifications: (i) no controls, (ii) the same birth year and county controls as in table 3, and (iii) extra controls for education levels (dummies) and incomes of the biological and adoptive parents. The resulting coefficients are zero, suggesting that nonrandom placement with respect to entrepreneurship status is not an issue.

Table 4
Sensitivity Analysis

	Parent		Father		Mother	
	Biological	Adoptive	Biological	Adoptive	Biological	Adoptive
Adopted children:						
(1) Baseline results (from table 3; n = 3,941)	.037**	.084***	.042**	.087***	.034	.093***
	(.015)	(.014)	(.017)	(.015)	(.023)	(.019)
Test for nonrandom assignment:						
(2) Exclude biological parent entrepreneurship and characteristics		.084***		.089***		.091***
		(.014)		(.015)		(.019)
(3) Exclude adoptive parent entrepreneurship and characteristics	.036**		.041**		.030	
	(.015)		(.016)		(.023)	
(4) Include biological parent education and income[a]	.035**	.084***	.040**	.088***	.033	.093***
	(.015)	(.014)	(.017)	(.015)	(.023)	(.019)
(5) Include adoptive parent education and income[a]	.037**	.083***	.041**	.089***	.034	.093***
	(.015)	(.014)	(.016)	(.015)	(.023)	(.019)
Missing biological fathers:						
(6) Include all with identified biological mothers (n = 8,513)					.037**	.095***
					(.015)	(.013)
Own-birth children:						
(7) Baseline (cols. 1 and 3 of table 3; n = 412,183)	.116***		.088***		.089***	
	(.001)		(.002)		(.002)	
Comparable samples:						
(8) Positively selected parents; characteristics match those of adoptive parents (n = 3,939)	.102***		.086***		.078***	
	(.014)		(.016)		(.020)	
(9) Negatively selected parents; characteristics match those of biological parents with adopted away children (n = 3,742)	.116***		.112***		.078***	
	(.016)		(.018)		(.025)	

NOTE.—Robust standard errors are in parentheses.
[a] Education levels are included by using dummies for the number of years of education, where missing observations are included in a separate dummy variable. Missing values for parental income levels are set equal to their means and a dummy for missing income is included.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

a similar percentage of 75%–80%.[18] This implies that our large estimate of the postbirth effect may be slightly underestimated.

B. External Validity

We investigate three potential problems to assess whether it is reasonable to generalize the results from our sample of adoptees to the population at large: (i) many adoptees have unknown fathers; (ii) prebirth characteristics of adopted children may differ from those of own-birth children; (iii) adoptive parents may be different from birth parents of nonadopted children.[19]

Our estimates may be biased due to restricting the sample of adoptees to those for whom data are available for both of the biological parents. This restriction is substantial, for more than half of the adoptees the information on the biological fathers is missing. For the extended set of adoptees, we reestimate the effects of the entrepreneurship status of biological and adoptive mothers on the adoptees' outcome. The estimated coefficients hardly change, and the effect of the biological mother becomes significant due to the larger sample size (see row 6 of table 4).

The parents of adopted children are different from the parents of own-birth children on average, as was indicated in table 2. In case these differences affect our estimates, the comparison between adopted and nonadopted children becomes problematic. To investigate whether our baseline results for adoptees are a reasonable comparison to nonadoptees, and thus externally valid, we reestimate the baseline equations for nonadoptees using two different, more comparable samples. The first sample addresses the issue that adoptive parents tend to be positively selected, that is, adopted children may face advantageous postbirth environments. It consists of own-birth children and their parents, where we require that the parents have similar observables to those of *adoptive parents*. Likewise, the second new sample consists of own-birth children and their parents, where the parents are required to have similar observables to the *biological parents of adopted children*. This sample addresses the issue that adoptees may be endowed with less advantageous prebirth characteristics,

[18] The actual placement guidelines in 1945 suggested that a child should be adopted at age 1 after a 6-month trial period in the home. In 1968, the guidelines suggested that the baby should be placed with its new family at age 3–6 months and be adopted 3–4 months later. Note also that some adoptees may be misclassified as "late" adoptees because they were first placed in a foster home and later adopted by their foster parents (Bohman 1970). Also, children were most likely not registered at their biological mother's address until the official adoption process was complete.

[19] External validity also hinges on the assumption that adoptive parents treat their children no different than own-birth parents do, nor should adoptees respond systematically differently from own-birth children to the received parenting. Unfortunately we cannot test this assumption with our data.

since biological parents tend to be negatively selected. Both samples are created using a propensity score matching method.[20]

Rows 8 and 9 of table 4 present the results of reestimating our baseline intergenerational association of entrepreneurship for these new samples of own-birth children and parents. The results are very similar to the baseline results for nonadopted children (row 7 of table 4). They all fall within the ranges of the summed effects of biological and adoptive parents for adoptees that were indicated in the bottom panel of table 3.[21] As far as can be judged from propensity matching on observable characteristics, our baseline estimates are not sensitive to the fact that adopted children and their adoptive parents are different from own-birth children and their parents: these differences do not translate into meaningful changes in the estimated intergenerational association in entrepreneurship.

VI. An Exploration of Potential Postbirth Mechanisms

A. Four Candidate Mechanisms

We have learned that postbirth factors account for more of the intergenerational transfer of entrepreneurship than prebirth factors do. But what exactly is this entrepreneurial "nurture" effect? In this section, we explore the plausibility of several candidate explanations that exist in the literature (see Fairlie and Robb [2007] and Parker [2009] for a summary).[22]

First, children may eventually inherit the family business. Previous studies find that inheritance is generally not large enough to explain much of the intergenerational transfer of entrepreneurship (Parker 2009). US evidence produces estimates that 5.6% of the businesses are acquired by inheritance (1.6%) or gifts (4%). Canadian and Danish evidence produces similar numbers of 5.5% (Aldrich, Renzulli, and Langton 1998) and 8% (Sørensen 2007), respectively.

[20] We employed a nearest-neighbor matching method without replacement. In case of a tie, we included both neighbors. The propensity score was estimated using a Probit model with adopted (yes = 1, no = 0) as the dependent variable. Regressors included the child's birth year, gender, mother's age at child's birth, father's age at child's birth, mother's income, father's income, mother's education, father's education, mother's entrepreneurship status, and father's entrepreneurship status. When estimating the propensity score for our first sample of "positively" selected parents, we matched biological parents with own-birth children to adoptive parents. When estimating the score for our second sample of "negatively" selected parents, we match ed biological parents with own-birth children to the biological parents of adopted-away children.

[21] The coefficient in row 10 for the negatively selected group of fathers of own-birth children changes, however, quite a bit (2 percentage points).

[22] Examining candidate explanations for the biological association is not possible with our data.

In this paper, we can only measure an upper bound of the probability that a business was obtained through inheritance by using the indirect method proposed by Sørensen (2007): entrepreneurs may have inherited their business if their first start as an entrepreneur occurs at the same time as their parents exit and if both firms are active in the same industry. In our data, only 2.2% of all entrepreneurs who have entrepreneurial parents satisfy this condition. Disregarding the exact timing, 10.8% of all entrepreneurs with entrepreneurial parents have their first stint as an entrepreneur in the same industry as their parents' last stint. We view this as an upper bound on the percentage of children who inherit the family business, since it includes all persons ending up in the same industry as their parents for whatever reason.[23]

To assess the extent to which the inheritance mechanism may account for our large postbirth estimates, we reestimated our baseline experiment excluding these possible cases of inheritance. The results are very similar (available upon request), leaving the large postbirth effect unexplained.

The second mechanism is that children of entrepreneurs may have access to cheaper capital. Dunn and Holtz-Eakin (2000) show that the assets of parents are correlated positively with transitions to entrepreneurship. However, they point out that the underlying mechanism is parental entrepreneurship and human capital rather than wealth itself. In Sørensen (2007), parental wealth does not explain the transfer of entrepreneurship. In addition, other studies show that few business owners borrow capital from family, at maximum 8% (Aldrich et al. 1998; Fairlie and Robb 2007).

We address the cheap capital hypothesis by reestimating the adoptive parents coefficients after adding controls for parental income and wealth. Parental wealth is proxied by a dummy variable equal to one if the sum of the parents' pretax total factor incomes is in the top decile of the income distribution and zero otherwise (see Hurst and Lusardi 2004). These variables have no detectable impact on our estimate of the postbirth association. We also test the cheap capital hypothesis by creating a new dichotomous dependent variable that is equal to one if the child had started his or her first company in a capital intensive industry (which presumably requires a larger initial capital investment) and zero if they did not. We then examine whether or not adoptive parents' wealth and/or entrepre-

[23] However, the number of family companies who successfully transfer ownership from one generation to the next is probably much closer to 10.8% than to 2.2%. In a survey of small businesses in Sweden whose principle owner was aged 50 or older (i.e., likely to be thinking about retiring), 8.7% of these owner-respondents said that they had already transferred some share of their company to their children (NUTEK 2004). When asked how they themselves had come to own their own business, 2.4% answered that they had inherited their business, 0.2% had received it as a gift, and 6.9% had received ownership by purchasing shares along with inheritance and/or a gift (NUTEK 2004).

neurial status can predict these presumably capital intensive startups—they do not.

The third mechanism is that entrepreneurial parents may provide their children with general business human capital. If it is easier for children of entrepreneurs to obtain "general business" or managerial human capital, entrepreneurship might be a more promising career path and thus cause a correlation across generations. Fairlie and Robb (2007) find that having self-employed parents increases profits and sales, and lowers closure, but only when the entrepreneur has work experience in the family business. Roberts (1991) and Sørensen (2007) find no evidence that the children of self-employed perform better as entrepreneurs. This explanation, however, cannot be tested in the realm of our study.

The fourth mechanism is that parents may pass on occupation- and/or industry-specific skills or tastes to their children (Laband and Lentz 1983; Dunn and Holtz-Eakin 2000; Sørensen 2007; Corak and Piraino 2011). We address the industry-specific human capital explanation by reestimating the adoptive parent coefficients (our postbirth effects) after including a dummy that is one whenever the child has ever worked in the exact same industry as his/her parents in whatever labor market position.[24] This slightly lowers the nurturing part of the intergenerational transmission of entrepreneurship (fathers by 8% and mothers by 4%). Hence, the transfer of industry-specific skills or tastes does not appear to explain much of the adoptive parent-child correlation.

In summary, none of the candidate explanations considered above (inheritance, cheap capital, or transfer of industry-specific skills and/or tastes) appear to explain a significant share of the intergenerational association in entrepreneurship. Next we turn to parental role modeling.

B. Parents as Role Models

The fifth explanation put forth in Parker's (2009) overview is that entrepreneurial parents may transmit the taste for entrepreneurship through role modeling. This may be as subtle as increasing the child's awareness of entrepreneurship as a career option (Carroll and Mosakowski 1987) or shaping the child's values, such as a taste for autonomy. Sørensen (2007) shows a sizable transmission of entrepreneurship for children who have only been exposed to parental entrepreneurship before the age of 16.

We address role modeling by allowing the effects of entrepreneurial fathers and mothers to vary between daughters and sons. A stronger same-sex transmission of entrepreneurship can be seen as an indication of the presence of role modeling. Role model identification theory implies that

[24] Please note that we thereby exclude the possibility that occupational-specific skills or tastes are transferred to children working in different but related industries.

role models are more often of the same gender (Ruef, Aldrich, and Carter 2003). More generally, homophily is prevalent in many relationships; that is, individuals have a tendency to bond easier with similar others (McPherson, Smith-Lovin, and Cook 2001). Thus, if the nurture part of the parent-child association is particularly strong for mothers and their daughters on the one hand and for fathers and their sons on the other hand, we could view this as evidence of role modeling (Andersson and Hammarstedt 2011). However, an alternative interpretation of a stronger same-sex transmission is that it results from different behavior of parents toward same-sex children. For example, Thomas (1994) finds that mothers invest more in the education of their daughters and fathers channel more resources toward their sons.

In table 5, we show the results from various tests related to this role modeling hypothesis. The top panel shows the results from estimating the transmission of the entrepreneurship status of adoptive parents to their children, for daughters and sons separately, where each column reflects a separate regression equation. The bottom panel shows the results for the parents of own-birth children. These are interesting as well for testing our role modeling hypothesis, since the "nature" part of this relationship is not likely to be different for boys and girls. Furthermore, the sample of own-birth children is much larger and is therefore helpful to generate more precise estimates of the differential nurturing effects of fathers and mothers on sons and daughters.

Column 1 of table 5 shows what we call the basic result for the role modeling exercise. The only controls included are the county dummies for the children and the birth year dummies of the children and their rearing parents. The left-hand side of the upper panel shows that the transmission of entrepreneurship from adoptive parents to girls goes exclusively via the mother. The right-hand side shows that the strongest effect for boys is caused by the father. The single-sided *F*-tests show that the differences between the positive coefficients pertaining to the father's and mother's entrepreneurship status dummies are significant (at the 10% level) in the expected direction, for both girls and boys.

The bottom half of the first column shows comparable results for the larger sample of own-birth children. In this case, parents affect the entrepreneurship status of the children through a combination of prebirth and postbirth factors. The difference, however, is clear: fathers affect sons more strongly, whereas for daughters the effect of the mother is significantly larger.[25] The summed percentage effects of fathers and mothers

[25] This finding supports the results of Andersson and Hammarstedt (2011), who also find that intergenerational entrepreneurship is affected by both parents, but more strongly by the parent of the same sex.

on the likelihood of entrepreneurship are strikingly similar for boys and girls. Note that table 2 showed us that entrepreneurship is almost twice as likely among boys, so in order to compare the effects of either parent in percent increase one needs to double the coefficients for girls.

Column 2 includes controls for labor market characteristics of the nurturing parents as well as the variables that were used to check the other postbirth mechanisms in the section above. We still observe a stronger transfer for parents and children of the same sex. This suggests that we find a direct "entrepreneurship role modeling effect" on top of an indirect effect through occupational choice or education that is transmitted from fathers (mothers) to sons (daughters). We also test whether the results of this specification change upon excluding from the sample those who have possibly inherited their business from their parents. The results (which are available on request) are comparable. Column 3 includes the entrepreneurship status and birth year dummies of the set of birth parents who adopt away and mimics the baseline role modeling result.

Finally, in column 4, we try to distinguish between our role modeling interpretation of the stronger same-sex transmission and the alternative explanation that parents invest more in their children of the same sex. We do so by including the (mean-centered) number of sisters (brothers) and an interaction term with the entrepreneurship status of the mother (father) in the estimation for girls (boys): if the same-sex parent-child transmission of entrepreneurship is driven by differential parenting efforts, one would expect a negative interaction effect. That is, the effect of having an entrepreneur for a father is stronger for sons who do not have to share their father's attention with a brother, whereas this should have no impact on the transmission under our role-modeling explanation.

Our findings from columns 1–3 remain largely unchanged when we allow the same-sex parent-child transmission of entrepreneurship to vary by the number of same-sex siblings. In our sample of adoptees, we do not find any support for the interpretation of stronger same-sex parenting efforts; the interaction term in the girls equation is insignificant, while for boys it is significant but positive. In the larger sample of own-birth children, there is indication that the same-sex parent-child transmission of entrepreneurship is diminishing with the number of same-sex siblings. However, the mothers still affect daughters more strongly, whereas for sons the effect of the father is larger. The same-sex parent-child transmission remains stronger as long as girls do not have more than two sisters and boys do not have more than two brothers (which holds for 91% of our sample). All in all, table 5 shows that the entrepreneurship transmission effect of the nurturing parent of the same sex is consistently larger than for the other nurturing parent.

Table 5
Test of Gender Role Modeling

	(1)		(2)		(3)		(4)	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Adopted children:								
Nurturing parents effect:								
Father	.006	.126***	.006	.118***	.000	.125***	.003	.126***
	(.021)	(.024)	(.020)	(.024)	(.021)	(.025)	(.021)	(.029)
Mother	.065**	.055*	.062**	.049	.069**	.062**	.064**	.056*
	(.027)	(.030)	(.027)	(.030)	(.027)	(.031)	(.027)	(.030)
No. of sisters/no. of brothers							−.010*	−.006
							(.006)	(.007)
No. of sisters × mother/no. of brothers × father							−.025	.029*
							(.018)	(.016)
F-test of difference (one-sided)	2.28*	2.42*	2.05*	2.38**	2.94**	1.78*	3.48**	.72
No. of adoptive observations	1,792	2,149	1,792	2,149	1,792	2,149	1,792	2,149
Own-birth children:								
Nurturing parents effect:								
Father	.042***	.131***	.038***	.117***			.042***	.132***
	(.002)	(.002)	(.002)	(.002)			(.002)	(.002)

Mother	.068***	.108***	.063***	.092***	.068***	.108***
	(.003)	(.003)	(.003)	(.003)	(.003)	(.003)
No. of sisters/no. of brothers					−.001	.002***
					(.001)	(.001)
No. of sisters × mother/no. of brothers × father					−.006***	−.011***
					(.002)	(.002)
F-test of difference (one-sided)	46.28***	25.73***	40.54***	31.53***	49.14***	50.45***
No. of own-birth observations	200,964	211,219	200,964	211,219	200,964	211,219
Controls included:						
Education, income, wealth, same industry	No		Yes		No	No
Entrepreneur status and birth year of nonnurturing parents	No		No		Yes	No

NOTE.—The OLS regressions include the entrepreneurship status of both nurturing parents. Standard errors in parentheses are robust. All regressions include birth year dummies and county of residence dummies in 1965 for the children and birth year dummies for the nurturing parents. Column 2 includes education dummies, income levels, and wealth dummies for both nurturing parents. It also includes a dummy that indicates whether the parent has ever worked in the same industry as the child, either as an entrepreneur or as a wage employee. Column 3 includes, in addition to the variables in col. 1, the entrepreneurship status and birth year dummies of the biological parents of adopted children. Column 4 includes the (mean-centered) number of sisters (brothers) in the girls (boys) regression and an interaction of this variable with the mother's (father's) entrepreneurship status.

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

VII. Conclusion

Questions concerning the origins of entrepreneurship have attracted a lot of attention and for good reasons. Entrepreneurship has important economic and social benefits, which could potentially justify both private and public spending on entrepreneurial training, business school education, and public programs aimed at promoting entrepreneurship (Klapper, Laeven, and Rajan 2006; Storey 2006). The true value of these policies, however, cannot be judged correctly without more information concerning the origins and malleability of entrepreneurship.

A well-established stylized fact emerging from entrepreneurship economics concerning the origins of entrepreneurship is the high correlation between the entrepreneurial choices of parents and their children. In our study, we find that children of entrepreneurs are 60% more likely to become entrepreneurs than others using a large and representative sample of the Swedish population. The key question our paper addresses is to what extent this strong intergenerational transmission of entrepreneurship is driven by prebirth or postbirth factors. In essence, we want to know whether entrepreneurs are born or bred. The larger the contribution of nurture vis-à-vis nature, the larger the potential benefit of programs aimed at fostering entrepreneurship.

We identify prebirth and postbirth factors by analyzing employment histories of Swedish adoptees together with their biological and adoptive parents. Our decomposition exercise reveals a strong correlation of entrepreneurship between both types of parents and their children. Our main results shed light on the relative importance of prebirth and postbirth factors. We find that the importance of adoptive parents is twice as large as the influence of biological parents.

The evidence of biological underpinnings of entrepreneurship is in line with recent twin studies (Nicolaou et al. 2008; Zhang et al. 2009; Nicolaou and Shane 2010). However, a direct comparison of our results with these studies is not possible, as we address the question of nature versus nurture from a different angle. Twin studies decompose the total variation in entrepreneurship choices into genes and shared and nonshared environment, whereas we decompose the intergenerational association. Thus, twin studies allow for a larger set of environmental influences, and they allow prebirth factors that promote entrepreneurship to be passed on from nonentrepreneurial parents as well. Twin studies find that 40% of the variance in entrepreneurship choices is explained by genes, and with the exception Zhang et al. (2009), they find no influence of the twins' shared environment. This last finding stands in stark contrast to our own findings. In particular, the zero effect of the twins' shared environment is difficult to reconcile with our findings, since shared environment should include most of our important postbirth factors, such as role modeling. Since both adoption studies and twin studies have their own methodological chal-

lenges, it is important to analyze this important question using both methods. We are the first to do so using the adoption method. We view that as the first contribution of our study.

Our second contribution is that we explore a set of likely explanations for the nurture effect. Previous studies on intergenerational entrepreneurship have identified and measured five environmental mechanisms: (i) the inheritance of a family business, (ii) access to cheaper capital, (iii) less costly acquisition of general business human capital, (iv) the transfer of industry- or firm-specific human capital, and (v) a kind of "catch all" explanation that includes preferences and parental role modeling. In contrast to previous studies, we can explore most of these different mechanisms while at the same time controlling for genes. We find indirect evidence in favor of parental role modeling based on an analysis of gender-specific parent-child transmissions of entrepreneurship. This finding deepens our understanding of the role that parents play in fostering entrepreneurship. Moreover, this finding raises a number of intriguing questions relating role modeling to entrepreneurship that could be placed on the research agenda.

Recent empirical evidence indicates that networks and peer groups (e.g., Djankov et al. 2006; Stuart and Ding 2006; Nanda and Sørensen 2010), as well as regional inheritances and clusters (Reynolds, Storey, and Westhead 1994; Lafuente, Vailliant, and Rialp 2007), influence entrepreneurship decisions. This literature suggests that role modeling may be driving these effects. Given our result about the fruitful role of parental role models, further research into the nature and effect of other role models, for instance, entrepreneurs in the classroom, in regions, in peer groups, or in networks, might point out the nonspecificity of parental role models and the possible substitution possibilities in the wider social networks of people.

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