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Chapter 18

Equality of Opportunity and Intergenerational Transmission of Employers

PAUL BINGLEY, MILES CORAK,
AND NIELS WESTERGÅRD-NIELSEN

As THE motivating theme of this book makes clear, children must advance through a whole series of transitions at different points in their lives, which to varying degrees may all have a bearing on their ultimate labor market success as adults. This chapter addresses the relationship between parental income and the labor market outcomes of teenagers and young adults. This gradient refers to the relationship between family circumstances during adolescence and early adult outcomes. This is an important transition in a child's life because it relates directly to some of the issues John Roemer (2004) addressed in his concern over the relationship between measures of generational mobility, equality of opportunity, and the appropriate role for public policy.

To perhaps overly simplify his argument, a strong gradient in incomes across the generations could reflect genetic and other hereditary endowments associated with the early years. The transmission of family values, preferences, and other inherent characteristics, like motivation, may permit parents who are relatively well advantaged to raise children who in turn go on to be relatively advantaged adults. If these characteristics are valued by labor markets over time, there will also be a correlation in the earnings of the two generations. Different societies will draw the line between family and the state in different ways, so the correlation in incomes across the generations would not necessarily be viewed as indicating inequality of opportunities. In other words, if hereditary endowments associated with the very nature of families and how they raise their children are driving the correlation in adult outcomes, then the case for public policy intervention—assuming it is effective—would involve a cost in terms of liberty and autonomy that may or may not be acceptable.

At the other extreme, a strong correlation in parent-child incomes could also reflect other investments later in life, particularly the role of networks or direct control in the hiring process that influence the opportunities for employment in the labor market. The children of relatively well-advantaged parents could benefit by getting jobs—either temporary jobs that facilitate the transition from schooling to work, or career jobs that determine their permanent income—by relying on the contacts and information their parents may share with them, or for that matter through the direct or indirect control parents may have in the hiring process of their employers. This perspective puts the emphasis on how social and labor market institutions function and interact with family background to determine adult outcomes. For example, Roemer points out that if nepotism is the source of the cross-generational income-income gradient, many citizens of the OECD countries may not see this as reflecting equal opportunities, and there may be a stronger consensus on the role for government intervention.

The objective of this chapter is to inform a discussion of this sort. More specifically, we document the extent of the intergenerational transmission of employers, and in a descriptive way relate it to the transmission of earnings in two relatively mobile countries: Canada and Denmark. To be precise, we study the degree to which sons—both during their teen years as they are making the transition from full-time schooling to full-time employment, and during their young adult years once they have established themselves in what will arguably be their career jobs—work for the same employer as their fathers. Our choice of these two countries is certainly driven by the availability of data with sufficient and appropriate detail, but is also important in a substantive sense because it is generally accepted that they are among the most mobile countries when comparisons are made of earnings intergenerationally. The elasticity of father-son earnings is about 0.2 or even less in both countries, compared with 0.4 to 0.6 in countries such as the United States, the United Kingdom, and France (Corak 2006). Yet, at the same time, they are very different in the structure of their labor markets, Denmark being geographically much smaller and less diverse. However, Denmark also has high equality of earnings and incomes and a high degree of intergenerational mobility. Despite high unionization rates, the degree of employee turnover and general flexibility suggests that the Danish labor market has more in common with North America than with continental Europe. Denmark is among those countries with the lowest returns to schooling (Harmon, Walker, and Westergård-Nielsen 2001). Canada is less equal in cross-sectional outcomes, less unionized, and has a higher return to human capital. As such, we feel that this comparison may have broader relevance, and suggest avenues for future research among a wider set of countries. If the intergenerational transmission of employers is significant in these countries, and if it is strongly related to generational earnings mobility, then even relatively low correlations in intergenerational earnings may be cause for concern, and by implication raise the need for closer examination of the underlying reasons for higher correlations in other countries.

Our major finding is that the intergenerational transmission of employers is both very significant and very similar across these two countries. It is a common aspect of how families and labor markets interact: about 30 to 40 percent of the young men we study have at some point been employed with a firm that also employed their fathers. This reflects the first jobs these individuals obtain during their teen years. As such, our analysis notes that parents continue to invest and influence outcomes for their children well into the teenage and young adult years. In addition, we find that about 4 to about 6 percent of the cohorts we study have their main job in adulthood at an employer who provided their fathers with a main job some fifteen years earlier. We also find that these patterns are positively associated with paternal earnings and to remarkably similar degree across the two countries, rising distinctly and sharply at the very top of the earnings distribution. Finally, we document that these patterns have implications for the intergenerational transmission of earnings. Upward mobility of teenagers raised in a low-income household has little to do with inheriting an employer from the father, but the preservation of high-income status is strongly related to this tendency. The results from a series of quantile regressions suggest that the inheritance of employers cuts against this notion of equality of opportunity in the sense that Roemer has used the term.

Definitions and Nature of the Data

With respect to the framework offered in chapter 1 of this volume, our analysis focuses on parental investments at the latter point in the child's teen years, in particular the teen years associated with secondary schooling (age fifteen to eighteen) and the early adult years associated with the transition to the labor market or to higher education (age nineteen to twenty-two). For our purposes, adult outcomes are measured at about the age of thirty or a little later.

These definitions reflect in part the characteristics of our administrative data, but also the particular type of parental investment on which we focus. During the teen years, children are beginning to interact with the labor market, finding their first jobs, and developing a work ethic, yet many are still completing their education. During their early twenties, some have made a permanent transition to the labor market, others are continuing their education, but in most cases occupational choices are beginning to crystallize.

There is a sense that our data may be unique, but our hope is that their development will spur similar research in other countries. They permit us to examine the extent to which children are employed at the same firm as their fathers, and the consequences this has for long-run labor market outcomes in adulthood. An observation of employment in the same firm as the father is taken as an indicator that parents have a network on which children can rely in their job search, that they are employed with firms that have hiring rules favoring the children of employees, or that they have some control over the hiring process. All these resources can benefit the child in making the transition to the labor market, and may also have long-term implications by translating any given level of education into employment with a particular firm.

Our analysis relies on information that in principle represents the entire population of particular cohorts of young men in both countries. For Canada, we base the analysis on about 70,000 individuals who come close to representing the population of a cohort of men born in 1963. These individuals are followed to age thirty-three. These administrative data, which are based on income tax returns, are linked to their fathers and mothers. Just as important, the data also contain identifiers on up to four firms per year for the fathers and sons from the time the child was fifteen to thirty-three. Miles Corak and Patrizio Piraino use the same data, and some of the Canadian information reported here is drawn from their studies (2010, 2011).

These data are based on individual income tax returns that have been grouped into families. Our sample is drawn from 1.9 million men who are linked to their fathers—not necessarily biological fathers—if they filed an income tax return between 1982 and 1986 while still living at home. From this data, we select the cohort born in 1963, the oldest cohort of sons available to us. To remain in the analytical sample, the father must have positive earnings in each of the five years the son was fifteen to nineteen years old. Sons must have positive earnings in each of three years, 1994 to 1996. If either the father or the son reports no earnings over these time horizons, the pair is not included in the analysis. This would imply that, for example, those who are self-employed, and never report any earnings over the five- and three-year horizons, are not part of the analysis. As mentioned, the sample size is about 71,000 observations, representing 84,000 individuals when appropriately weighted.[1] Fathers are on average forty-seven years old when their earnings are calculated.

For Denmark, the data are more extensive. They come from the administrative sources in existence since 1980, and contain information on all individuals and employers and the length of time they are matched. We construct the data to permit a focus on the same age cohort as the Canadian, but information on younger and older cohorts up to their early forties is also available. The sample size is just under 195,000.

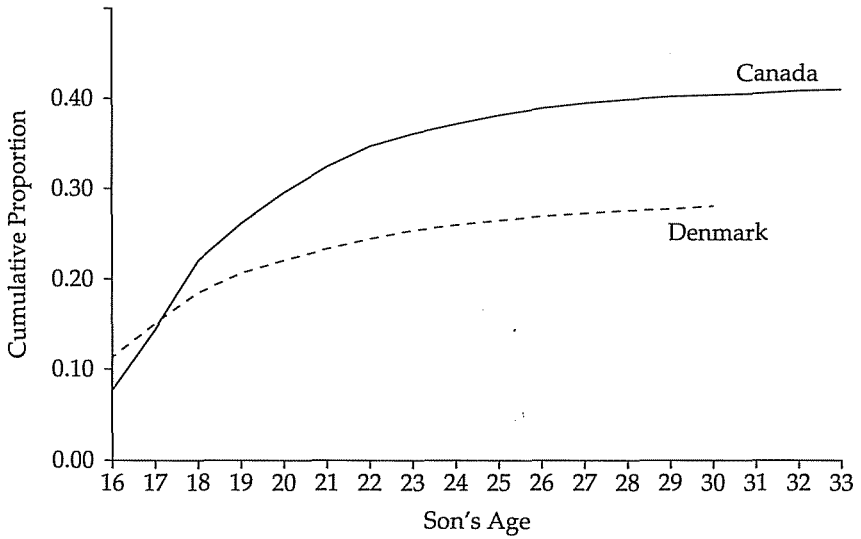
The Danish register data cover the entire population of about 5 million people, but our analysis takes 515,986 sons from the 1965 to 1976 birth cohorts as its starting point. The link between fathers and sons requires that they live at the same address together at one point after 1965. On this basis, we identify 402,027 father-son pairs. Of these, 274,296 have an identifiable main employer, and 198,718 fathers report positive earnings in each of the five years when the son was between fifteen and nineteen. We use the earnings of sons when they are thirty years old. Danes finish higher education relatively late, so for many, thirty is the beginning of their full-time careers.

In both countries, the analysis refers to employment in the private sector only. The only exception is that municipal governments are included for Canada. Otherwise, the observation that both father and son work for the government—in Canada either the federal or one of the provincial governments—is not coded as a match. This is because the employer identifier for the government captures all possible jobs in all possible regions, many of which will have nothing to do with direct parental influence. This said, the findings should be interpreted as an understatement of the true extent to which employers are transmitted cross-generationally. Between 6 and 8 percent of sons work in the public sector at ages eighteen and older. In Denmark, the nature of municipal, region, and state identification would include far too many false matches given the extensive public sector paired with large administrative units. Finally, an employer should be understood to mean an enterprise rather than a particular plant in both countries.

Our analysis is based on two complementary definitions of same firm employment across the generations. The first is a broad definition meant to reflect the network of employers of which the father has direct knowledge by virtue of having worked with them. We define a binary indicator of same firm employment that takes a value of 1 when the son at any particular age from sixteen to thirty in Denmark, and up to thirty-three in Canada, was in that year, or in any previous year, employed with any employer that also employed his father in any previous year back to the year the son was fifteen years old. This is a time-varying indicator, and we use its value when the son is in his early thirties as the basis for our analysis. We refer to this value as *ever same firm.*

Figure 18.1 offers the pattern in this indicator for sons in both countries from the age of sixteen. On the basis of this indicator, the proportion of same firm employment can only increase with time. At the age of sixteen, 11 percent of the Danish and 8 percent of the Canadian sons in our sample are working with an employer who had employed their fathers in the previous year. These proportions rise sharply in both countries during the teen years, reaching respectively 22 percent and 29 percent at age twenty. The intergenerational transmission of employers is, in other

Figure 18.1 Sons Employed at Some Point with Employer Fathers Worked for, by Son's Age



Source: Authors' calculations using Danish administrative data (documented in Statistics Denmark 2011 and described in Leth-Sørenson 1993) and Canadian administrative data (Corak and Piraino 2011, figure 1).

words, an important aspect of finding the first jobs teenagers hold. After about age twenty-three or twenty-four, the proportion of sons who have ever been employed with a previous employer of their fathers begins to level and does not increase very much after about age twenty-six. By their late twenties or early thirties, 28 percent of Danes and 40 percent of Canadians have at some point worked with an employer for which their fathers had also worked.[2]

The second indicator we derive is intended to reflect the permanent earnings of the son, and is based on the main employer, at age thirty or so. This is the employer accounting for the majority of the son's earnings over a three-year period. This in turn is related to the employer accounting for the majority of the father's earnings over the five-year period when the son was fifteen to nineteen years old. We refer to this as *same main employer,* and our intention is to relate this measure to the degree of intergenerational transmission of earnings. It is for this reason that we define the indicator over a period of successive years, reflecting the averaging in earnings we also undertake to reduce the role of transitory fluctuations and come closer to a measure of permanent income. In Denmark,

we find that 4.0 percent of sons work for the same main employer as their fathers; in Canada, 5.6 percent do.

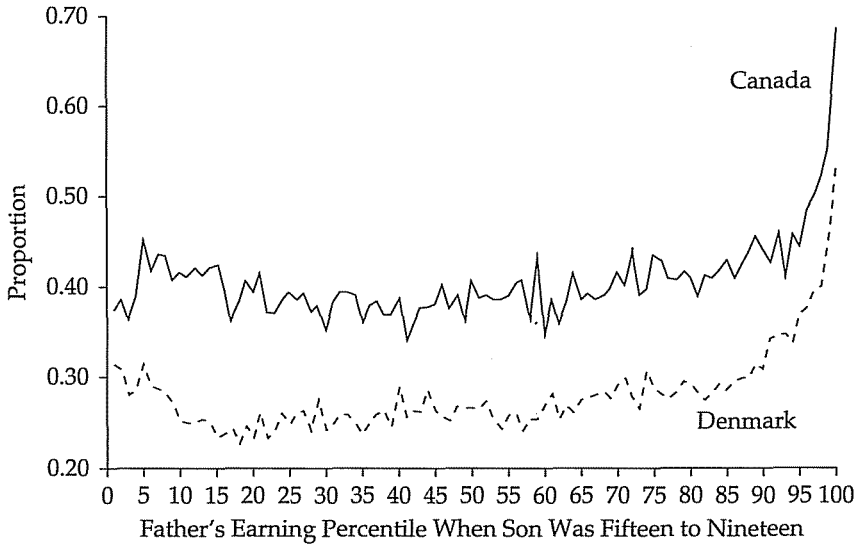
The slightly higher incidence of same firm employment in Denmark at the youngest ages could reflect the structure of apprenticeship programs, which facilitate the school to work transition more formally than in Canada. On the other hand, the higher overall proportions of same firm and same main firm employment in Canada may reflect the much larger geographic dispersion of employment combined with less mobility between regions. For example, if the labor market is segmented with high costs of mobility between potential employers, then it is more likely that simply by random chance sons will be employed with the same firms because of the limited job opportunities available in their region of residence. Corak and Piraino (2011) examine various aspects of this possibility and note through a series of counterfactual simulations that at the very most this accounts for 1 to 1.5 percentage points of the 5.6 percent incidence of same firm employment when job mobility is restricted to the same industry and finely defined region as the father. This leaves a significant fraction of the overall incidence open to family influences, but combined with a lower average firm size in Denmark may be large enough to explain some of the cross-country difference in the overall incidence.

Intergenerational Transmission of Employers and Paternal Earnings

The major objective of our analytical work is to document the gradient between parental earnings and the degree to which sons inherit their father's employer. Figures 18.2 and 18.3 present the incidence of same firm employment, for each of our two indicators, according to the percentile of the father's earnings distribution. The patterns are clearly similar across the two countries.

Figure 18.2 shows that the incidence of sons ever having worked for an employer that also employed the father follows a U-shaped pattern. Generally, the incidence is lowest in the middle part of the father's earnings distribution, and higher in the bottom and top 20 percent. The other notable pattern is the sharp spike in the incidence at the very top of the earnings distribution in both countries. In Denmark, the incidence of same firm employment rises distinctly above the 90th percentile, where it is always above 30 percent. But above the 95th percentile, it is well above this proportion increasing to 35 percent and just surpassing 50 percent at the top percentile. In Canada, the pattern is similar, about 45 percent of sons having had the same employer as their father when the father is in the 90th to 95th percentile of his earnings distribution, and rising to above 50 percent for higher-earning fathers before almost reaching 70 percent in the case of top percentile fathers.

Figure 18.2 **Sons Employed at Some Point with Employer Fathers Worked for, by Fathers' Earnings**

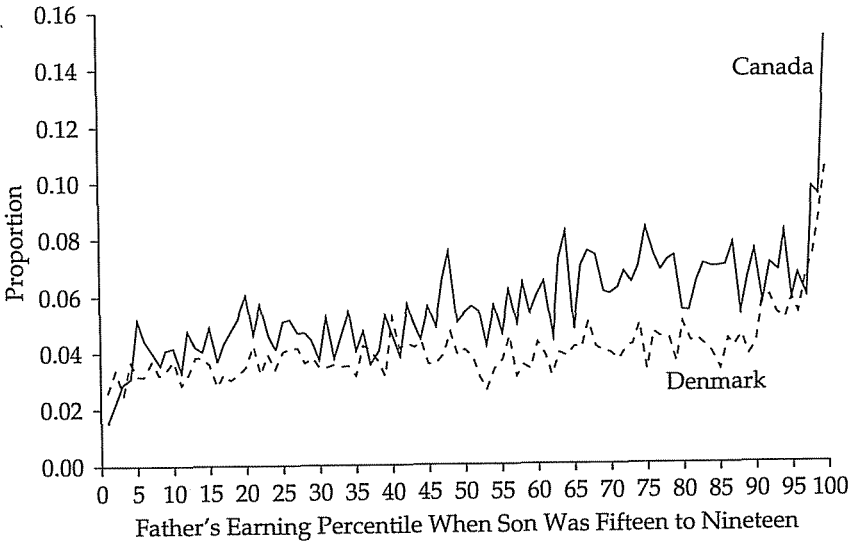


Source: Authors' calculations using Danish administrative data (documented in Statistics Denmark 2011 and described in Leth-Sørenson 1993) and Canadian administrative data (Corak and Piraino 2011, figure 2).

Figure 18.3 offers similar information for the incidence of the transmission of same main employers. In Denmark, the pattern is roughly constant throughout the paternal earnings distribution, increasing perhaps from generally below 4 percent to about that level. In Canada, there is a clear linear increase, rising steadily from about 4 to 5 percent in the lower fifth of the father's earnings distribution, to 6 to 8 percent in the upper third or so. But again, in both countries, the increase in the chances at the very top is noticeable, fully 10 to 15 percent of the sons of top percentile fathers employed as young adults at the same main employer that employed their fathers some ten to fifteen years earlier.

These bivariate relationships between paternal earnings and the chances that sons will have the same employer as the fathers are robust to a host of controls. We estimate a series of linear probability models of the incidence of same firm employment for both definitions that include a number of control variables common to the two countries. These include: the father's age; indicators for each of the father's sources of income; indicators for the number of employers the father had over a ten-year period; indicators for firm size; controls for the diversity of employment opportunities in the

Figure 18.3 **Sons Employed as Young Adults with Same Main Employer as Fathers, by Fathers' Earnings**



Source: Authors' calculations using Danish administrative data (documented in Statistics Denmark 2011 and described in Leth-Sørenson 1993) and Canadian administrative data (Corak and Piraino 2010, figure 1).

local labor market; an indicator of whether the father's firm was still in existence during the son's adulthood; the industry growth rates; two-digit SIC industry indicators; and detailed indicators of location, including a control for whether the son resided in an urban area.

Our main interest is in the results for two variables: the natural logarithm of the father's earnings (and its square), and an indicator for the presence of self-employment income. The former documents the gradient between income and the transmission of employers net of some basic controls associated mostly with industrial structure that may determine the chances sons will be employed with their father's firm. For example, as suggested, if the local labor market is not very diverse and if there is little interregional mobility, it is likely that sons will be employed with the same employer as their fathers by virtue of the fact that job opportunities are not available with many other firms. Similarly, sons are more or less likely to be employed in the same firm as their fathers if that firm is experiencing significant increases or decreases in employment by virtue of being in a growing or declining industry, or if firms tend to be large in size relative to the labor force. It is also sometimes noted that unionized

firms may have implicit or explicit hiring rules that favor the children of employees (Shea 2000).

This said, we also highlight the role of self-employment income because its presence may indicate that the father could have direct control over the hiring process by virtue of firm ownership. The variable used is an indicator of the presence of self-employment income among the father's total income, and need not strictly have its origin in the same firm from which he obtained his earnings. We can only identify the employer that was the source of the earnings, and it is this employer that is used in deriving the incidence of the generational transmission of employers. To the extent that self-employed fathers also pay themselves earnings, the employer will be the same.

Table 18.1 presents a summary of the complete least squares regression results focused on these selected variables. In both countries, there is a clear quadratic relationship between paternal earnings and same firm employment for both definitions. The values of the coefficients suggest that the relationship is parabolic, always increasing and increasing at a greater rate with higher and higher levels of father's earnings. As such, the general patterns displayed in figures 18.1 and 18.2 seem, for the most part, to hold up in a multivariate context. Further, the relationship between the chances of being employed at the same employer as one's father are positively and strongly related to whether the father reported any self-employment income. In Denmark, the presence of self-employment income implies that the probability of same-firm employment is higher by 33.2 and 3.7 percentage points for respectively ever same employer and same main employer. We ascribe these rather large estimates to the incentives associated with tax filing where the self-employed can exploit the tax-free allowance for their sons by having them on the payroll. In Canada, the similar figures are 5 percentage points for ever same employer, off of an overall average of about 40 percent, and 0.5 percentage points for same main employer, compared to an average of just under 6 percent. As such, net of the influence of total paternal earnings, the presence of self-employment seems more strongly associated with the chances of ever getting a job with an employer the father had than with the chances of getting a career job with the same career employer as the father.

Intergenerational Transmission of Employers and Adult Earnings

The finding that there is a clear positive relationship between paternal earnings and the chances of same firm employment raises the issue of how relevant the transmission of employers is to the intergenerational transmission of earnings. To document this relationship, we focus on the transmission of main employers, because these are most closely

Table 18.1 Linear Probability Models of Correlates of Sons Having Same Employer as Fathers

	Canada	Denmark
1. Sons ever having same employer as father		
Natural logarithm of father's permanent earnings	−0.486	−0.718
Natural logarithm of father's permanent earnings squared	0.0431	0.070
Indicator father having self-employment income	0.0476	0.338
2. Sons having same main employer as father		
Natural logarithm of father's permanent earnings	−0.242	−0.359
Natural logarithm of father's permanent earnings squared	0.0175	0.0220
Indicator father having self-employment income	0.0054	0.0370

Source: Authors' calculations using Danish administrative data (documented in Statistics Denmark 2011 and described in Leth-Sørensen 1993) and Canadian administrative data (Corak and Piraino 2011, tables 4 and 5).
Notes: Panel 1 reports results from a linear probability model with the dependent variable being a 0–1 indicator of whether the son at any point between the ages of fifteen and thirty worked for an employer for which his father had previously worked. The overall incidence of this occurring is presented as the last data point in figure 18.1, approximately 0.40 in Canada and 0.28 in Denmark.
Panel 2 reports results from a similar model, but with the dependent variable being a 0–1 indicator of whether the son's main employer in adulthood, the employer accounting for the majority of earnings, was the same main employer of the father when the son was a teenager. The overall incidence of this occurring is 0.056 in Canada and 0.041 in Denmark.
Other controls in both models include: indicators for presence of farming, fishing, and professional income; indicators for firm death and firm size; industry employment growth rate; average years of schooling in two-digit industry; urban indicator, province-region indicators; two-digit industry indicators; interactions between earnings, schooling, and self-employment income.
All results are statistically significant at the 95 percent level of confidence.

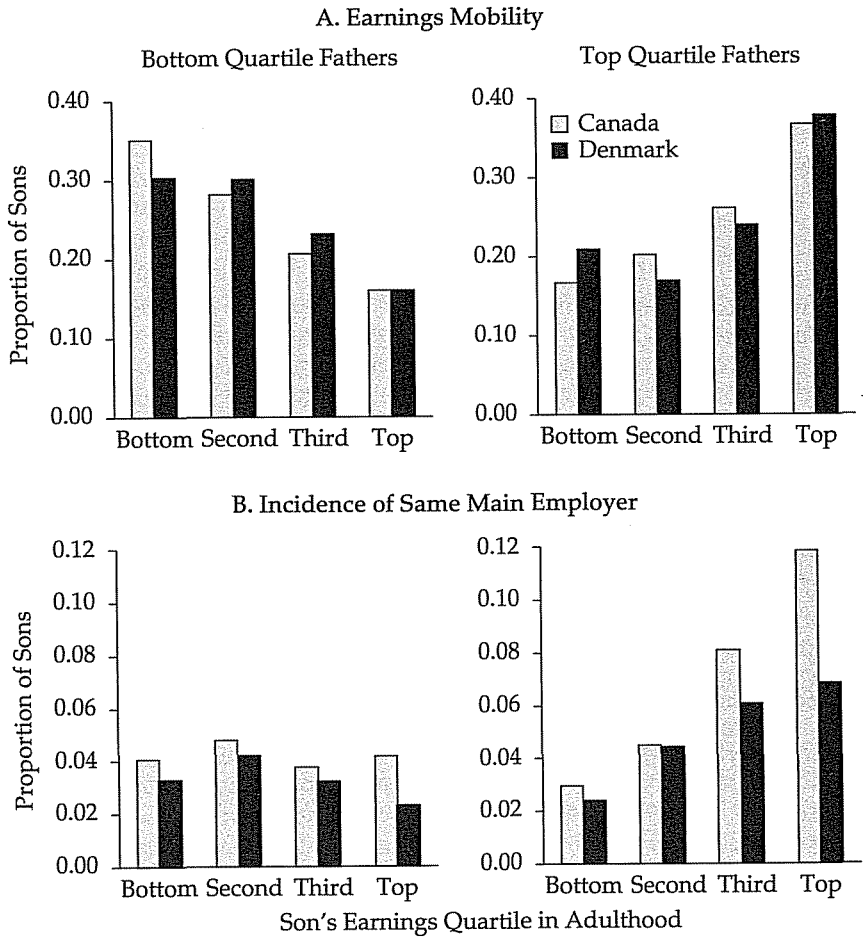
related to the adult earnings that form the basis for intergenerational earnings studies. Using Canadian data, Corak and Piraino (2011) report that the presence of same main employers across the generations does not appreciably change the overall average elasticity between father and son earnings in large measure because only about 6 percent of sons have the same main employers as their fathers. But their findings, and the results we document, suggest that this influence could well vary across the parental earnings distribution; the possibility of nonlinearities in the intergenerational elasticity being assumed away in the linear

specification common in this literature. Accordingly, in the descriptive analysis that follows, we pay particular attention to differences across the paternal and child distributions and begin by focusing on certain parts of the transition matrices. But we also note that transition matrices and estimates of the average intergenerational earnings elasticity do not directly inform a discussion about equality of opportunity for the reasons highlighted by Roemer (2004), and we therefore then frame the analysis to address this issue.

Panel A of figure 18.4 presents slices of the full quartile transition matrix between father and son earnings for both countries.[3] The earnings quartiles of sons raised by bottom-quartile fathers are presented in the left panel of the figure, and that for sons raised by top-quartile fathers are offered in the right panel. These rows of the transition matrix are very similar between the two countries. In Canada, about 35 percent of sons born to bottom-quartile fathers become bottom-quartile adults; in Denmark, about 30 percent do so. The extent of upward mobility for these young men is even more similar: 37 percent of Canadians rise to the top half of the distribution, as do 39 percent of Danes, 16 percent in both countries managing the largest move to the top quartile. The similarities are also present at the upper end of the paternal earnings distribution. In both countries, there is more stickiness at the top of the distribution than at the bottom: almost 40 percent of sons raised by top quartile fathers also reaching the top quartile of the earnings distribution in the next generation. In both countries, 37 to 38 percent of these sons fall to the bottom half of the earnings distribution, 17 percent of Canadians and 21 percent of Danes falling fall to the bottom.

Panel B shows how these patterns are related to the intergenerational transmission of main employers, the left panel again indicating the situation of sons born to bottom-quartile fathers and the right indicating that of those originating in the top quartile. In both countries, the incidence of same main employer is about 3 to 4 percent for the children of the relatively poor fathers regardless of whether they remain poor or move to the very top of their earnings distribution (though at 2.3 percent a bit lower for Danes who manage to reach the top quartile). This is in sharp contrast to the experience of sons born to rich fathers. There is a clear gradient in the proportion having the same main employer as the father according to the relative earnings outcome of the son. Sons of top quartile fathers who fall to the bottom quartile are not very likely to have the same main employer as the father: only 2 to 3 percent do so, a proportion even less than bottom-quartile sons. In sharp contrast, this incidence is much higher if these sons remain in the top half of the earnings distribution, and particularly if they remain in the same quartile as their fathers. In Canada, almost 12 percent (or twice the overall average) of sons who are in the top quartile obtain

Figure 18.4 **Earnings Mobility and Transmission of Employers for Sons Raised in Bottom- and Top-Earnings Quartiles**



Source: Authors' calculations using Danish administrative data (documented in Statistics Denmark 2011 and described in Leth-Sørenson 1993) and Canadian administrative data (described in Corak and Piraino 2010).

their relatively high earnings from the same main employer that employed their father. Though there is also a clear gradient in the Danish context, the pattern is not as sharp as in Canada.

Table 18.2 offers evidence that is more directly related to equality of opportunity by presenting the results from quantile regressions of the standard linear model, but in a way that permits the intergenerational

Table 18.2 Intergenerational Earnings Elasticity and Impact of Same Main Firm Employment

	No Interactions		Fully Interacted Model			
	lnY	Constant	*lnY*	*lnY* × *SameFirm*	*SameFirm*	Constant
1. Canada						
10th percentile	0.328	5.86	0.309	*0.128*	*–0.938*	5.99
25th percentile	0.308	6.71	0.291	0.158	–1.43	6.83
50th percentile	0.253	7.48	0.238	0.177	–1.74	7.61
75th percentile	0.205	8.45	0.190	0.196	–2.01	8.59
90th percentile	0.170	9.05	0.158	0.190	–1.98	9.15
2. Denmark						
10th percentile	0.051	8.93	0.036	0.180	–1.84	9.29
25th percentile	0.132	9.65	0.123	0.135	–1.58	9.77
50th percentile	0.178	9.47	0.169	0.133	–1.62	9.56
75th percentile	0.195	9.49	0.188	0.138	–1.72	9.56
90th percentile	0.197	9.70	0.191	0.132	–1.67	9.77

Source: Authors' calculations using Danish administrative data (documented in Statistics Denmark 2011 and described in Leth-Sørensen 1993) and Canadian administrative data (described in Corak and Piraino 2010).
Notes: For the fully interacted model the reported coefficients are quantile regression estimates of the following model:

$$ln\,Y_{i,t} = \alpha + \beta\, lnY_{i,t-1} + \beta_1\, lnY_{i,t-1} \times SameFirm_i + \gamma_1 SameFirm_i$$

where t indexes the son's permanent earnings and t–1 the fathers. *SameFirm* is a binary indicator of whether the son was employed by the same employer as the father. The model also includes controls for the father's age and age-squared.
The no interactions model only has $lnY_{i,t-1}$ as a regressor.
All coefficients have margin significance levels of 0.000, except those italicized, which have a marginal significance level greater than 0.05.
For Canada, the sample size is 71,215; for Denmark it is 191,471.

earnings elasticity to change according to whether the son held a job with the same main firm as his father. The following fully interacted model is estimated at the 10th, 25th, 50th, 75th, and 90th percentiles:

$$ln\,Y_{i,t} = \alpha + \beta\, lnY_{i,t-1} + \beta_1\, lnY_{i,t-1} \times SameFirm_i + \gamma_1 SameFirm_i + \varepsilon_i$$

where lnY_i is a measure of the natural logarithm of permanent earnings for an individual in family i, t indexes generations, and *SameFirm* is a binary indicator taking the value of 1 when the main firm is the same across generations. Our interest is with the coefficient, β_1, the interaction between paternal earnings and SameFirm, and how its value changes across the percentiles of the sons' earning distribution. If statistically significant, the implication would be that the intergenerational earnings elasticity is $(\beta + \beta_1)$ for those with the same main firm as their fathers.

The first two columns of the table also offer results from a model with no interaction effects.

Our interpretation of these results borrows from Nathan Grawe (2004), who suggests that the use of quantile regressions offers an appropriate way to empirically implement the concerns raised by Roemer (2004). Roemer states that "equality of opportunity . . . views inequalities of outcome as indefensible, ethically speaking, when and only when they are due to differential circumstances. Inequalities due to differential effort are acceptable" (2004, 50). Grawe echoes the view that a focus on average outcomes, as for example in the standard linear regression to the mean model, is not an appropriate indicator of equality of opportunity because abilities and preferences that have value in the market place will be correlated with the parents' economic circumstances. His interpretation of Roemer is to suggest "comparing children with similarly successful outcomes relative to other children born to similar families. That is,. . . [compare] the highest-, median-, or lowest-earning child born to low-earning parents to the highest-, median-, or lowest-earning child born to high-earning parents" (Grawe 2004, 59). Quantile regression is one way of doing this. Equality of opportunity would be signaled by a low value for β among all sons who are successful in the labor market, those who for example have earnings at the 90th percentile. If a significant gradient between parent and child earnings exists for these high-achieving sons, then the suggestion is that in spite of having the abilities and preferences for labor market success the sons of low-income parents remain hampered by the economic circumstances of their family background, a situation that cannot be characterized as equality of opportunity.

The results for Canada show that the intergenerational earnings elasticity between fathers and sons falls at successively higher quantiles from about 0.3 at the 10th percentile to as low as 0.16 at the 90th. But this is only so in the absence of same firm employment. The results for the interaction term show that the intergenerational transmission of employers is a force working in the opposite direction. There is a greater stickiness in father-son earning outcomes for those who inherit their father's employer, with the increase in the slope being on the margins of statistical significance at the 10th percentile (the marginal significance level of a t-test is 0.065), but then rising in magnitude so as to double the elasticity at the 75th percentile and to more than double it at the 90th. At the 90th percentile, the intergenerational earnings elasticity is 0.158, but significantly higher, at 0.35, when the son is employed by the same main firm as the father. In this sense the results confirm the visual impression from figure 18.4. The suggestion is that high-achieving sons of low-earning fathers must have a greater endowment of characteristics valued in the marketplace than their counterparts with high-earning fathers: this endowment compensating them for not having access to the same parental resources associated with

the intergenerational transmission of employers, and implying that their labor market outcomes would have been even better otherwise.

In Denmark, the overall pattern across the quantiles is the opposite, rising from lowest to highest. Paternal earnings are unrelated to the outcomes of the lowest-achieving sons, but much more so for the highest-achieving offspring: that is, higher-earning fathers are not any more able to influence the outcomes of their sons with the least potential than low-earning fathers, but they are more able to do so for sons with the greatest potential. This said, the magnitude of the elasticity at the higher quantiles is in the range of the Canadian findings. Further, the interaction term for same main employer is positive and statistically significant throughout the son's earnings distribution. Though the magnitude falls above the 10th percentile, at the 90th percentile, the overall intergenerational elasticity for those inheriting their father's main employer is about the same in the two countries: just under 0.35 in Canada, and just over 0.32 in Denmark.

Conclusion

Our results should be understood as descriptive, documenting the nature of the gradient in parent-child outcomes at the later stages of the child's life course and relating this to the structure of labor markets and how young adults make the transition from schooling to work. We find three very similar outcomes in Canada and Denmark, two countries that are characterized by relatively high levels of intergenerational earnings mobility.

First, the intergenerational transmission of employers is a common feature of the employment outcomes of the young cohorts of men we study, with 30 to 40 percent of young adults having at some point been employed with a firm that also employed their father. In large measure this is associated with the first jobs these individuals obtain during their teen years, but for four to about six percent it also refers to their main job in adulthood. We do not control for any family-specific characteristics or investments made during earlier years, and therefore the root causes of these patterns are not clear.

This said, these rather high levels in the incidence of sons ever having worked with the same employer as their fathers may not be out of line with some of the basic facts of how young people find jobs. Families and friends are often cited as the most important source of information for new jobs. Mark Granovetter (1995) was among the first to document this in a small-scale survey for a particular labor market, and Harry Holzer (1988) offers the theoretical underpinning by modeling the choice of search methods and suggesting that family and friends are a relatively productive and low-cost way of obtaining job offers. More recently, Linda Datcher Loury (2006) shows that close to the majority of jobs in the United States are found through family, friends, or acquaintances,

and Lee Grenon (1999) reports that for Canada about one-quarter of successful job searches involves family or friends. These patterns may differ in a more structured European labor market, but the findings of Francis Kramarz and Oskar Skans (2007), whose methods are most closely related to our approach, suggest that they may be broadly applicable. These authors find that there is a high tendency for young adults in Sweden to find their first job in the very same plant that employs their parent.

The incidence of sons ever having worked with the same firm as their fathers in large measure reflects the job search process during the teen years. In both countries, this incidence does increase sharply up to about the age of twenty, and at least implies that the intergenerational inheritance of employers during these years may refer to temporary employment during the school to work transition. Even if this is the case, it can be understood as a type of parental investment that may have longer-term consequences as the sons inheriting a job may be more likely to gain work experience, job tenure, and associated general and firm-specific human capital. They may also avoid unemployment, and thereby can be imagined to gain a head start in establishing themselves in the labor market over the long term.

Our second major finding is that the intergenerational transmission of employers is positively associated with paternal earnings, rising distinctly and sharply at the very top of the earnings distribution. This is robust to a host of controls for the structure of the labor market and characteristics of the firms with which fathers are employed. This finding is new and builds on Corak and Piraino (2010, 2011) by showing that the pattern is robust across labor markets.

It may be that the network and other information that fathers offer their sons lowers search costs in particular sectors, and that job offers are more likely to be obtained in some firms if the father is or has been employed with those firms. Marco Caliendo, Arne Uhlendorff, and Ricarda Schmidl (2009) adapt Holzer's model in this way to account for the influence of network effects. Although particular firms may have explicit policies concerning the preferential hiring of the children of employees, this falls short of nepotism, in which parents are exerting direct control over the hiring process. Although we do find a strong positive relationship between parental self-employment and the intergenerational transmission of employers, the incidence of the former is not so great as to suggest that direct control over the hiring process is the main reason why 30 to 40 percent of sons at some point worked for the same firm as their fathers. Parental networks and information are a more likely story, and should be seen as another type of investment that parents make in the human capital of their children. But the consequences of this influence cannot be understood in isolation of the structure of labor markets.

This said, there is a sense that nepotism may be part of the explanation for some segments of the population, particularly at the very top, where we

document distinct discontinuities in the relationship between paternal earnings and the chances of being employed with the father's employer. This finds some corroboration in the literature on firm succession. In particular, Morten Bennedsen and his colleagues (2007) examine the succession decisions of limited liability firms, both public and private, in Denmark between 1994 and 2002. They focus specifically on the impact on firm performance of family successions, but they also document over this period that one-third of successions were family-based, in which the new CEO was related through blood or marriage to the departing CEO. Our data may be picking up some of this dynamic, or the more general idea that at the highest earning levels parents are more likely to have control over the hiring process and use this in a way that is of benefit for their children. David Blanchflower and Andrew Oswald (2009), Thomas Dunn and Douglas Holtz-Eakin (2000), and Robert Fairlie and Alicia Robb (2007) describe the very high tendency of self-employed sons to have self-employed fathers and family members, and that this involves, at least with the American data used by Fairlie and Robb, the intergenerational transmission of firms in almost 50 percent of cases.

Our third finding is that the intergenerational transmission of employers has implications for the intergenerational transmission of earnings. The degree and pattern of intergenerational earnings mobility is very similar in Canada and Denmark, with very similar tendencies for those born to low- and high-income fathers to remain in low- and high-income employment as adults. But mobility out of the bottom has little to do with inheriting an employer for the father, whereas the preservation of high-income status is distinctly related to this tendency.

Although the interpretation of our findings is open to discussion, we follow the suggestions in some of the existing literature to relate the findings to empirical measures of equality of opportunity to suggest that the inheritance of employers cuts against this commonly held value. These findings also raise the importance of recognizing that child outcomes are related to the structure of labor markets, and therefore that the resources parents bring—though information, networks, or direct control of the hiring process—will influence the final transition children make in becoming self-sufficient and successful adults.

Notes

1. These restrictions are imposed to minimize the role of measurement error in earnings, as stressed in the literature on intergenerational earnings mobility (Solon 1989, 1992). We also require that the earnings of both sons and fathers must be above the bottom percentile thereby avoiding some suspected measurement errors in the data.
2. It should be noted that part of the pattern of change in the early years of the part of the life-course we examine could be due to a mechanical effect reflecting the fact that we only begin to examine the father's employers when the son was fifteen years old. As the son ages, the incidence of same firm employment will rise because more years of information becomes available on the father's employment history. This said, this effect would appear to have worked itself out by the end of the period we examine, which is our main analytical concern.
3. The complete quartile transition matrices are appended as online appendix table 18A.1, available at: http://www.russellsage.org/Ermisch_et_al_OnlineAppendix.pdf.

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PART V

CONCLUSIONS AND REFLECTIONS