

# Does birth order affect earnings? Only temporarily

Marco Bertoni, Giorgio Brunello | May 30, 2016

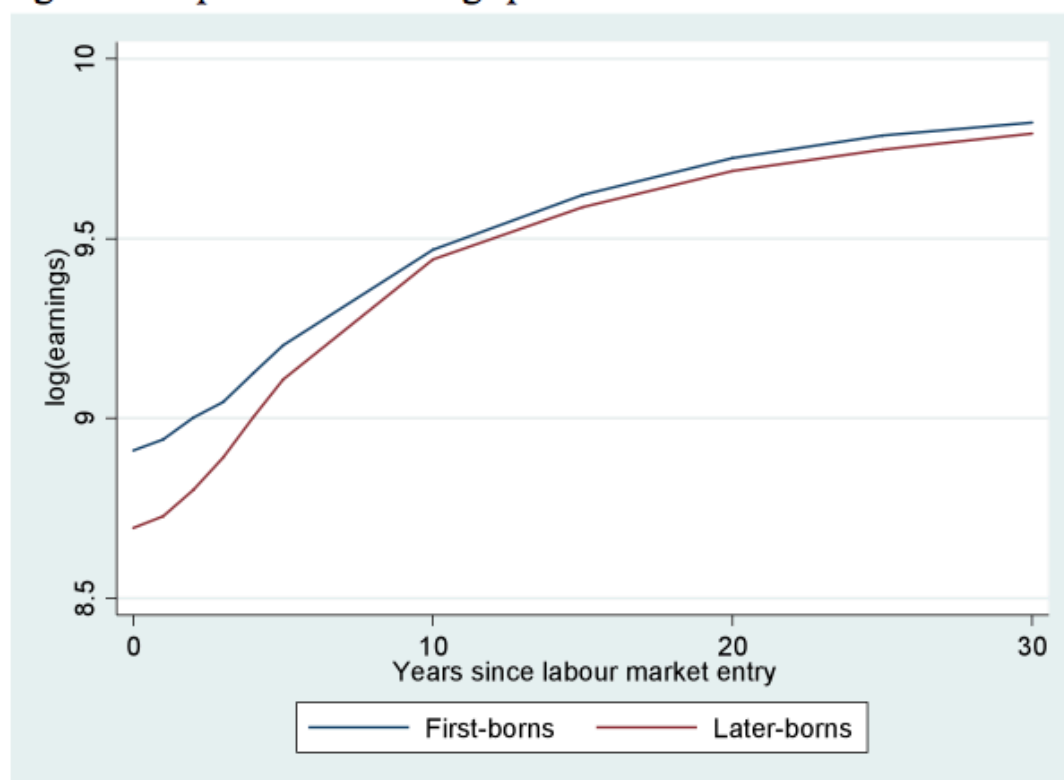


## **The sooner (you are born) the better - initially.**

The existing empirical evidence suggests that the first-born earn a wage premium with respect to the later-born. One reason is better education. In their influential work in this area, Black et al. (2005), use Norwegian registry data and show that being first-born increases education by around 0.7 years of schooling. Is this premium temporary or permanent? Disentangling temporary from permanent wage effects requires information on earnings at different points of the life cycle.

In a recent publication (Bertoni and Brunello 2016), we study the effects of birth order on life cycle earnings in a sample of 4,270 males born between 1935 and 1956 and residing in eleven European countries (Austria, Belgium, the Czech Republic, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden and Switzerland). Our data are drawn from the Survey of Health, Ageing and Retirement in Europe (SHARE), a multidisciplinary and cross-national European data set containing current and retrospective information on labor market activity, retirement, health and socioeconomic status for more than 25,000 individuals aged 50 or older. We use the first three waves of the survey, and in particular the third wave, SHARELIFE (2008), which contains detailed retrospective data on life and labor market histories. We focus on males and exclude the self-employed.<sup>1</sup>

Figure 1. Experience - earnings profiles for the first-born and the later-born



Notes: average log earnings by years since labor market entry, for the first-born and the later-born.

Source: SHARELIFE

Table 1. Birth order effects on earnings over the life cycle

	Entry wage	Wage 5 years later	Wage 10 years later	Wage 15 years later	Wage 25 years later	Lifetime earnings
Oldest child	0.137** (0.033)	0.047 (0.031)	-0.013 (0.027)	0.012 (0.026)	0.016 (0.023)	0.000 (0.019)
Number of siblings	-0.032** (0.009)	-0.020* (0.009)	-0.026** (0.008)	-0.016* (0.007)	-0.016* (0.006)	-0.015** (0.006)
Observations	4,270	4,131	4,216	4,237	4,181	4,270
R-squared	0.233	0.249	0.247	0.228	0.213	0.267

Notes: All regressions include dummies for: cohort, country, mother in the house at age 10, father in the house at age 10, foster mother in the house at age 10, foster father in the house at age 10, grandparents in the house at age 10, other relatives in the house at age 10, hunger episodes by age 15, parents smoked, drank or had mental problems, at least one parent died by age 35, breadwinner occupation at age 10, lived in rural area at age 10. Robust standard errors in parentheses. †p < 0.10; \*p < 0.05; \*\*p < 0.01. Source: SHARELIFE

We consider several measures of real annual earnings: the initial or entry wage in the first job, the wages five, 10, 15 and 25 years after labour market entry, and lifetime earnings, defined as the discounted value of the stream of earnings from age 10 to retirement. As descriptively shown in Figure 1 and confirmed by the results of formal econometric analysis - reported in Table 1 - we find that in their first job, the first-born earn a 13.7% wage premium over the later-born. This large advantage declines sharply after five years, however, and is completely gone 10 years after labor market entry. Since the initial wage gains are quickly lost, and the later-born start working earlier than the first-born, it is not surprising that being a first-born has no statistically significant effect on lifetime earnings.

## Job mobility

Temporary birth order effects are closely associated to differences in job-to-job mobility after

labor market entry. On the one hand, the first-born - who tend to be better educated - find better initial matches: not only do they earn more, but they are also more likely than the later-born to be employed in white collar and in public sector jobs, and stay longer in their initial jobs. On the other hand, the later-born start with poorer matches but change jobs swiftly, and by virtue of job mobility quickly catch up with the first-born.

Let us define *stayers* as those who are still in their first job 10 years after entry in the labor market and *movers* as those who have moved to new jobs by that time. For both the first-born and the later-born, we can decompose the average wage 10 years after entry in the labor market as the average wage of stayers and movers within each group, weighed by the respective probability of belonging to each group.<sup>2</sup> We estimate that the average wage earned by the first-born after 10 years in the labor market is only about 2.7% (not statistically significant) higher than the wage earned by the later-born, in spite of the fact that first-born stayers earn, on average, 10.1% (statistically significant at the 5% level) more than later-born stayers. Since the average wage of movers differs by only 3.3% (not statistically significant), the catching up by the later-born that we observe in our data is mostly explained by their 7.1% (statistically significant at the 5% level) higher probability of being a mover 10 years after labor market entry.

Table 2. Birth order, education and the propensity to take risks

	Risk propensity	Risk propensity
Oldest child	-0.071*	-0.057*
	(0.028)	(0.028)
Years of schooling		-0.021**
		(0.003)
Number of siblings	0.007	0.004
	(0.007)	(0.007)
Observations	3,922	3,922
R-squared	0.189	0.197

Notes: All regressions include dummies for: cohort, country, mother in the house at age 10, father in the house at age 10, foster mother in the house at age 10, foster father in the house at age 10, grandparents in the house at age 10, other relatives in the house at age 10, hunger episodes by age 15, parents smoked, drank or had mental problems, at least one parent died by age 35, breadwinner occupation at age 10, lived in rural area at age 10. Robust standard errors in parentheses. †p < .10; \*p < .05; \*\*p < .01. Source: SHARELIFE

Why these differences in labor market turnover? We point to two main reasons. One is education: since the first-born are better educated, they are more likely to locate a good initial match. A second reason - we argue - is that the later-born are more willing than the first-born to engage in risky behavior and this is why they change employer more frequently. In support of this view, the psychological literature has pointed out that the later-born tend to be more rebellious and reckless than the first-born, who instead have a tendency to be more conscientious and self-disciplined (Sulloway 2007). Psychologists explain these differences by the fact that while the first-born are endowed with higher parental resources, the later-born are put under greater pressure to obtain the same returns from more limited resources and thus need to play riskier moves. We confirm this view in Table 2 by showing that - even conditional on educational attainment - the later-born are more likely to take risks, that we measure by extracting the principal factor from five indicators available in our data: whether the individual has ever bought private retirement accounts and life insurance packages, body mass index, smoking and drinking habits.

## References

Bertoni M., Brunello G. (2016). "Later-borns don't give up. The temporary effects of birth order on European earnings". *Demography*, 53(2): 449-470.

Black S.E., Devereux P.J., Salvanes K.G. (2005). The more the merrier? The effect of family size and birth order on children's education. *Quarterly Journal of Economics*, 120(2), 669-700.

Sulloway F.J. (2007). Birth order and sibling competition. *The Oxford handbook of evolutionary psychology*, 297-311.

<sup>1</sup>We exclude females because of their intermittent labour force participation, and the self-employed because the information on their earnings is unreliable.

<sup>2</sup> Formally,  $\ln(W) = p \cdot \ln(W_s) + (1-p) \cdot \ln(W_m)$ , where  $s$  and  $m$  stand for stayers and movers,  $\ln$  is the natural logarithm and  $p$  is the probability of being still in the first job after 10 years in the labor market.