



Immigrant earnings profiles in the presence of human capital investment: Measuring cohort and macro effects[☆]

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ABSTRACT

We argue that when immigrant earnings are considered in the context of post-arrival human capital investment: cohort quality should be defined in terms of the present value of the whole earnings profile; and, an appropriate definition of “macro” effects is obtained using the earnings profile of the native born cohort entering the labor market at the same time as an immigrant cohort. We illustrate this by using Canadian immigrant earnings, where there were large cross-cohort earnings declines in the 1980s, 1990s and early 2000s. We find that changes affecting all new entrants play an important role in understanding immigrant earnings. In contrast, earlier approaches imply that “macro” events explain little of immigrant earnings patterns.

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1. Introduction

There is considerable concern in a number of countries over large declines in earnings just after arrival for immigrants arriving in recent decades relative to those who arrived earlier. Studies in the US (e.g., Borjas (1995)) and Canada (e.g., Baker and Benjamin (1994)) document substantial declines in entry earnings for immigrants arriving in the 1980s relative to earlier immigrant cohorts. In a recent paper, Borjas and Friedberg (2009) document an improvement in the earnings of recent immigrants who arrived in the US in the latter half of the 1990s. However, evidence from CPS data indicates that the decline in earnings of new immigrants to the US continued after 2000. Aydemir and Skuterud (2005) show that the decline in entry earnings for immigrants to Canada continued into the 1990s. These cross cohort declines in earnings have often been interpreted as reflecting declines in skill or “quality” across cohorts which are then linked to changes in the source country composition of the inflow.

Duleep and Regets (1997, 2002) question this interpretation. In standard human capital theory, lower entry earnings may reflect greater investment and be rewarded by greater post-arrival earnings growth. Cohorts with the lowest entry earnings may have the highest present value of earnings in the host economy. Duleep and Regets document a strong negative correlation between entry earnings and post-arrival growth for US immigrants. Borjas (1999) demonstrates that this negative correlation depends on conditioning on education and claims that we should focus on unconditional (on education) results where there is a positive correlation between entry earnings and post-arrival growth. Whichever stance one takes on conditioning, Duleep and Regets (1992) are correct that cross-cohort movements in entry earnings form a poor measure of relative cohort performance once we consider the immigrant adjustment problem in the context of a human capital investment model. In this paper, we start from this insight, developing an alternative approach to measuring cohort “quality”. We illustrate this approach by examining immigrant earnings performance in Canada, where well-documented, large cross-cohort declines in entry earnings in the 1980s have been followed by even larger declines in the 1990s and early 2000s.

Standard approaches to examining immigrant earnings involve writing single year earnings regressions in terms of cohort, year and time since arrival effects. The well known identification problem arising from the collinearity of these effects is typically addressed by using a comparison group to identify the macro (year) effects. Estimates of the size and direction of differences across immigrant

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cohorts are well known to vary, in some cases quite substantially, with different comparison groups (LaLonde and Topel (1992), Borjas (1999)). Once we consider the problem within a framework of potential immigrant investment in human capital after arrival, however, the very notions of cohort and macro effects become murkier. As Duleep and Regets (1997) argue, differences in single year earnings of the type investigated in standard regression estimation may reflect different investment choices as well as (or in response to) underlying differences in skill levels across cohorts or differences in the macro environment. Trying to decompose, say, entry year earnings into cohort and year effects can be misleading. One possible response to this is to simply present the whole earnings-years-since-arrival profile for each cohort, as is done in, for example, LaLonde and Topel (1992) and Baker and Benjamin (1994). While this provides a complete picture, it does not supply the reader with a means of comparing two profiles that cross and have very different intercepts and slopes. We argue that in light of these points, comparisons of the present value of earnings in the host country provides an appropriate and useful framework for understanding true differences in cohorts, and we use a trick from Mincer (1974) to get estimates of the present values that do not require a reliance on wildly out of sample earnings projections.

We still, of course, need a comparison group to establish whether cross-cohort patterns in the present value of immigrant earnings reflect skill differences across cohorts or general macro effects. The life-cycle approach implies that we need to organize the earnings of the comparison group in cohorts, as well, in order to generate present values for earnings that match those for the immigrants. Further, we argue that the best comparison group is other new (native born) labor market entrants since their earnings patterns will reflect macro events in the context of human capital investments that are similar to those undertaken by immigrants.

Using matching native born new entrants as a comparison group also fits with the rather general definition of macro effects we use throughout the paper. We define the macro effects relevant for a particular immigrant cohort as the impact of economy-wide events on the average earnings of any worker entering the Canadian labor market at the same time as the immigrant cohort. Included in the set of economy-wide events that we are contemplating are cyclical and growth movements in the economy, and also events such as the movement of the baby boom through the labor force and changes in educational institutions that affect the relative supply of skills in the economy. Moreover, we argue that in examining earnings, one cannot separate the impact of these events from investment responses to them and so our definition of macro effects is intended to reflect both overall economic events and the investment decisions of a general set of new entrants in reaction to those events. Immigrant cohort effects are then the movements in an immigrant cohort's earnings profile relative to the profile of other new entrants entering the labor market at the same time. These effects capture a combination of implicit skill differences and differences in responses to economy-wide events between immigrants and other new labor market entrants.

We examine immigrant earnings using a unique dataset formed by linking immigrant landing records for all immigrants entering Canada after 1980 to their tax records in all successive years up to and including 2003. Immigrant landing records contain application information, including source country, age at arrival, gender and education level at arrival. We focus only on males and divide our investigation by education levels and by age at arrival, both of which have important impacts on earnings patterns. Our native born data comes from large representative annual surveys (the Survey of Consumer Finance and the Survey of Labour and Income Dynamics). We confirm that the earnings patterns we obtain from combining these datasets match those from Census data. The datasets we use have advantages over the Census because we get earnings data at an annual

frequency with, for the immigrants, a very large number of observations.

Using these data, we find that, over the past two decades, successive cohorts of immigrants have experienced larger and larger declines in entry earnings. The declines across the 1980s are large (on the order of 0.28 log points) and well documented (see, Baker and Benjamin (1994), Bloom, Grenier and Gunderson (1995), Grant (1999)). The declines in the 1990s were larger (0.43 log points) and have been documented using Canadian Census data (see, for example, Aydemir and Skuterud, 2005). We show that the declines continued in the early 2000s. Borjas (1995), in an examination of US data, argues that macro events explain little of the observed cross-cohort earnings differences in that country and that, as a result, those differences should be interpreted as reflecting skill differentials. Macro effects defined using standard approaches play a similarly small role when using Canadian data. However, macro effects defined using native born new entrants arranged in cohorts play a much greater role. Native born new entrants also experience sizeable declines in earnings over this period and these declines account for half the decline in immigrant earnings in the 1980s. Most of the remainder of the decline is accounted for by changes in the source country composition of immigration. Thus, while about half the decline may be interpreted as resulting from falling "skill" levels across cohorts (due to shifts in source country composition), the other half is related to poorer outcomes for new labor market entrants in general. This implies a re-balancing of policy interest with less emphasis on immigrant specific issues and more on issues relating to outcomes for all new labor market entrants. The former set of issues would be addressed mainly through immigration policies while the latter would, for the most part, not be.¹

Another key feature of earnings patterns for immigrants in this data is the evaporation of earnings differentials by years of foreign experience between the early 1980s and the 1990s. Thus, for the 1980–82 entry cohort, immigrants in all education groups have earnings patterns reflecting substantial "returns" to foreign experience. By the 1990–92 entry cohort, however, there is no evidence of any differential in entry earnings by years of foreign experience. The finding of a flat foreign experience profile fits with Friedberg (2000)'s results for Israel, but in Canada's case this represents a dramatic shift from earlier periods.

The paper proceeds in seven sections. Section 2 contains a description of the data and of the basic data patterns we are seeking to explain. In Section 3, we set out a standard human capital investment model and define macro and cohort effects within the context of that model. In Section 4, we describe our empirical model, discuss our approach to calculating the present value of earnings and present the main estimation results. In Section 5, we present robustness exercises and provide a comparison to estimates from more standard methods. In Section 6, we investigate the determinants of the cohort patterns set out in Section 4, including a decomposition exercise assigning the cross-cohort changes in the present value of earnings to: 1) general new entrant, 2) shifting source country composition, 3) shifting age at arrival composition, and 4) shifting education composition effects. The final section concludes.

2. Data and basic patterns

2.1. Data description

We examine earnings patterns using three datasets. For immigrants, we use a special dataset based on immigrant administrative data and tax data called the Immigrant Database (IMDB). For the

¹ It is, of course, possible that it is the immigrant inflows themselves that are generating the worsening outcomes for all labor market entrants (see Card (2001) and Aydemir and Borjas (2007)). We do not address this issue in this paper.

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