Childhood Investments in International Human Capital
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Abstract: Do individuals, with exposure to foreign cultures during childhood, experience improved labor market outcomes as adults? This project extends our understanding of the rewards to international human capital accumulation by 1) differentiating very early exposures to international experiences from later childhood exposures, 2) accounting for inter-generational transfers of human capital from parents to children, 3) using Americans born abroad into U.S. citizenship as our treated group to dispense with selection issues that arise from testing the hypothesis using traditional immigrants. Data from the American Community Survey from 2001-2016 is used to capture a relationship from international experiences in childhood to labor market returns in adulthood.

I. Background. International human capital could be defined as the collection of skills that allows an individual to better negotiate, communicate and understand socioeconomic interactions and activities in countries other than one's own. Language skills, familiarity with another culture's habits, their institutions, and political systems represent a non-exhaustive and obvious listing of knowledge and expertise that could help individuals negotiate foreign interactions. Less obvious international human capital might be the ability, in the face of unfamiliarity, to be creative and solve problems. How do I transport myself from point A to point B in this unfamiliar city when I don't even speak the language? How do I quickly devise a system to distribute safe drinking water in the aftermath of a natural disaster without the aid of the usual infrastructure? These skills might benefit one abroad, but they may also be helpful in negotiating life and business on the home front. The idea that negotiating the complex, increasingly globalized, and chaotic world of today might be enhanced if one possesses a skills set that includes international human capital is likely palatable to many. While isolating and verifying its existence is less straight forward, it is the goal of this research.

Pioneering work by Becker (1964), Mincer (1974) and many others have provided us with a standard framework to understand investments in and the accumulation of human capital. Individuals weigh the costs of additional investments in, for example, education (e.g. tuition, foregone earnings while in school) against the gains to lifelong earnings that result from the additional schooling. In the context of adults, this is conceptionally fairly straight forward. If the present value of the increments to lifelong earnings exceed the costs of the additional investment, the individual proceeds and the increment to schooling takes place. Otherwise it does not. The problem, however, becomes a bit more complicated when considering earlier investments in human capital, in particular, when parents make decisions for their children. Such a concern has spawned a literature on early childhood investment in the human capital of children.

A simple conceptual model of the accumulation of human capital in children could be modeled as in Almond and Currie (2011). Let h represent accumulated human capital. Allow investments in human capital (h) to take place over two periods. Investment in children may take place in Period 1 before the child reaches the age of, say 5, and these are represented by I_1. Investment in the child taking place in period 2, after the child turns 5 are denoted by I_2 .

(1) $$h = A\{\gamma I_1 + (1-\gamma) I_2\}$$

If the parameter γ takes on a value greater than 0.5, then early investments have greater repercussions for human capital at the end of childhood than do later investments. Shocks to human capital in early childhood can be model by substituting $\overline{I_1} + \rho$ for I_1 in equation (1) above. The shock, ρ can be negative (e.g. an illness) or positive (an enriching experience such as living abroad).

The literature on early childhood investments and shocks to human capital early in life has significantly increased our understanding of these investments and shocks[1] and their long-run implications (e.g., Almond and Currie, 2011). Shocks in early life to young person's human capital are now known to have profound and long-term impacts that are felt through-out the lifecycle. For example, Currie and Thomas (1999) are able to explain up to 20% of variations in wages of adults due to early (before 7 years of age) characteristics. Case et al., (2005) are able to explain 11.6 percent of variation in earnings at age 33 using birth weight, childhood health and test scores at age eleven. The bottom line is that experiences in early childhood have notable and persistent impacts in adulthood.

In this research I test for the impacts of childhood investment in human capital that derive from international living. Can we measure rewards (or penalties) to these early childhood experiences in adulthood?

II. Strategy. One might be tempted to measure returns to international living experiences by testing whether individuals brought to the US as children are better paid in the labor market relative to U.S. natives who never migrated. But there are problems with such a research methodology. Childhood immigrants might be penalized, as adults, in the US labor market for a number of reasons. They may have less than full command of English, they may face labor market discrimination due to their ethnic or racial identification. There may be some questions concerning their citizenship, legal ability to remain in the U.S. and their likelihood to stay put. They may lack U.S. specific human capital on account of growing up in an ethnic enclave. For these reasons, among others, it is not ideal to use U.S. immigrants who arrived as children to test the international human capital hypothesis.

To determine whether there are returns to international living experiences, I compare two groups of Americans both who acquired US citizenship at birth: those who were born in the United States and therefore earned citizenship via *jus soli* provisions and those who were born abroad to American parents and were therefore accorded citizenship via *jus sanguinis* concept of citizenship. Both sets of individuals have no issues with regard to having full legal rights of U.S. citizenship. In this regard the two sets of individuals are alike. But they do differ in one very special manner. Those born abroad, but into U.S. citizenship at birth, have been "treated" with international living

[1] By shocks we mean unexpected or exogenous impacts to children. Examples of shocks could be the unexpected death of a parent or a sibling, the extended loss of employment of a parent, the receipt of a large and unexpected inheritance.

during childhood. Those born in the U.S. likely did not. We ask, what is the impact of the treatment[2]?

III. Overall empirical methodology. To capture the premium earned by international experience, I follow earlier work (Pozo, 2014) and construct a standard Mincer-type wage equation (Mincer, 1974). The Mincer equation models earnings (or wages) as dependent on a host of demographic, human capital and market conditions. Because the distribution of earnings is known to be log normal, logged annual wage or salary income (adjusted for inflation) is estimated for all full time workers. The regression is estimated for all individuals in the 2001-2016 American Community Survey between the ages of 25 and 64 who were either born in the U.S. or born abroad to American parents. All U.S. immigrants recorded in the census, whether naturalized or not, are dropped from our sample as are individual born in Puerto Rico or U.S, territories. In earlier work I found that women treated with international experienced earned approximately a 5 percent more than those that were not treated. The advantage to men was a bit smaller, at about 2.5 percent.

This research introduces a number of improvements to more clearly delineate and identify whether an international human capital premium exists. I account for intergenerational transfers of human capital by incorporating parental inputs in the Mincer equation. Second, I differentiate returns from very early childhood exposure from exposure later in childhood. A standard Mincer equation, augmented to test the hypothesis, is as follows:

$$(3) \qquad \ln E_i = \alpha_0 + \alpha_1 INT_i + D_i \gamma + PI_i \theta + HK_i \delta + OCCUP_i \pi + \varphi_t + \varepsilon_i$$

Annual inflation adjusted earnings (E) for individual *i* is the dependent variable and it is logged. INT is a categorical variable, assuming the value "1" if the individual was born abroad of U.S. parent(s). For individuals that are born in the U.S., INT assumes the value "0". If the estimated coefficient on INT -- α_1 – is statistically different from zero, it will measure if and the degree of earnings differential that accrues to individuals who are treated with international human capital on account of having been born abroad. For example, if α_1 is statistically different from zero and 0.07, this would imply that individuals born abroad to American parents (INT=1) earn, on average 7% more than individuals born on U.S. soil. If α_1 is not statistically different from zero we will not be able to reject the hypothesis that there is no earnings premium to be had from birth abroad to American parents.

To make appropriate comparisons a number of conditioning variables are included in the Mincer equation. A vector of standard demographic variables in D_i (age, its square and marital status) are includeds are human capital variables (HK_i) pertaining to different levels of educational attainment. Since there are large differences in earnings by occupation, dummies to control for employment in the different occupational categories are also incorporated. Time effects, φ_t, are added to account for the business cycle. Robust standard errors are computed that account for the current state residence for all individuals in our sample. Finally, to separate intergenerational transfers of human capital from the parents to the children from international experiences due to

[2] The jus soli sample will contain some individuals with international human capital—specifically the siblings of *jus sanguinis* or of INTs. But they will represent a small percentage of all, making rejection of the null (that INTs don't earn more) harder. The methodological set up makes it more difficult to find an INT-effect.

international living, the models incorporate mothers' education as a proxy for the parental environment (PI) in which the child grows up.

In order to account for parental inputs in adult children's labor market outcomes, it would be ideal to have longitudinal data that spanned the generations. Given that we do not have longitudinal data, we control for the childhood home environment by constructing pseudo-variables from information contained in prior censuses. For example, in 2010 we observe a 30 years old female, born in Germany to American parents. We then go to the 1990 census, when this subject was 10 years old. We search for U.S. born parents who have 10 year old children born in Germany. We use the characteristics of those parents and that household to describe the childhood environment proxied by parental education at that point in time.

To differentiate the impacts of early exposure to international experiences from later exposure I incorporate a dummy variable for INTs who returned to the US to live after the age of 7. A statistically significant coefficient on this dummy variable would indicate the differential return at exposure during younger versus older ages.

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