

## **Does the U.S. Labor Market Reward International Experience?**

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**Abstract:** A typical strategy for measuring the returns to international experience -- comparing the earnings of returning migrants to comparable non-migrants -- has been criticized for not adequately accounting for self-selection. I suggest an alternative, testing whether individuals born beyond U.S. borders, but into U.S. citizenship, earn more in U.S. labor markets relative to counterparts born on U.S. soil. Those born abroad to U.S. citizens did not self-select an international experience. Using the ACS, I find that the U.S. market rewards international experience, especially in occupations that value creativity and innovation. Women, in particular, are handsomely rewarded for international human capital.

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## **A. Introduction**

The increased interest in globalization has led to spirited discussions about the returns to acquiring international human capital. By arming oneself with foreign language abilities, cultural sensitivities and familiarity with alternative problem solving strategies, colleges and universities tout the benefits that students can obtain from study abroad programs. The claim is based on a belief that international experience is a form of human capital that is rewarded in the marketplace.

While plausible, there is little scientific evidence that there is a return to international human capital. Do international experiences, in fact, raise workers' productivity? The economics literature has approached this question in various ways. One approach has been to discern whether return-migrants earn a wage premium. One reason for returning to the homeland is to exploit the human capital acquired in the host country, which may yield a larger return at home (Dustmann and Weiss, 2007). There is mixed evidence on this. Using the 2006 Irish National Employment Survey, Barrett and Goggin (2010) report that returning Irish men and women are rewarded a seven percent wage premium with greater premiums for those having lived in geographically more remote areas. Co, Gang and Yun (2000) find that returning Hungarian women are rewarded with a wage premium, but men are not. Sun (2013) examines whether returning Chinese are more productive in the venture capital business than their peers without experience abroad by comparing their abilities to obtain funding for firms. He finds -- contrary to expectations -- that returning Chinese are less successful. Laboratory experiments in social psychology purport to show that individuals who have lived abroad are more creative and better at tasks such as negotiating (Maddux and Galinsky, 2009).

Another approach for gauging whether there are returns to international human capital is to measure the contributions of immigrants to economic outcomes. Using matched firm-level

employee data for Dutch firms, Ozgen, Nijkamp and Poot (2013) report slight increases in innovative activity for firms who employ a more diverse workforce measured by its mix of immigrants. Using a cross-country economy-wide approach, Kim (1998) finds a positive association between the proportion of the foreign-educated labor force, and a country's economic growth, suggesting that international human capital contributes to higher productivity.

While the two strategies for measuring whether the market rewards international human capital are intriguing (using return migrants and using immigrants as a share of the labor force), it is a stretch to expect that immigrants and return migrants are randomly selected from the population at large. Consequently, it is difficult to infer a causal relationship from international experience to productivity/creativity using these two populations. In response, I propose an alternative methodology for obtaining a sample that is "treated" with international human capital but is not self-selected. I propose to use the U.S. population that was born abroad to U.S. citizens. I argue that this sample is almost ideal for discerning whether there are returns to international human capital.

### **B. An almost Ideal Sample.**

I exploit the citizenship question in the 2006-2010 American Community Survey 5-year PUMS where respondents are coded as fitting one of five situations: 1. Born in the U.S.; 2. Born in Puerto Rico, Guam, the U.S. Virgin Islands, or the Northern Marianas; 3. Born abroad of American parent(s); 4. U.S. citizen by naturalization; 5. Not a citizen of the U.S. I classify those under "1" or "2" as born on U.S. soil and those under "4" or "5" as immigrants. I drop immigrants from my study. Category "3" -- born abroad of an American parent or parents -- is my primary population of interest. These persons may have been born to U.S. foreign service workers, U.S. military personnel, U.S. businessmen and businesswomen sent to head up joint

ventures or NGO workers. They are colloquially know as, “Missionary Kids,” “Military Brats,” “Global Nomads,” and “Third Culture Kids.” They are born with U.S. passports and in some cases may be eligible for dual citizenship. They were likely cultured into the U.S. ethos, but were exposed to at least one non-U.S. culture and perhaps acquired foreign language skills. At a minimum, they are likely to have a keen interest and incentive to be knowledgeable of their birth country. By being born abroad, I argue that they likely acquired some international human capital and thus serve as my “treated” group. I will refer to them as INTs—international human capital-enhanced individuals. They are a sizable group (N=65,908 in my sample) constituting about one-percent of the non-immigrant U.S. population.

While INTs did not self-select to be born in a foreign country, they could self-select when and if to return to the U.S. To deal with this source of selectivity, I limit my data to those who returned to the U.S. before the age of 17, because in such a case, it is reasonable to assume that the decision to return to the U.S. was made by their parents’ employer -- the State Department, the U.S. Military, the corporate home office. In this manner I argue that the treated population did not make the decision to be born abroad and did not make the decision to return to the U.S. Their treatment is exogenously determined<sup>1</sup>.

Obviously, there are other individuals who have been treated with international experiences who are not captured by this methodology, including U.S. nationals born on U.S. soil who traveled with their parents abroad -- the siblings of our treated group. They will have international experience but will not be classified as INTs in this study, potentially biasing my empirical results *against* finding an international human capital-effect. However, even if it were possible to identify such individuals (not possible with the ACS), it would not be appropriate to

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<sup>1</sup> I cannot, however, fully separate being born into a family that chooses international experience from the international experience itself. Both contribute to international human capital.

include them in the treated group. The characteristics of children born on U.S. soil may influence whether or not the parents accept a foreign assignment. For example, the parents of a child born in the U.S. with a medical disability may be less apt to accept a foreign assignment due to U.S. access of specialized medical treatments and the availability of networks/family to help with care. Thus, being born abroad, lessens the selection bias that could occur. If I find an INT premium, I can, with greater confidence attribute it to the foreign experience and not to selection based on the child's characteristics<sup>2</sup>. Another potential set of missing persons from my sample are individuals born abroad who are currently not residing in the U.S., because they chose to stay/return abroad. I perform sensitivity analysis using information on citizenship laws for the country of birth to control for this possibility.

My sample is limited to full time workers (worked at least 48 weeks last year and usually more than 34 hours a week) between 26 and 64 years of age. While I report descriptive statistics for all 6.6 million working age non-immigrant adults, I limit the sample to the 3.5 million full time workers when estimating earnings. Respondents report their salary or wage income over the past year and I adjusted these for inflation. To account for gender differences in work patterns, men and women are analyzed separately.

### **C. Descriptive Statistics and Specification**

Table 1 compares the characteristics of the treated group with the non-immigrant (and born on U. S. soil) population in the ACS. INTs are more highly educated in comparison to non-INTs. Fifteen percent have attained a graduate degree in comparison to 11 percent for the “born

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<sup>2</sup> An additional concern with my sample is due to the potential that it includes foreign adoptions. My methodology should not pick up foreign adoptions because those adoptees are naturalized U.S. citizens and would be classified as immigrants. There were 9,320 foreign adoptions in 2011 and 233,934 over 1999-2011 ([http://adoption.state.gov/content/pdf/fy2011\\_annual\\_report.pdf](http://adoption.state.gov/content/pdf/fy2011_annual_report.pdf)).

on U.S. soil” population. Occupations are also listed showing that INTs tend to be more highly represented in the professional and managerial groups. The ACS birth country variable permits identification of the location of birth for each INT in the sample. While 152 countries are represented, Germany is the most common country of birth, accounting for 29 percent of the treated sample. The next most common country of birth is Japan (8.8 percent) followed by Mexico, Canada and England (6 percent each) and the Philippines (5 percent). The distribution of birth countries coincides with other accounts of the location of Americans abroad as described by Smith (2010).

I estimate a standard Mincer-type wage equation (log of annual wage or salary income adjusted for inflation using the ADJINC variable in the ACS) using all non-immigrant fulltime workers to test whether the treated group has higher earnings, adjusting for standard characteristics.

$$(1) \quad \ln E_i = \alpha_0 + \alpha_1 INT_i + D_i \boldsymbol{\gamma} + HK_i \boldsymbol{\delta} + O_i \boldsymbol{\theta} + \varphi_t + \varepsilon_{it}$$

Logged annual inflation adjusted earnings ( $E_i$ ) for individual  $i$  is the dependent variable.  $INT_i$  is a dummy variable that identifies whether  $i$  was born abroad to U.S. parent(s). A vector of standard demographic variables ( $D_i$ ) follow -- age, age<sup>2</sup>, age<sup>3</sup> and marital status. Next, a vector of human capital variables ( $HK_i$ ) are incorporated including a dummy variable indicating whether the respondents has completed any military service and dummy variables for different levels of educational attainment (less than high school, high school, some college, completed college and graduate or professional degree). Time effects,  $\varphi_t$ , account for the business cycle. A further specification, incorporating a vector of dummy variables for the different occupational categories, is estimated and in yet one more specification, each occupation is interacted with the INT dummy in order to capture differences in returns to international human capital by

occupation. It is possible that in some occupations, international experience is more valuable than in others. Because employment and work patterns for men and women differ, separate estimations are performed by gender. Standard errors are clustered at the state level.

#### **D. Results**

The first specification, displayed in the first two columns of Table 2, incorporates adults aged 25 to 64 from the 2006-2010 ACS 5-year PUMS who were born abroad but into U.S. citizenship along with all respondents born on U.S. soil. Since I have limited my sample of INTs to those who came to the U.S. before adulthood<sup>3</sup>, I argue that there is no self-selection into or out of the sample. Treatment is largely exogenous with respect to each individual. The coefficient on INT displayed in Table 2 is positive and statistically significant suggesting that both female and male individuals treated with international human capital are awarded a premium relative to their counterparts without observed international experience. Treated women earn about 5 percent more and treated males half that premium (2.5 percent) relative to their untreated counterparts.

While those born abroad had no say in their location of birth, it may be that foreign birth confers dual citizenship, affording the treated individuals more location options later in life. If so, INTs who are less successful in the U.S. might opt to use their dual citizenship to return to their country of birth, biasing my results on account of selectivity. To account for this, I obtained information on citizenship laws for each country in my sample. In some countries, children born within the borders of the country are automatically awarded citizenship (*jus soli*) -- what we commonly refer to as birthright citizenship. However, for a large number of countries, citizenship is awarded based on ancestry -- *jus sanguinis*. In this case, being born within the

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<sup>3</sup> About 17 percent of the sample of INTs came to live in the U.S. for the first time after age 16.

borders of the country does not automatically confer citizenship. Some countries have flipped back and forth on the question of birthright. I have coded these laws along with changes to identify legal birth status of each U.S. national born abroad. In columns 3 and 4 of Table 2, I estimated the earnings equation excluding all individuals who were born in countries with a *jus soli* statute in place. This allows me to test the hypothesis limiting my sample to individuals *without* the means to self-select out of the sample by returning to their birth country. Despite eliminating this source of self-selection, the INT premium persists. Women still earn a 5 percent premium and men about half that.

A further issue not yet addressed is that of occupational selection. If more INTs select into high paying occupations then we should expect to see that they earn a premium. But this premium must be attributed to occupation and not to international human capital. To account for this I perform two separate estimations. First, I account for each person's occupation in a series of estimations (see on-line appendix Table 1) and show that despite accounting for occupation, an earnings premium for INTs remain. It is a bit smaller (4.1 percent for women and 1.9 percent for men) but with comparable significance levels to the earlier premiums estimated. The treated group still outperforms the control group. Second, in the interest of further exploring the earnings premium, I interact the INT dummy with each of the occupation variables to get at the size of the premium (or discount) by occupation.

$$(2) \quad \ln E_i = \alpha_0 + \alpha_1 INT_i + D_i \boldsymbol{\gamma} + HK_i \boldsymbol{\delta} + cMgmt + d(Mgmt * INT) + eProf + f(Prof * INT) + \dots + qTrans + r(Trans * INT) + \varphi_t + \varepsilon_{it}$$

Treated individuals in the managerial occupation earn a premium (or discount) of  $(\alpha_1 + d)$  over individuals in the managerial occupation in the control group. The premia are reported in Table 3

below,<sup>4</sup> showing that female INTs earn a premium in all occupations save farming. The premium is highest in construction. For males, the results are mixed. While men still earn premia in most occupations, they are compensated more poorly than the control group in sales, construction, repair and production. Nonetheless, INT men still earn sizable premiums in the management, professional, farming, transport and service occupational categories.

A further statistical concern is the issue of selection into full time work. While labor economists often ignore this potential bias in the case of men, it is harder to justify not accounting for selection into work in the case of women. I estimated a Heckman model to account for “full-time” work, using the baseline specification and find the INT premium is largely unchanged at 4.8 percent (see on-line appendix Table 3).

## **E. Conclusions and Discussion**

My results suggest that there are measurable returns to international human capital. While, on average, these returns are modest—about 5 percent for women and 2.5 percent for men, the returns are sizable in certain occupations and seem to always be present in the managerial and professional categories, occupations that particularly value creativity and innovation. These results have implications for the current debate on college study-abroad programs. I show that returns to acquiring international human capital are measurable. I also find differences in the pattern of returns by gender. Women’s average returns are double those of men and women appear to earn returns, across the board, in nearly all occupations.

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<sup>4</sup> The full regression results are in on-line appendix Table 2.

Table 1 Descriptive Statistics: **26 - 64 years 2006-2010 ACS**

Characteristic	Born US Soil	INTs	Characteristic	Born US Soil	INTs
Female	51.4	50.6***	Earnings	\$37,289	\$43,681***
Age	45.9	43.4***	NLF	22.6	18.0***
Married	64.3	64.2	Self-empl.	10.1	10.3*
Never Mar	17.3	18.9***	Mang & Fin	15.9%	17.9%
Divorced	16.2	15.5***	Professional	22.9%	24.8%
Military	10.4	13.0***	Service	13.3%	12.7%
Full time	56.3	60.6***	Sales	25.1%	23.7%
Unemployed	4.5	4.5***	Farming	0.5%	0.4%
Graduate	11.3	15.3***	Construction	5.7%	4.3%
Bachelor's	19.6	25.1***	Repair	3.6%	3.2%
Some college	31.9	32.8***	Production	6.5%	4.9%
HS graduate	28.6	19.9***	Transport	5.9%	4.7%
Less than HS	8.6	6.9***	<b>Sample size</b>	<b>6,598,485</b>	<b>65,908</b>

**Notes:** From the 2006-2010 ACS. \*\*\* signifies  $p < 0.01$ , \*\* signifies  $p < 0.05$ , \* signifies  $p < 0.10$

**Table 2: Ln (Earnings) Women and Men 26-64 years**

Variable	Women	Men	Women <sup>a</sup>	Men <sup>a</sup>
INT	0.049*** (0.009)	0.025*** (0.007)	0.050*** (0.010)	0.023*** (0.008)
Age	0.110*** (0.006)	0.135*** (0.006)	0.110*** (0.006)	0.135*** (0.006)
Age <sup>2</sup>	-0.002*** (0.001)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Age <sup>3</sup>	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Married	0.032*** (0.005)	0.209*** (0.005)	0.032*** (0.005)	0.209*** (0.004)
Grad	1.041*** (0.014)	0.983*** (0.016)	1.042*** (0.014)	0.982*** (0.016)
Bachelors	0.812*** (0.015)	0.732*** (0.016)	0.812*** (0.015)	0.732*** (0.016)
Some College	0.454*** (0.011)	0.377*** (0.011)	0.455*** (0.011)	0.377*** (0.011)
HS diploma	0.232*** (0.010)	0.190*** (0.006)	0.233*** (0.010)	0.180*** (0.006)
Military	0.058*** (0.013)	-0.035*** (0.007)	0.059*** (0.002)	-0.035*** (0.007)
Year dummies	yes	yes	yes	yes
R <sup>2</sup>	0.233	0.240	0.233	0.240
N	1,545,876	1,968,916	1,544,063	1,966,455

Includes constant. Robust SE in parentheses, \*\*\* signifies  $p < 0.01$ , \*\* signifies  $p < 0.05$ , \* signifies  $p < 0.10$ . Excluded categories are Less than HS, service occupation and 2006. <sup>a</sup> signifies that the regression excludes INTs born in countries with birthright (*jus soli*).

Table 3: International Human Capital Premium or Discount By Occupation (in percent)

Occupation	Women	Men
Mang, Buss & Fin	2.90***	4.0***
Professional	6.30***	2.7***
Sales	2.50***	-0.5***
Farming	20.7	6.0**
Const. & Extract.	16.0**	-3.5**
Repair	4.9***	-2.2***
Production	6.0***	-0.7***
Transport	4.2***	4.0***
Service	02.4***	0.3***

Notes: Premia derived from Table 2 in Online Appendix

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On-Line Appendix

Appendix Table 1: Estimation of Log Earnings Including Occupation Dummies

Variable	Women		Men	
	$\beta$	SE	$\beta$	SE
INT	0.040***	0.009	0.019**	0.008
Management	0.589***	0.008	0.440***	0.012
Professional	0.384***	0.008	0.267***	0.015
Sales	0.264***	0.007	0.181***	0.014
Farming	-0.056**	0.027	-0.218***	0.025
Construction	0.378***	0.017	0.169***	0.014
Repair	0.463***	0.012	0.172***	0.015
Production	0.183***	0.016	0.112***	0.020
Transport	0.148***	0.010	0.058***	0.018
Age	0.098***	0.006	0.129***	0.006
Age <sup>2</sup>	-0.002***	0.001	-0.002***	0.000
Age <sup>3</sup>	0.000***	0.000	0.000**	0.000
Married	0.012***	0.004	0.193***	0.004
Grad	0.804***	0.014	0.806***	0.013
Bachelors	0.593***	0.014	0.581***	0.013
Some College	0.323***	0.010	0.309***	0.009
HS diploma	0.164***	0.008	0.165***	0.006
Military	0.074***	0.012	-0.015**	0.007
2007	0.007***	0.002	0.009***	0.002
2008	-0.015***	0.002	-0.009***	0.003
2009	-0.016***	0.003	-0.016***	0.004
2010	-0.019***	0.003	-0.026***	0.004
R <sup>2</sup>	0.29		0.27	
N	1,544,063		1,966,455	

Notes: Includes a constant. Service occupation, less than HS and 2006 are the omitted categories. Standard errors are clustered at the state level. \*\*\* signifies  $p < 0.01$ , \*\* signifies  $p < 0.05$ , \* signifies  $p < 0.10$ .

Appendix Table 2: Estimation of Log Earnings including Occupations Interacted with INT

	Women		Men	
	$\beta$	SE	$\beta$	SE
INT	0.473***	0.070	0.274***	0.038
Mang	0.589***	0.008	0.440***	0.012
INT x Mang.	-0.444***	0.069	-0.234***	0.040
Prof	0.384***	0.008	0.267***	0.015
INT x Prof.	-0.410***	0.075	-0.247***	0.037
Sales	0.265***	0.007	0.181***	0.014
INT x Sales	-0.448***	0.071	-0.279***	0.036
Farm	-0.057**	0.028	-0.218***	0.025
INT x Farm	-0.268	0.213	-0.214**	0.096
Const	0.378***	0.017	0.169***	0.014
INT x Const.	-0.313**	0.124	-0.309**	0.038
Repair	0.462***	0.012	0.172***	0.015
INT x Repair	-0.424***	0.091	-0.296***	0.035
Production	0.183***	0.016	0.112***	0.021
INT x Production	-0.413***	0.075	-0.281***	0.045
Transportation	0.147***	0.010	0.058***	0.018
INT x Transp.	-0.431***	0.081	-0.234***	0.042
INT x Service	-0.449***	0.079	-0.271***	0.037
Age	0.098***	0.006	0.129***	0.006
Age <sup>2</sup>	-0.002***	0.000	-0.002***	0.000
Age <sup>3</sup>	0.000***	0.000	0.000***	0.000
Married	0.012***	0.004	0.193***	0.004
Grad	0.804***	0.014	0.806***	0.013
Bachelors	0.593***	0.014	0.580***	0.013
Some College	0.323***	0.010	0.309***	0.009
HS diploma	0.164***	0.008	0.165***	0.006
Military	0.073***	0.012	-0.015**	0.007
2007	0.007***	0.002	0.009***	0.002
2008	-0.016***	0.002	-0.009***	0.003
2009	-0.015***	0.003	-0.016***	0.004
2010	-0.016***	0.003	-0.026***	0.004
Constant	8.024***	0.075	7.722***	0.072
R <sup>2</sup>	0.27		0.27	
N	1,544,063		1,966,455	

Notes: Includes a constant. Service occupation, less than HS and 2006 are the omitted categories. Standard errors are clustered at the state level. \*\*\* signifies  $p < 0.01$ , \*\* signifies  $p < 0.05$ , \* signifies  $p < 0.10$ .