Are Unskilled Migrants an Economic Burden?
US Foreign Direct Investment and Mexican migration

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Abstract

In the aggregate, labor migration (labor flows) and foreign direct investment (FDI) flows are found complementary in economic theory. However, recent empirical evidence finds that when migrants are disaggregated according to skill level, FDI flows substitute for unskilled labor flows but complement skilled labor flows. The purpose of this paper is to test whether disaggregating Mexican migrants by labor skill reflects complementarity between FDI and skilled migration and substitutability between FDI and unskilled migration. Results will suggest the utility of using either the Heckscher-Ohlin model or Specific Factors trade model in understanding international migration in terms of capital and labor flows. If unskilled labor flows and FDI flows are substitutable, then recent empirical evidence suggests unskilled Mexican labor immigration should lead to FDI outflows, decreased US productivity, and reduced economic growth. This project will use regression analysis on migrants' labor skill, labor flows, and FDI flows between Mexico and the US using secondary data sources to determine whether unskilled Mexican migrants lead to FDI outflows.

Keywords: FDI, migration, specific factors, Heckscher-Ohlin, skilled migrants, unskilled migrants

1. Introduction

Immigration is a controversial subject with both positive and negative views among the United States (US) citizens. Public opinion differentiates the value between skilled and unskilled immigrants to the US. Among the American public, 62% favors general international labor migration (ILM) into the US (Jones, 2019). However, 78% of the American public specifically favors importing skilled migrants regarding ILM into the US (Connor & Ruiz, 2019). Although 28% of the American public view ILM as an economic burden on the country (Jones, 2019), of the individuals who favor reducing ILM into the US 63% support importing skilled migrants (Connor & Ruiz, 2019). Public opinion holds a favorable bias towards skilled migrants regarding ILM; however, skeptics view ILM as an economic encumbrance. Recognizing whether skilled migrants should be valued over unskilled migrants requires further analysis by comparing the impact on economic growth from importing skilled labor migrants and unskilled labor migrants respectively.

  The viewpoint regarding skilled labor as more valuable than unskilled labor permeates beyond US public opinion and into the politics of Europe. This public perspective directly shapes European, Australian, and Canadian policy regarding ILM by discriminating against unskilled labor migrants in favor of skilled labor migrants. Prioritizing skilled migrants has been an assumed assumption in virtually all formal policy debate among academics regarding ILM (Munz, Straubhaar, Valdean F. & Valdean N., 2006; Schiff, 1996; Guellec & Cervantes, 2001). Canada followed in line with international consensus and became the first country in 1967 to adopt a points-based system prioritizing skills, age, and English proficiency (Dirks, 2017) with family sponsorship as a mere component to the total available points (VOA News, 2018). The population of skilled migrants in Canada rose from 13% to 44% from 1971 to 1981 and outpaces the US and France in share of skilled migrants with 65% of the foreign-born population being college-educated in 2015 (Connor & Ruiz, 2019). Australia followed in Canada's footsteps in 1997 by transitioning entirely to a points-based

migration system preferencing skill, age, and English proficiency with family sponsorship simply adding points rather than guaranteeing admission (Guellec & Cervantes, 2001). Legislative changes in the UK have made "attracting highly skilled migrants … of particular importance" (Munz et al., 2006, p. 52) and is evident as 49% of the UK's foreign-born population hold a post-secondary diploma compared to 37% of the UK's native-born population (Connor & Ruiz, 2019). The assumption unskilled labor migrants are undesirable makes a tangible impact on real policy formation and is imbued in European, Australian, and Canadian politics.

The prevailing view held among European countries and the US public has begun to permeate into US political pedagogy, possibly resulting in real changes regarding domestic policy. US migration policy has traditionally been a family-based immigration system with the majority of immigrants (66%) in FY 2017 receiving sponsorship through family members (Kandel, 2018). Discourse regarding US migration policy in recent years has largely focused on the merits of a family-based immigration system and whether reform is necessary (Kandel, 2016; Kandel, 2018). Institutions dedicated to policy analysis have suggested the need for restricting family-sponsored visas and increasing visas for skilled immigrants (Brookings-Duke Immigration Policy Roundtable, 2016). Affinity for a skilled-based immigration system has even encouraged legislative action from the US Senate to follow the European model of skilled-based immigration (Senate Bill RAISE ACT).

The assumption unskilled labor migrants are undesirable compared to skilled migrants transcends public opinion and permeates policy formation, as seen in Europe, Australia, and Canada. The disparity in favorability regarding unskilled migrants relative to skilled migrants in terms of US public opinion reflects recent discourse and policy suggestion to reform domestic migration policy to follow the skilled-based model. Utilizing economic trade theory predicting the relationship of FDI (capital) and ILM (labor) may reveal whether a skilled-based migration system is supported in terms of economic benefit. Determining whether skilled ILM into a country (inflow) is economically desirable while unskilled ILM is economically undesirable is imperative in understanding whether contemporary migration policy prioritizing migrants in terms of labor skill is supported in terms of economic interests.

2. Research Question

This project will attempt to understand whether Mexican immigrants are a burden on the economy by determining whether skilled and unskilled FDI (capital) correlates either positively or negatively with skilled and unskilled Mexican labor migrants. If capital (FDI) flows move in the same direction (complements) as Mexican migrants, then Mexican migrants bring capital with them thereby increasing productivity and economic growth. However, if capital flows in the opposite direction (substitutes) as Mexican migrants, then Mexican migrants may send capital away thereby adding no productivity and economic growth. Furthermore, if the capital sent away could possibly have been invested domestically, then an opportunity cost possibly arises from Mexican immigration.

International trade theory predicts unskilled migrants substitute FDI flow while skilled migrants complement FDI flow. Using empirical research of the United States and Mexico regarding FDI and labor migration may reveal the validity and consistency of international trade theory. The project will particularly examine whether the Heckscher-Ohlin model or Specific Factors model better explains the direction of capital and labor flows.

3. Outline

Evidence suggests skilled immigration significantly correlates with skilled and unskilled FDI inflow; however, unskilled migration significantly correlates with skilled FDI outflow and no significant correlation with unskilled FDI. The paper will begin reviewing previous literature analyzing previous research methods, findings, and discussions. Neoclassical economic trade theories such as the Specific Factors model and the Heckscher-Ohlin model. The next section will discuss the methodology, which includes data collection from the Bureau of Economic Analysis (BEA), World Bank, Federal Reserve Economic Data (FRED), and Integrated Public Use Microdata Series (IPUMS) from 1994 – 2018 quarterly. Analysis of collected data will follow using an estimating equation derived from both the Heckscher-Ohlin model and the Specific Factors model using linear regression analyses. The following section will discuss the validity, consistency, and applicability of the neoclassical economic theories used in this research paper as well as the relevance of the results. Finally, a conclusion section will discuss limitations of the research design and consider recommendations for future research.

4. Literature Review

4.1 Proxies in Previous Literature

Previous literature regarding international labor migration and capital flows consistently use secondary education and foreign direct investment (FDI) as proxies for skill and capital. FDI as a proxy for capital is used consistently in economic literature as foreign direct investment is understood as capital investment from foreign countries, such as factories of machinery (Jokisch, 2006; Feenstra and Taylor, 2014). Using FDI to observe capital flows is used in research analyzing the United States (Feenstra and Taylor, 2014), Canada (Wilson, 2003), and Mexico (Aroca and Maloney, 2005). Whether an individual received secondary or higher education is used consistently in economic literature as a proxy for whether a migrant is skilled or unskilled (Gheasi et al, 2013; Tsai and Tsay, 2008). Using secondary education to recognize labor migrants as either skilled or unskilled is used in research analyzing the United Kingdom (Gheasi et al, 2013) as well as Taiwan (Tsai and Tsay, 2008). Previous literature within economic research consistently collects data on secondary education and FDI to recognize the skill of labor migrants and their influence regarding capital flows and thus economic impact.

4.1.1. complementarity v substitutability

Empirical evidence observes labor and capital flows moving together (complementarity) regarding migration and FDI. Previous literature finds evidence supporting labor flows and capital flows as complementary regardless of labor skill. Economic theory predicts labor immigration (labor inflow) raises the productivity of capital (e.g. factories, machines, etc.) and therefore increases the domestic return on capital (Feenstra and Taylor, 2014). In a globalized economy, higher domestic returns on capital encourages new capital formation from foreign investors (FDI inflow) (Feenstra and Taylor, 2014). Prior to World War I, the US imported both labor and capital, while European countries exported both, thus supporting labor and capital as complements (Jokisch, 2006). Similarly, Canada experienced complementary labor and capital inflows during the same period (Wilson, 2003). During the post-NAFTA era (1994 – 2000) FDI outflows from the US into Mexico deterred Mexican immigration into the US, thus demonstrating the complementary relationship between migration and FDI flows (Aroca and Maloney, 2005). Previous literature finding support for complementarity between migration (labor flows) and capital flows (FDI) does not disaggregate migrants by labor skill but rather treats all migrants as having the same skill level. However, disaggregating labor migrants by skill may reveal different implications.

   Recent empirical evidence on migration and capital disaggregates labor migrants by skilled labor and unskilled labor. Disaggregating migrants' labor skill reveals skilled labor migration raises FDI inflow, but unskilled labor migration raises FDI outflow contrasting with the previous literature aggregating labor skill. Analysis of the UK reveals as skilled labor immigration from Syria and other Middle-Eastern countries enter the UK, FDI inflows carry with the migrants from the origin countries (Gheasi et al, 2013). Research on Taiwan shows unskilled labor immigration from Southeast Asian countries correlates with FDI outflows towards migrants' origin countries (Tsai and Tsay, 2008). The contrast between the previous literature and recent empirical evidence may be explained by the "technology spillover effect", which suggests the higher proportion of skilled labor in a country's labor force increases a country's capacity to adopt new technologies acquired from FDI while unskilled labor migrants engage in remittances, thus sending capital to the origin countries (Klein and Ventura, 2009). Recent empirical evidence disaggregating labor skill suggests a more complex relationship between migration and FDI flows than observed in previous literature aggregating labor skill. Skilled labor immigration complements FDI inflows while unskilled labor immigration substitutes FDI inflows rather than all labor migration complementing FDI inflow.

5. Methodology

5.1 Theory

Previous literature describing the relationship between trade and migration uses international trade theories such as the Specific Factors model and the Heckscher-Ohlin model. In the Specific Factors model labor is disaggregated according to skill level (Comolli, 2018). The model assumes an economy has two sectors of trade, such as agricultural and manufacturing sectors, and two factors of production, such as labor and capital. It is assumed that skilled labor is mobile between sectors, but unskilled labor and capital are immobile between sectors. This specification permits the analysis

of the separate effects of unskilled migration and skilled migration on FDI flows. The Hecksher-Ohlin model assumes there are two trade sectors that both utilize capital and labor. Labor and capital are mobile between sectors.

Economists disagree whether the Heckscher-Ohlin model or the Specific Factors model is more plausible in understanding the relationship between capital movements and labor movements in the context of international trade. The Heckscher-Ohlin model predicts a complementary movement between labor migration and FDI flows, which is consistent with the historical evidence on aggregate migration (Feenstra and Taylor, 2014). On the other hand, the Specific Factors model predicts a complementary movement between skilled labor and FDI flows, and a substitutable movement between unskilled migration and FDI flows. Furthermore, recent research applying the specific factors model find justification for disaggregating FDI to gain increased information regarding complementarity and substitutability between labor migration and capital flows (Dogan, 2008). This conforms to the recent empirical evidence on FDI and labor migration in the literature. If a sufficient proportion of migrants are skilled in the Specific Factors model, it has been shown that aggregate migration (both skilled and unskilled migrants) and FDI are complementary as historically observed (Comolli, 2018). This would suggest that the Specific Factors model may be a preferable trade model as compared to the Heckscher-Ohlin model in analyzing migration and FDI flows.

5.1.1. data

Collected variables will utilize quarterly data from the Bureau of Economic Analysis (BEA), World Bank, Federal Reserve Economic Data (FRED), and Integrated Public Use Microdata Series (IPUMS) between 1994 – 2018. FDI is collected from the BEA and disaggregated in terms of skilled and unskilled sectors; manufacturing is a proxy for unskilled sectors while the sum of all other factors is a proxy for skilled sectors. Because disaggregated FDI data was unavailable for specific countries, all countries were assumed to compose their FDI in the same proportions as the total FDI invested. Applying this assumed variable to Mexico then gave the assumed makeup of Mexico's FDI between the US to reveal skilled and unskilled sectors. Furthermore, a positive FDI value meant outflow from the US into MX while a negative FDI value meant inflow from MX into the US. Control variables such as GDP is treated as a proxy for current investment opportunities in the destination country, the GDP growth rate explains future profitability of investments in the destination country, and GDP per capita measures the standard of living and therefore may justify the willingness for foreign labor to migrate, which are all collected from the World Bank. The unemployment rate serves as a measure of the state of the economy in macro-terms as a high unemployment rate dissuades investment, exports explain potential for investment opportunities in the destination country, and imports discourages investment opportunities in the destination country – the variables are collected from the World Bank. Capital formation proxies for the profitability of investment in a country while interest rate proxies for the return on capital and both are collected from the FRED. Migration is disaggregated in terms of skilled and unskilled by using education attainment as a measurement and collected from the IPUMS. Furthermore, migration is lagged to represent the time for migrants to adjust to changing conditions.

5.1.2 model

A linear regression equation derived from the Specific Factors model and Heckscher-Ohlin model will then be utilized for ordinary least squares (OLS) regression. A simple linear equation will be used for the Specific Factor model,

$$Y_{it} = \beta_0 + \beta_1 S_t + \beta_2 U_t + \beta_3 GDPG_t + \beta_4 INT_t + \beta_5 UN_t + \beta_6 CF_t + \beta_7 EX_t + \beta_8 IM_t + \beta_9 GDP_t + \beta_{10} GDPPC_t + U_t \qquad (1)$$

as well as for the Heckscher-Ohlin model,

$$Y_t = \beta_0 + \beta_1 L_t + \beta_3 GDPG_t + \beta_4 INT_t + \beta_5 UN_t + \beta_6 CF_t + \beta_7 EX_t + \beta_8 IM_t + \beta_9 GDP_t + \beta_{10} GDPPC_t + U_t \qquad (2)$$

though the two equations are almost identical, the subscript i differentiates the disaggregated FDI sectors and labor factors (skilled/unskilled) in the Specific Factors model. The Heckscher-Ohlin model aggregates FDI and labor by removing the subscript i and using $\beta_1 L_t$ to aggregate labor.

Y is defined as either the skilled or unskilled FDI sectors, depending on which FDI sector is being observed in the Specific Factor model. However, Y is defined as aggregate FDI in the Heckscher-Ohlin model. The subscript t puts the independent variables in terms of the associated yearly quarters between 1994 - 2018. β_0 serves as the intercept. S + U serve as the independent variables of skilled labor migration and unskilled labor migration in terms of quarter respectively, while L serves as labor migration in the aggregate in terms of quarter. GDPG is defined as the gross domestic product growth rate, and INT serves as the interest rate. Unemployment is set as UN, capital formation is set

as CF, exports as EX, and imports as IM. GDP describes the gross domestic product and finally GDPPC describes the gross domestic product per capita.

Economic intuition encourages our priors to be negative correlations between both skilled and unskilled FDI with skilled migrants, and positive correlation between skilled and unskilled FDI with unskilled migrants. Furthermore, negative correlations should occur between FDI and interest rates, GDP per capita, capital formation, exports, and unemployment. Positive correlations should occur between FDI and GDP growth, imports, and GDP. A negative correlation between FDI and a variable means as a variable increase, FDI inflow increases, while a positive correlation means as a variable increase, FDI outflow increases.

Because manufacturing sectors proxy for unskilled FDI, there may be concerns that the coefficient estimate is biased due to endogeneity. The US has experienced a decline in the manufacturing sector via job polarization while simultaneously receiving inflow of both skilled and unskilled migrants from Mexico. Therefore, the correlation may be driven mechanically by the regression equation since the manufacturing sector is set as unskilled FDI and falsely interpret the correlation as substitutability between unskilled Mexican migrants and capital flows. To address this concern, a sensitivity analysis is conducted by disaggregating FDI further into wholesale trade, deposits, insurance, services, other, information, and manufacturing categories as seen in Tables 4 and 5 in the Appendix. Such an approach for a robustness check regarding the estimating equation is justifiable as seen in previous literature (Dogan, 2008), which finds disaggregating FDI sectors increases information in terms of the specific factors model.

6. Analysis

6.1 Findings

Regressing aggregate FDI inflows (skilled + unskilled FDI sectors) as a dependent variable on aggregate labor migrants (skilled + unskilled labor migrants) as an independent variable reveals a statistically significant negative correlation between aggregate labor migrants and aggregate FDI inflow (Table 1).

Table 1: HO Model – Aggregated Labor and FDI

VARIABLES	(1) fdi	(2) fdi
migration	-0.119	-0.172**
	(0.0972)	(0.0670)
l4migration		0.0681
		(0.116)
gdp_growth	-583.5***	-601.2***
	(204.8)	(197.9)
interest_rate	-177.5	-169.5
	(155.8)	(158.8)
unemployment	622.8	673.0
	(423.5)	(410.7)
capital_formation	1,098*	1,202*
	(616.8)	(643.7)
exports	224.1	302.0
	(480.9)	(582.2)
imports	-207.0	-330.4
	(406.6)	(527.8)
gdp	-5.04e-10	-7.88e-10
	(2.08e-09)	(2.64e-09)
gdppc	0.505	0.647
	(0.915)	(1.251)
Constant	-33,521**	-38,549*
	(13,016)	(19,863)
Observations	92	88

	Number of year	23	22

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As aggregate labor migrants come into the United States from Mexico (aggregate labor inflow), aggregate FDI from Mexico into the United States (aggregate capital inflows) increases. The statistical significance suggests labor inflow and FDI inflow share a strong relationship, thereby suggesting the utility of the Heckscher-Ohlin model. However, disaggregating labor inflows by skill and capital inflows by sector as seen in previous literature may offer more explanatory value.

   Regressing disaggregated FDI inflows (skilled, unskilled sectors) as dependent variables on skilled labor migrants as an independent variable reveals a statistically significant negative correlation between skilled labor migrants and skilled FDI and significant negative correlation with unskilled FDI (Table 2; Table 3).

Table 2: Skilled FDI and Skilled Labor Migration

VARIABLES	(1) skilled_fdi	(2) skilled_fdi	(3) skilled_fdi
L.skilled		-104.2**	-104.2**
		(47.00)	(47.00)
L.unskilled		9.069*	
		(4.740)	
o.skilled		-	
o.unskilled		-	
gdp_growth	10,825**	10,359*	10,359*
	(4,449)	(5,616)	(5,616)
interest_rate	-6,124	-8,278	-8,278
	(5,164)	(6,279)	(6,279)
unemployment	-27,451**	-31,184*	-31,184*
	(11,869)	(15,571)	(15,571)
capital_formation	-41,522***	-40,019**	-40,019**
	(14,588)	(19,116)	(19,116)
exports	33,310**	42,332**	42,332**
	(14,394)	(19,654)	(19,654)
imports	-16,278	-24,299	-24,299
	(10,995)	(14,892)	(14,892)
gdp	-6.13e-08	-5.19e-08	-5.19e-08
	(5.99e-08)	(8.06e-08)	(8.06e-08)
gdppc	36.89	32.36	32.36
	(27.37)	(36.06)	(36.06)
skilled	-84.84**		
	(35.24)		
unskilled	6.546*		9.069*
	(3.600)		(4.740)
Constant	-22,059	-2,598	-2,598
	(352,005)	(455,058)	(455,058)
Observations	92	69	69
R-squared	0.518	0.493	0.493

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Unskilled FDI & Unskilled Labor Migration

VARIABLES	(1) unskilled_fdi	(2) unskilled_fdi	(3) unskilled_fdi
L.skilled		-16.90*	
		(8.928)	
L.unskilled		1.026	0.0303
		(0.995)	(0.569)
o.skilled		-	
o.unskilled		-	-
gdp_growth	988.2	1,196	490.2
	(997.3)	(1,079)	(1,192)
interest_rate	-393.5	-391.5	184.0
	(1,025)	(1,137)	(1,145)
unemployment	-3,253	-5,187*	-2,554
	(2,654)	(2,981)	(2,613)
capital_formation	-3,589	-3,818	-1,877
	(3,181)	(3,553)	(3,722)
exports	-765.4	-1,743	-2,398
	(3,300)	(3,764)	(3,847)
imports	1,651	2,150	2,908
	(2,586)	(3,001)	(2,772)
gdp	1.30e-08	2.50e-08	9.35e-09
	(1.54e-08)	(1.76e-08)	(1.83e-08)
gdppc	-4.620	-10.40	-4.519
	(7.050)	(7.932)	(8.358)
skilled	-12.52*		
	(7.246)		
unskilled	0.450		
	(0.867)		
Constant	134,188	239,149**	128,109
	(101,472)	(109,954)	(106,179)
Observations	92	69	69
R-squared	0.196	0.236	0.203

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As skilled labor migrants come into the United States from Mexico (skilled labor inflow), both skilled (skilled capital inflows) and unskilled (unskilled capital inflows) FDI inflows from Mexico into the United increase. Theoretical predictions from the Specific Factors model regarding the relationship between skilled labor flows and capital flows is consistent with empirical analysis; however, reviewing unskilled labor will verify theoretical consistency of application.

Regressing disaggregated FDI inflows (skilled, unskilled sectors) as dependent variables on unskilled labor migrants as an independent variable reveals a significantly positive correlation between unskilled labor migrants and skilled FDI and insignificant positive correlation with unskilled FDI. As unskilled labor migrants come into the United States from Mexico (unskilled labor inflow), skilled and unskilled FDI outflows from the United States into Mexico (skilled & unskilled capital outflows) is positive and significant in terms of skilled FDI. The lack of statistical significance regarding unskilled FDI suggests unskilled labor migrants from Mexico have virtually no impact on manufacturing sectors of FDI between the US and Mexico.

Endogeneity concerns are partially satisfied by the results from the sensitivity analysis. The sensitivity analysis checked the robustness of the Specific Factors model to address whether endogeneity between manufacturing (unskilled FDI) and unskilled labor migration is a concern. The analysis began by further disaggregating FDI inflows into the

following sectors: wholesale trade, deposit institutions, insurance, technical and professional services, 'other' classified sectors as defined by the BEA, and information sectors. Regressing these sectors with skilled and unskilled labor migration corroborates the findings of the initial regression equation. Skilled labor migrants complement all FDI sectors and significantly with 'other' FDI sectors. Unskilled labor migrants substitute with deposit, insurance, and significantly with services FDI sectors; however, unskilled labor migrants complement with wholesale trade, information, and significantly with 'other' FDI sectors. The correlation strength between unskilled labor migrants and FDI are generally weak and insignificant as seen in Table 4 and Table 5 of the Appendix. Considering the findings of the robustness check, the theoretical suppositions of the Specific Factors model corroborates the generally negligible results of the sensitivity analysis. Therefore, the sensitivity analysis finds the coefficient estimate unlikely to be biased due to endogeneity.

Table 4: Unskilled Labor Migration and disaggregated FDI

VARIABLES	-1 wholesaletrade_fdi	-2 deposit_fdi	-3 insurance_fdi	-4 services_fdi	-5 other_fdi	-6 Information_fdi
unskilled	-0.276	0.0553	0.739	0.225*	-2.044***	-0.197
	-0.225	-0.224	-1	-0.131	-0.524	-0.776
gdppc	-0.109	-0.396	-1.092	-0.25	3.102***	0.644
	-0.348	-0.271	-1.033	-0.217	-0.795	-1.312
imports	2,520**	679.8	207	-630.1	5,333***	-492.2
	-970.3	-940.3	-4,668	-565.7	-1,583	-2,583
exports	-1,582	-355.5	465.2	1,215**	-6,949***	740
	-1,076	-913.2	-4,716	-588.6	-1,768	-3,135
interest_rate	-74.17	84.85	1,194	-87.34	1,682**	482.5
	-369.3	-271.6	-1,187	-229.3	-728.4	-605
unemployment	-570.7	-1,139*	-2,560	-149.4	3,108**	371.5
	-699.2	-605.8	-1,755	-458.3	-1,197	-836.4
capital_formation	-1,547**	-1,000	-1,925	591.3	-1,975**	-26.01
	-765.1	-757.9	-2,857	-428.8	-855.4	-1,991
Constant	39,324*	37,629*	67,321	-13,151	-23,183	-22,952
	-22,239	-22,451	-72,647	-13,885	-31,195	-35,243
Observations	92	92	92	92	92	76
R-squared	0.226	0.097	0.068	0.141	0.242	0.089

Table 5: Skilled Labor Migration and disaggregated FDI

VARIABLES	-1 wholesaletrade _fdi	-2 wholesaletrade _fdi	-3 deposit_ fdi	-4 insurance _fdi	-5 services _fdi	-6 other_fdi	-7 Information _fdi
skilled	-3.811	-3.811	-0.943	-2.109	-2.002	-23.80***	-3.222
	-2.715	-2.715	-1.935	-5.885	-1.65	-6.42	-3.553
gdppc	0.221	0.221	-0.173	0.11	0.346	4.793***	1.07
	-0.453	-0.453	-0.349	-1.241	-0.276	-1.24	-0.879
imports	1,490***	1,490***	833.4	2,587	51.12	-2,175***	-1,261*
	-547.6	-547.6	-592.7	-2,062	-315.4	-771.7	-729.2
exports	-343.3	-343.3	-490	-2,033	546.0**	1,940**	1,574**
	-524.9	-524.9	-487.7	-1,616	-274.4	-963.3	-698.1
interest_rate	-436.4	-436.4	67.18	1,513	-62.36	-769.1	237
	-366.9	-366.9	-342.8	-1,044	-238.1	-601	-533.5
unemployment	-1,153	-1,153	-1,138*	-1,834	-20.76	-905.9	75.63
	-694.3	-694.3	-590.2	-1,617	-468.2	-747.5	-1,239
capital_formation	-1,857**	-1,857**	-1,260	-3,422	-120.8	-3,432***	-218.1
	-891.3	-891.3	-794.1	-2,415	-581.7	-1,127	-1,302
Constant	32,430	32,430	36,983*	71,150	-13,605	-69,011*	-36,115
	-21,306	-21,306	-21,526	-67,391	-13,209	-36,701	-37,138
Observations	92	92	92	92	92	92	76
R-squared	0.231	0.231	0.098	0.06	0.132	0.248	0.089

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.1.1 interpretations

Regression analysis of aggregate FDI inflows (skilled + unskilled FDI sectors) and aggregate labor migrants (skilled + unskilled labor migrants) verified the applicability of the Heckscher-Ohlin model as we received statistically significant values consistent with theoretical predictions. Aggregating sectors and factors reveal migrants bring capital with them when migrating from Mexico into the United States. A significant correlation between aggregate FDI inflows and labor inflows indeed verifies findings from previous literature (Jokisch, 2006; Wilson, 2003; Aroca & Maloney, 2005). Despite the theoretical consistency of the Heckscher-Ohlin model, the explanatory value of the findings says little about the migrants themselves. Disaggregating the sectors (FDI) and factors (migrants) exposes a more revealing picture while offering greater theoretical applicability.

Regression analysis of disaggregate FDI flows (skilled, unskilled FDI sectors) and skilled labor migrant flows reveals a significant correlation between skilled and unskilled FDI inflow and skilled labor inflow as well as a significant correlation between skilled FDI outflow and unskilled labor inflow. Skilled migrants complement and bring capital investments of all sectors from Mexico into the United States while unskilled migrants substitute and cause capital investments of nonmanufacturing sectors to invest from the United States into Mexico. Empirical findings corroborate the Specific Factors model's theoretical predictions as well as with recent empirical literature (Gheasi et al, 2013; Tsai & Tsay, 2008; Klein & Ventura, 2009). Therefore, the Specific Factors trade theory offers a more complete picture of the relationship between capital and labor in terms of migration relative to the Heckscher-Ohlin model.

7. Discussion

7.1 Theory

Researchers must be mindful of the limitations and inconsistencies between theoretical predictions and empirical results to refine our understanding of theory. Despite the Specific Factors trade theory being utilized in recent empirical studies, testing the predictions empirically is necessary to enhance the theoretical framework. The Specific Factors trade theory describes the relationship between FDI (capital flows) and labor migration (labor flows) as complementary when labor is skilled and substitutable when labor is unskilled (Comolli, 2018). The data analysis finds skilled labor flows complements significantly with capital flows while unskilled labor either substitutes significantly or has no significant effect. Consequently, results corroborate the Specific Factors trade theory's predictions as unskilled labor did show substitutability with capital flows and reinforces the theoretical relationship of skilled labor and FDI sharing a statistically significant relationship.

   Though results corroborate the Heckscher-Ohlin model, the findings are less revealing than the Specific Factors model. Using an estimating equation that disaggregates capital sectors and labor factors by skill reveals a more powerful explanatory view, which can offer better theoretical and empirical considerations. Results between US and Mexico also find a stronger correlation using the Specific Factors estimating equation than the Heckscher-Ohlin estimating equation. Therefore, findings suggest the Specific Factors model has stronger explanatory value than the Heckscher-Ohlin model regarding migration in terms of capital and labor for the purpose of both policy and theoretical implications.

7.1.1 policy

Immigration policy is often proposed and essentially justified on the basis of augmenting economic productivity and growth through implementing quality-assurance on labor importation. Understanding the relationship between capital and labor flows sheds light on the relevance and applicability of immigration policy based on skilled-labor favoritism. Recent legislative activity suggesting a skilled-based point immigration system (115th Cong., 2017) likely manifested from the prevalence US public's views on unskilled immigration (Connor & Ruiz, 2019; Jones, 2019). Empirical results suggest disaggregating labor migrants by skill reveals different effects depending on the education attainment of the migrants. If the US is concerned with acquiring FDI inflow, then prioritizing skilled migrants may result in a preferred effect. However, unskilled migrants causing FDI outflow doesn't necessarily entail poor economic growth. Alternatively, increasing FDI outflow may result in increasing GNP rather than GDP, as GNP is not restricted to the domestic production and US companies may invest into US owned sectors abroad. Therefore, a skilled-based point immigration system being implemented into the US only seems to be justified whether the public is concerned specifically with FDI inflow, as concerns of unskilled migrants stunting economic growth is not necessarily evident.

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9. References

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