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Foreign Direct Investment and International Migration


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Abstract: This study explores the impact of macro-level processes of the global economy on international migration. The authors utilize a cross-national panel regression analysis to examine the effect of foreign direct investment on the level of emigration from 25 less-developed countries between 1985 and 2000. The findings indicate that the stock of foreign direct investment increases net emigration over time, while trade integration lessens these movements. The level of economic development exerts no independent effect on out-migration once other factors are controlled. The results are discussed in the context of contemporary development and migration theories.

Keywords: development ✦ foreign investment ✦ globalization ✦ migration ✦ population

Introduction

The contemporary global economy is characterized by international movements of capital and labor. The international movement of these factors of production, however, is certainly not a phenomenon unique to the contemporary global economy. Indeed, cross-national flows of capital (Dicken, 2003; Wallerstein, 1974) and labor (Castles and Miller, 2003; Portes, 1978) have been directly implicated in the structuring and development of the global economy throughout world history. In this respect, capital and labor movements are both a means of producing and an outcome of the global economy.
Distinctive of the contemporary global economy, however, is the magnitude of both capital and labor flows. In 2000, there were 175 million migrants living outside their home country (OECD, 2004), a number equivalent to the sixth most populous country in the world (Martin et al., 2006). Similarly, the inward stock\(^1\) of worldwide foreign direct investment\(^2\) (FDI) equaled US$5.79 trillion in 2000 (UNCTAD, 2005a), a level that is larger than the current size of the economy of any country in the world except the US (World Bank, 2006a).\(^3\)

The last decade of the 20th century is indicative of the upward trends in the mobility of both capital and labor. In general, the stock of foreign-born populations in OECD countries has increased since the early 1990s, continuing a trend across developed countries that began in the early 1980s (OECD, 1988). The upward trend in international migration worldwide is also evident in the trends in labor migration into OECD countries.

Capital flows mirror the upward trend in labor flows but are even more pronounced. The worldwide stock of inward FDI increased 991 percent between 1980 and 2000 (UNCTAD, 2005a). Over this same period, the average annual flow of inward FDI was US$553.18 billion (UNCTAD, 2005a). Developed countries received the largest share of FDI across the years represented, but developing countries received a growing share of FDI between 1980 and 2000, increasing from 25 percent in 1980 to 30 percent in 2000, and further increasing to 36 percent in 2004 (UNCTAD, 2005b).

The mobility of capital and labor is integrating the world’s markets, polities and cultures into an increasingly shared space. This article investigates the association between capital and labor movements in the contemporary global economy. Theories of international migration, global political economy and neoclassical economics are reviewed in order to develop an analytical framework and situate the empirical analysis. Using a panel regression analysis, the relationship between FDI and emigration is examined for 25 less-developed countries (LDCs) over the period 1985–2000. The findings from the analysis are discussed in the context of theories of international migration, global political economy and neoclassical economics.

**Literature Overview**

**Review of International Migration Studies**

Given the sheer magnitude of international migration, the late 20th century has been called ‘the age of migration’ (Castles and Miller, 2003). Understanding the causes and consequences of international migration, then, is becoming increasingly important, particularly for the construction of immigration policies. Despite the importance of the issue, however, theoretical explanations of international migration remain largely
While it is true that the attempt to develop a ‘grand theory of immigration . . . [would be] . . . futile’ (Portes, 1997b: 810), it is equally true that ‘in the absence of theory, what we have today is mostly an amorphous mass of data on immigration to different countries and a series of concepts whose scope seldom exceeds those of a particular nation-state’ (Portes, 1997b: 819).

Given the analytical fragmentation of the field, Massey (1999) and Massey et al. (1993, 2005) have attempted to integrate theories of international migration into a coherent framework. This theoretical synthesis is useful for situating the present study.

Studies of international migration can be differentiated in three manners: the level of analysis; the sample size of the study; and the point of focus in the process of migration. Briefly, studies of migration are often situated at the level of the individual, the household or the level of social structure. Individual- and household-level migration studies generally consider the decision-making process behind migration. Neoclassical economic explanations are prevalent here, as individuals or households are often argued to act rationally based upon an assessment of the costs and risks associated with movement (Borjas, 1989; Stark, 1991; Stark and Bloom, 1985; Stark and Taylor, 1989). Structural-level migration studies, however, are more interested in understanding how the social context conditions the decision to migrate independently of individual and household-level behavior.

Migration studies can also be differentiated by the sample size of the study. Previous studies have considered migration within a single country (Gonzalez and Maloney, 2005). Others have examined migration patterns between two countries (Massey and Espinosa, 1997; Sassen, 1988) or within regions (Diaz-Briquets and Weintraub, 1991; Gardezi, 1995; Hamilton and Chinchilla, 1991, 1996; Lim and Abella, 1994). There are noticeably fewer studies, however, that examine phenomena of migration cross-nationally and empirically (Portes, 1997b).

Finally, the study of migration is also differentiated by the focal point in the study of the migration process. In this respect, some studies have examined the origins or the causes of the migratory process (Diaz-Briquets and Weintraub, 1991; Portes, 1978, 1979; Portes and Walton, 1981; Ricketts, 1987; Sassen, 1988), while others have been more concerned with the perpetuation of migration flows once they have begun (Kandel and Massey, 2002; Massey, 1990b).

In the context of Massey et al.’s typology, the purpose of this research is to examine structural determinants of migration. The focus is explicitly structural with respect to the level of analysis, and emphasis is placed upon understanding the causes of international migration. While Massey et al. (1993: 455) are rightly ‘skeptical of structural theories that deny agency to individuals and families’, the purpose here is not to deny such agency to
individuals, but rather to investigate the nature of the social context within which individual, and household, migratory decisions are made.

Two structural determinants of migration are reviewed in the following section: FDI and economic development. Much of the research on migration is largely ‘data-driven’, lacking a direct theoretical connection (Portes, 1997b). Given that international migration is particularly ‘dynamic’, investigations into the phenomenon run the risk that ‘the theoretical apparatus used to apprehend migration may lag behind its actual evolution’ (Portes and Borocz, 1989: 606). It is therefore important to specify the causal mechanisms that link FDI, economic development and migration so that empirical investigations can more appropriately distinguish the relative importance of each.

The Effects of FDI on Economic Development in LDCs
International migration, economic development and FDI are implicated in a common social process across particular national contexts in the global economy. While international migration is often the subject of economic development research inquiries (Nyberg-Sorenson et al., 2002; Papademetriou and Martin, 1991), there is relatively less work on the conceptual and empirical relationship between FDI and international migration, and there are even fewer research inquiries that assess the relative importance of each of these phenomena in a single empirical analysis.

Conceptually, FDI could influence migration directly through its impact on the local labor market or indirectly through its effect on economic growth in LDCs. Where time is concerned, the former effect is often considered to be a short-run effect and the latter a long-run effect (Sauvant et al., 1993; UNCTAD, 1996), but there are few empirical examinations of either the time lag involved or of the causal nature of these relationships. Moreover, empirical findings of the direct and indirect effects of FDI on economic growth in LDCs are also quite varied, and substantial debate remains over the precise relationship between the two concepts. In general, empirical studies have found both positive and negative effects of FDI on economic growth in LDCs, and the effect of FDI varies according to the operationalization of the concept as well as the time horizon of the study and the locales or regions of the world studied.

Some studies have found that FDI has a negative effect on economic growth (Bornschier and Chase-Dunn, 1985; Chase-Dunn, 1975; Dixon and Boswell, 1996; Kentor, 1998, 2001; Kentor and Boswell, 2003). The theoretical argument behind the detrimental effects of FDI on economic growth is that by conferring ownership over economic operations in a host country, FDI penetration by transnational corporations (TNCs) constitutes a ‘control structure’ that allows foreigners to control significant components of the host country’s economic, political and social
structure (Bornschier and Chase-Dunn, 1985; Kentor, 1998). The penetration of foreign capital can lead to external dependence, which can in turn lead to a ‘disarticulated’ (Dixon and Boswell, 1996) or ‘structurally imbalanced’ (Portes, 1978) internal economy characterized by weak backward and forward linkages between sectors in the host economy. Without such linkages, the multiplier effects of economic growth cannot occur and economic development is attenuated as profits are repatriated to capital suppliers located outside the country.

Other studies have empirically found (De Soysa and Oneal, 1999; Firebaugh, 1992; Firebaugh and Beck, 1994) or argue (Ito and Iguchi, 1994; Sauvant et al., 1993; Tsay et al., 2003; UNCTAD, 1996) that FDI has a positive effect on economic development. From this perspective, FDI is not a mechanism of foreign control or influence, but is instead a resource flow that is beneficial for the development of the host economy. The theoretical argument behind the positive effect of FDI on economic growth is that FDI augments the domestic capital stock of the host country, thereby facilitating economic growth that otherwise may not have occurred in its absence. By inducing economic development, backward and forward production linkages develop, stimulating the multiplier effect and further increasing economic development in a cycle of growth.

The beneficial effects of FDI, however, are not limited to the augmentation of the domestic capital stock. Sauvant et al. (1993) argue that FDI from TNCs provide three additional growth-promoting benefits for the host economy. While transferring capital in the form of FDI from developed countries to LDCs, transnational corporations also transfer much needed technology to these countries. This technology stimulates organizational innovation in the particular receiving firm, but also throughout the supply chain while improving the efficiency of the means of production. Similarly, TNCs transfer significant knowledge embodied in human capital along with FDI into LDCs. This knowledge is transmitted ‘formally’ through training of a domestically-based managerial class, and ‘informally’ through ‘the transmission of values, attitudes and beliefs embedded in the organizational culture of these corporations that foster entrepreneurship and enhance productivity’ (Sauvant et al., 1993: 43). Given that 30–40 percent of all international trade occurs as intra-firm transfers (McMichael, 2004), TNCs also promote economic development by providing a means through which the LDC can participate in international trade (Sauvant et al., 1993). From this perspective, production for export is becoming an increasingly vital component of development strategies for LDCs. Indeed, as part of its ‘three pillars of cooperation’, the United Nations Development Program’s 2005 Human Development Report argues that trade can ‘unlock human potential’ by facilitating economic development and reducing inequality across the global economy (UNDP, 2005: 2).
The Effects of FDI on Migration in LDCs

Through its effect on economic growth, FDI could indirectly affect the likelihood of emigration from an LDC. While this effect is often considered to be a long-term effect, neither the time horizon needed for FDI or economic development to exert an effect on migration, nor the nature of the relationship, have been routinely confirmed by empirical findings. The lack of a conceptual and empirical understanding of these key relationships is evident in a number of studies. For example, Morrison (1982: 22) examined US policy on foreign aid, international trade and FDI with respect to their impact on migration and concluded that the effect of FDI on migration was an ‘unsettled issue’ because FDI creates employment but it also displaces employment. Ten years later, Ghosh (1992: 423) considered the relationship between economic development and migration as ‘unclear and largely undefined’. Similarly, Appleyard (1992: 251) called the relationship ‘unresolved’. Nine years later, the relationship was still ‘unsettled’, as Hayase (2001: 555) investigated the impact of Japanese FDI on East Asian economies and concluded that ‘such investment could influence international migration positively or negatively through employment creation . . . further empirical studies are needed to clarify these relationships’.

Of more interest here is the direct relationship between FDI and migration that is independent of the effect of economic development. Similar to the purported long-term indirect effect through economic development, the direct effect of FDI on migration is often considered to be a short-term effect, but again, this relationship has not been consistently verified empirically. This short-term effect is usually argued to work through the labor market in the LDC.

However, not only do the direct and indirect effects of FDI on migration remain uncertain, it is also not clear whether the effect of FDI precludes or stimulates emigration from LDCs. Neoclassical economic theory argues that FDI stimulates or creates employment in LDCs, and in doing so it reduces the necessity of emigration from the LDC (Borjas, 1999). In this respect, FDI acts as a substitute for migration. According to neoclassical economic theory, also, a differential in wage levels between places plays a central role in stimulating emigration. If the factors of production are completely free, then returns to capital and labor will equalize, or at a minimum, move toward equilibrium. Because any differential in wage levels between countries is reduced with mobile factors, migration slows or ceases, as labor is rewarded in each country more equally. If FDI generates increased employment opportunities in the LDC then it acts as a substitute for migration, but only if it can increase the wage level in the LDC (Borjas, 1989; Sauvant et al., 1993). Thus, FDI is beneficial to LDCs because it works on both sides of the economic equation. It reduces the ‘push’ or supply of migration because it creates employment and increases growth, and it also
reduces ‘pull’ or demand for migration by reducing the wage differential between countries (Sauvant et al., 1993). The UNCTAD agreed with the neoclassical economic interpretation of the relationship between FDI and migration: ‘FDI inflows are to economic hope as capital flight is to economic despair: opportunity-seeking migration declines with the former while it increases with the latter’ (UNCTAD, 1996: 53–4).

Studies of the Impact of FDI on Migration in LDCs

The relationship between FDI and migration has received attention in the newly industrialized countries (NICs) of East Asia. Although ultimately concluding that FDI could affect international migration ‘either positively or negatively’, Hayase (2001: 552) does argue that there is a positive association between Japanese FDI in East Asian countries and employment opportunities in East Asian host countries. Japanese FDI in East Asia increased from an annual flow of US$1.4 billion in 1985 to US$11.7 billion in 1995, while employment for Japanese affiliates in host countries increased to 1.8 million in 1999 from 456,000 in 1986 (Hayase, 2001). This association, however, was not tested empirically and the conclusion drawn was that ‘the creation of these opportunities would have some impact in terms of reducing outward migration’ (Hayase, 2001: 552). Similarly, using past levels of FDI and migration, Ito and Iguchi (1994) predict positive employment effects of Japanese FDI in Indonesia, Thailand, Malaysia and the Philippines into the early 21st century, and Liang and White (1997) find that FDI decreased the odds of inter-provincial emigration within China between 1983 and 1988, but this effect was not statistically significant.

Mexican migration has also been the focus of some investigations into the relationship between FDI and migration. Although not presenting their analysis under the aegis of neoclassical economics, Massey and Espinosa’s (1997) findings are consistent with neoclassical theory. In an extensive treatment of the determinants of migration between Mexico and the US, they find that the FDI growth rate reduces the rate of undocumented immigration to the US from Mexico and reduces the likelihood of repeat migrations by both documented and undocumented migrants, in addition to increasing the likelihood that documented migrants will return to Mexico (Massey and Espinosa, 1997). FDI has also been found to deter domestic migration within Mexico primarily through its beneficial effects on the labor market (Gonzalez and Maloney, 2005). Gonzalez and Maloney (2005) find that a doubling of FDI decreases inter-state migration within Mexico by 1.5 percent after controlling for the effects of cost of living, amenities, population size and a proxy for social networks.

Confounding the studies that find migration-reducing effects of FDI are studies that either argue for or empirically demonstrate migration-inducing effects of FDI in LDCs. Here, FDI is found to act not as a substitute for, but
as a complement to, migration by precluding or attenuating employment opportunities in LDCs, which stimulates out-migration. The central theoretical argument of this literature is that the penetration of the host economy by FDI can displace portions of LDC populations, while creating significant material and cultural linkages between the LDCs and the advanced, industrialized countries.

From this perspective, migration does not occur within autonomous or relatively self-contained nation-states, but within a single global economy characterized by an asymmetrical relationship of power between a more-developed core and a less-developed periphery (Portes, 1978; Portes and Borocz, 1989; Portes and Walton, 1981). Thus, FDI penetration into the host economies of LDCs generates emigration by creating imbalances or distortions of the internal economy, which ultimately can displace labor as the internal structure is ‘remolded’ to fit the external demands of the more advanced countries. The power differential within the global economy is manifested in the increased movement of capital and labor, as FDI generates an inexhaustible and inexpensive supply of labor that exists as a global labor supply (Sassen, 1988; Sharma, 1997).

For Sassen (1988: 20), FDI and migration are associated, but the relationship is ‘highly mediated’. The internationalization of production has served to articulate increasingly far-flung places into the rhythms of the global economy. As these places are incorporated into the world economy, migration becomes more likely for two distinct reasons. First, the internationalization of production has involved the development of export manufacturing and export agriculture, both of which tend to displace portions of the population by transforming subsistence workers into wage laborers and by feminizing the workforce (Sassen, 1988). FDI in export agriculture and export manufacturing tends to be capital-intensive and labor-saving, disrupting ‘traditional work structures’ and stimulating a ‘mobilized’ population in need of work to migrate either to urban areas within the country or to areas outside the country. Similarly, the disruption of traditional work structures involves the increased utilization of low-wage female labor, which has reinforced migratory tendencies in an already mobilized male population in many LDCs (Sassen, 1988).

Second, in addition to the more clearly evident material linkages that FDI creates between regions of the global economy, FDI is argued to create cultural or ideological linkages between such places (Sassen, 1988). The production of goods for more advanced, perhaps more ‘western’ countries in a sense ‘westernizes’ those producing the goods, creating a ‘cultural-ideological’ link between the LDC and the advanced countries that allows ‘emigration to the US to emerge as an option’ (Sassen, 1988: 20). Thus, taken together, FDI is argued to influence migration patterns through the creation of material and ideological linkages between sending and receiving
countries, the outcome being a ‘structure’ that facilitates migration (Sassen, 1988: 20). In this respect, Sassen (1993: 74) states, ‘Migrations do not just happen; they are produced. And migrations do not involve just any possible combination of countries; they are patterned.’

In general, the relationship between FDI and migration has not been thoroughly examined empirically. However, some studies have documented migration-inducing effects of FDI. Portes (1979) examined illegal Mexican migration to the US and concluded that dependence on foreign investment in Mexican industry was one of ‘four major contradictions’ in the process of capitalist development in Mexico that facilitated out-migration from Mexico to the US. Sassen (1988) is somewhat more cautious in attributing causal effects of FDI on migration.

Building on the works of Portes and Sassen, others have found migration-inducing effects of FDI. Yang (1998) has shown that a composite measure of US trade and FDI increased the prevalence of emigration to the US in a sample of 137 countries for the period 1984–93. The effect of US ‘economic involvement’ in sampled countries was statistically independent of the effects of such theoretically important measures as population growth rates, distance to the US, emigration policies in sending countries, education rates and GNP growth rates (Yang, 1998). Ricketts (1987) examined legal and illegal emigration patterns to the US from the Caribbean Basin and found that the growth rate in US FDI over the period 1970–9 had a statistically significant migration-inducing effect in a sample of 18 countries in the region. More recently, Labrianidis et al. (2004) found an association between FDI from Greece and increased emigration from the Balkan region into Greece during the 1990s, as Greece shifted quite quickly during the 1990s from a net capital importer to a net capital exporter. Following Sassen’s argument, FDI and migration were found to flow in opposite directions as complements not substitutes within the Greek–Balkan region, as Greek FDI generated the material and cultural linkages necessary to facilitate the complementary movement of labor out of the Balkans (Labrianidis et al., 2004).

**Data and Method**

This study addresses the discrepant findings and arguments from previous investigations into the relationships between FDI and international migration with a cross-national, empirical analysis of LDCs. The analysis is focused explicitly on LDCs for two reasons. First, the vast majority of international migrants originate in LDCs: two out of every three international migrants move from an LDC to a developed country (DC) or from an LDC to an LDC (UN, 2006). Second, the processes driving migration from DCs are qualitatively different from the processes driving migration from LDCs (OECD, 2004). Thus, it is important not to confound such divergent processes.
The countries in our sample and the time period examined are selected on the basis of data availability. Countries are included in the analyses if they have information on each of the variables. Similarly, the period 1985–2000 is examined because complete information on each of the variables included in the analyses was not available prior to 1985. Thus, the sample consists of 25 LDCs with complete information on migration and the relevant independent variables over the period 1985–2000.8

All variables included in the analysis, with the exception of the aggregate human capital measure, were logarithmically transformed to correct for skewness in the respective univariate distribution of each. The Appendix includes zero-order correlations and descriptive statistics for variables included in the analysis. With the exception of the FDI variables, data on all variables were gathered from the World Development Indicators database (World Bank, 2006b). Data on the FDI variables were collected from the UNCTAD World Investment Report 2005.

The dependent variable is net emigration ($\ln = \text{natural logarithm}$) in 2000. The World Bank estimates net migration as a residual after estimating population growth rates and birth and deaths. Because our primary theoretical interest is in understanding the structural factors that drive migration from LDCs, countries that experienced net emigration are included in the analysis. Including countries with net emigration also limits the possibility that the analyses would confound the divergent processes driving immigration and emigration. Thus, while this measure may conceal migrations within the country and international migrations into and out of the country, it is an appropriate endogenous variable for the purpose of this study.

Two separate measures of FDI were included in the analysis.9 FDI flow ($\ln$) measures the short-term net movement of FDI into or out of the host country for 1985. In the short-term, FDI may attract in-migration to areas of economic and labor market expansion, leading to a ‘growth pole’ phenomenon (Hite, 2004). Over time, however, this short-term effect may diminish, as economic development slows (Dixon and Boswell, 1996; Kentor, 1998). Thus, FDI flow is included to account for the potential difference between the short-term and long-term effects of FDI on migration. As a measure of the short-term movement of capital into or from the LDC, FDI flow is expected to exert a short-term, negative or deterrent effect on out-migration.

FDI stock ($\ln$) measures the accumulated annual flows of FDI into the host country as of 1985. FDI stock is an indicator of the long-term effect of accumulated capital flows present in the LDC and is expected to have a long-term, positive or stimulating effect on out-migration. This effect would be consistent with theories that consider FDI as a ‘control structure’ that is often detrimental to host country autonomy and development. Both
FDI flow and FDI stock were standardized on the level of GDP per capita for each LDC for 1985 in order to assess the extent of FDI penetration of the host economy relative to the size of the economy.

Previous studies have demonstrated the importance of analytically distinguishing between the effects of international trade, FDI and economic development in structural analyses of migration (UNCTAD, 1996). \textit{Exports (ln)} are measured as the total value of goods and services exported as a percentage of GDP in 1985. This measure is included to assess the extent that export production contributes to the total economy of the LDC, and can be interpreted as a measure of the extent of a country’s integration into the global economy (Chase-Dunn et al., 2000). The \textit{level of economic development (ln)} is measured as the level of GDP per capita for 1985. The level of development controls for differences in standards of living across countries. Countries with higher standards of living are expected to have lower levels of emigration, as employment opportunities are often adequate to absorb would-be emigrants (Martin and Taylor, 1996).

Three additional control variables were also included in the analysis. The \textit{population level (ln)} in 1985 was included to control for the size of the pool of potential migrants in each LDC, and the possibility of increased population ‘pressure’, both of which can lead to an increased likelihood of emigration (Lim and Abella, 1994: 236).

Despite the increased movement of labor and capital across borders within the global economy, nation-states still play a large role in the movement of labor as they exert control over borders, citizenship and immigration policy (Goss and Lindquist, 2000; Zolberg, 1989). Countries with more open, or democratic, political structures may have less restrictive immigration control policies (Freeman, 1995; Meyers, 2000). Thus, the effects of domestic political structure on migration are controlled for by including three dummy variables (free, partly free and not free) that assess the level of democratic development in the country. These measures were developed by Freedom House (2006), a non-governmental organization (NGO) that publishes an annual, quantitative survey report on the development of freedom in 192 countries worldwide.\textsuperscript{10}

Finally, migration has been shown to be selective of individuals with higher levels of income and education, as these traits provide individuals with the resources to take advantage of wage discrepancies across countries (Massey et al., 2005). LDCs with higher aggregate levels of human capital may therefore experience increased levels of emigration relative to countries with lower levels of human capital. The level of \textit{aggregate human capital} is measured as the gross secondary enrollment rate, which is the number of pupils enrolled in secondary school as a percentage of the population in the theoretical age group for secondary school.
Panel Regression Analysis

The analyses are conducted using panel regression analysis, a very common method of analysis with a long history of use in cross-national empirical research (Chase-Dunn, 1975; Firebaugh, 1992; Jorgenson, 2006; Kentor and Boswell, 2003; Shandra et al., 2004). Panel regression analysis uses data on units that have been measured repeatedly over time, or longitudinally (Finkel, 1995; Frees, 2004; Menard, 2002; Singer and Willett, 2003; Wooldridge, 2006). This approach is different from a cross-sectional research design, which analyzes data on units at a single point in time. In a cross-sectional research design, a dependent variable for country \( i \) at time \( t \) is regressed on independent variables for country \( i \) at the same time point. Panel regression analyses regress a dependent variable for country \( i \) at time \( t \) on independent variables for country \( i \) measured at a previous time point.

The models are estimated using panel regression analysis with a lagged endogenous variable (LEV). Panel models that include a LEV are also referred to as ‘static score’ or ‘conditional change models’ (Plewis, 1985). In a conditional change model, the effect of an independent variable on the dependent variable can be interpreted as the effect of the independent variable on the change in the dependent variable, holding the initial level of the dependent variable and all other independent variables constant (Finkel, 1995).

With respect to this study, including an LEV provides two advantages over unconditional change models. First, because prior emigration levels can exert a causal influence on later emigration levels (Massey, 1990a, 1990b), including the LEV in the regression equation statistically controls for the influence of the prior emigration level. Second, including a LEV can at least partially control for omitted variable bias by accounting for the effects of unmeasured variables on the current values of emigration (Finkel, 1995; Menard, 2002).\(^\text{11}\)

The panel regression models for net emigration are estimated in five-year intervals: 1985–90, 1985–95 and 1985–2000.\(^\text{12}\) In each of the intervals, the independent variables are measured in 1985. The dependent variable is measured in 1990, 1995 and 2000. This method of conducting analyses is used in order to demonstrate the effect of the independent variables on the dependent variable over time. The purpose is to examine how the independent variables influence the level of emigration at 5-, 10- and 15-year time lags.

Two models were estimated for each time period. In model 1, the level of emigration is regressed on the three most commonly cited factors that are argued to influence migration: FDI, the level of economic development (GDP per capita) and international trade (exports per GDP). In model 2, the level of emigration is regressed on three additional variables that could influence the level of emigration: domestic political structure, aggregate human capital and population level. A measure of out-migration in 1985 was included as an LEV in all of the models.
**Table 1** Unstandardized Coefficients from the OLS Regression of Net Emigration (ln) on FDI and Other Independent Variables: 25 LDCs, 1985–2000

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>1990</th>
<th>1995</th>
<th>2000</th>
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<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
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<tr>
<td>FDI stock/GDP, 1985 (ln)</td>
<td>.150</td>
<td>.149</td>
<td>.400*</td>
</tr>
<tr>
<td>( .158)</td>
<td>( .190)</td>
<td>( .171)</td>
<td>( .184)</td>
</tr>
<tr>
<td>FDI flow/GDP, 1985 (ln)</td>
<td>−.222</td>
<td>−.167</td>
<td>−.432*</td>
</tr>
<tr>
<td>( .155)</td>
<td>( .176)</td>
<td>( .167)</td>
<td>( .171)</td>
</tr>
<tr>
<td>GDP per capita, 1985 (ln)</td>
<td>.341</td>
<td>.264</td>
<td>.380</td>
</tr>
<tr>
<td>( .213)</td>
<td>( .257)</td>
<td>( .230)</td>
<td>( .249)</td>
</tr>
<tr>
<td>Exports/GDP, 1985 (ln)</td>
<td>−.795</td>
<td>−.796</td>
<td>−1.433**</td>
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<tr>
<td>( .396)</td>
<td>( .625)</td>
<td>( .427)</td>
<td>( .605)</td>
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<tr>
<td>Population level, 1985 (ln)</td>
<td>.078</td>
<td>.191</td>
<td>.244</td>
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<td>( .156)</td>
<td>( .151)</td>
<td>( .169)</td>
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<tr>
<td>Secondary school enrollment, 1985</td>
<td>.005</td>
<td>.019</td>
<td>.016</td>
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<td>( .014)</td>
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<th>Independent variables</th>
<th>1990</th>
<th>1995</th>
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<tr>
<td>'Free' political structure</td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
</tr>
<tr>
<td></td>
<td>.480 (.536) [.208]</td>
<td>.534 (.519) [.187]</td>
<td>.289 (.580) [.091]</td>
</tr>
<tr>
<td>'Partly free' political</td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
</tr>
<tr>
<td>structure</td>
<td>.283 (.554) [.118]</td>
<td>.445 (.536) [.149]</td>
<td>.434 (.600) [.131]</td>
</tr>
<tr>
<td>Out-migration, 1985 (ln)</td>
<td>.474** (.133) [.565]</td>
<td>.405* (.170) [.483]</td>
<td>.509** (.143) [.490]</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>.521 .637</td>
<td>.441 .659</td>
<td>.647 .653</td>
</tr>
</tbody>
</table>

Notes: Standard errors are in parentheses and standardized coefficients are in square brackets.  
* p < .05; ** p < .01; *** p < .001 (two-tailed tests).
Results

The most significant finding of this study is that the stock of FDI has a significant long-term positive effect on the level of emigration over the period 1985–2000. As hypothesized, the FDI stock does not exert an influence on the level of emigration in the first five-year interval (beta = .149), but becomes statistically evident in the 1985–95 time period (beta = .427), and becomes stronger in the 1985–2000 time period (beta = .484). Moreover, when it is statistically significant, the stock of FDI has the second largest effect on the level of emigration with respect to all other independent variables in the models (std beta [1995] = .439; std beta [2000] = .449). A LDC’s stock of FDI, then, increases the level of emigration from the country in the long term. Table 1 provides the results of the panel regression analysis.

The flow of FDI has a significant long-term negative effect on emigration. This independent effect is somewhat contrary to the expected relationship between FDI flows and the level of emigration in that the effect is only moderately strong in the 1985–90 time period (beta = −.167), but it becomes stronger in the 1985–95 time period (beta = −.354) and in the 1985–2000 period (beta = −.402). This effect also remains negative, indicating that the flow of FDI in 1985 exerts a long-term deterrent effect on the level of emigration over the 15-year period studied.

The level of emigration is also significantly influenced by integration into the global economy, as measured by exports as a percentage of GDP. Higher levels of exports as a share of GDP have a long-term negative, or deterrent, effect on the level of emigration. This effect is not statistically evident in the initial 1985–90 period, but it does become evident in the 1985–95 period (beta = −1.467) and is also evident in the 1985–2000 period (beta = −1.408). Exports therefore decrease the level of emigration from the country in the long-term, and this effect is the largest effect on the level of emigration independent of all other variables across all models and time periods with the exception of the 1985–90 period, when the LEV exerts the largest effect on the level of emigration.

A country’s level of GDP and level of population are two variables that are widely considered to be important influences on migration patterns. Neither the effect of GDP per capita nor the effect of population level is statistically evident in any time interval included in the 1985–2000 time period when the effects of FDI flows and stocks, exports, aggregate human capital and political structure are controlled for in the analysis.

The models also statistically controlled for the effects of aggregate human capital present in the LDC, and for the type of political structure present in the LDC. No significant effects for either of these variables were found in any of the time intervals included in the analysis.
Cross-national flows of labor and capital are integrating disparate places and peoples into an increasingly single, shared place (Giddens, 1990; Held et al., 1999; Kentor, 2000). International capital flows link national economies into a larger global political-economic context (Chase-Dunn, 1998). The integration of national economies into a world marketplace influences human migration patterns, as domestic labor markets adjust to global economic and political influences (Castles and Miller, 2003; Massey et al., 2002, 2005). Global integration through cross-national flows of capital and labor is not specific to the present epoch, but it is instead a historical process of social change that has become more important as the world has become more integrated (Hatton and Williamson, 2006; Wallerstein, 1974).

While global integration has become an important process of social change, our knowledge of the relationship between capital and labor flows – two factors that drive this process – remains limited largely to knowledge derived from country-specific studies (Massey et al., 1993; Portes, 1997b). This study addresses this lacuna in the literature with a cross-national, empirical analysis of LDCs. By utilizing multivariate panel regression, this study provides more systematic or robust insight into key relationships than is possible with case study design methods because cross-national research designs allow examinations of the ‘extent to which theoretical propositions travel’ (Portes, 1997b: 820).

The most important finding from the analysis was that the stock of FDI has a long-term positive effect on the level of emigration in the sample of LDCs. This effect was evident with a 10-year lag, and became stronger over a 15-year lag. Data limitations did not allow for an assessment of the effect at longer lags, but the findings strongly suggest that the effect of FDI stock may increase at even longer time lags. Over time, the stock of FDI displaces, or promotes, migration from LDCs in a manner that is consistent with global political economy theories.

The particular mechanisms through which FDI promotes emigration over the long-term should be further studied and developed. Global political economy theories contend that the FDI stock could increase emigration levels in LDCs indirectly by reducing the rate of economic growth, which would reduce employment opportunities and lower wage levels. The stock of FDI could also generate emigration from LDCs more directly by incorporating a larger proportion of the population, including women, as wage labor, thereby disrupting traditional work structures and mobilizing large segments of the population. The findings provide support for further theoretical and empirical refinements in this area.

The analysis also demonstrates the importance of analytically distinguishing between the short-term and long-term effects of FDI on migration.
While the long-term stock of FDI promotes emigration, the analysis provides evidence that the short-term flow of FDI impedes emigration from LDCs. This finding supports ‘growth pole’ theories, which contend that short-term capital flows draw migrants into areas of economic expansion. In such areas, capital flows generate employment and expand labor market opportunities, thereby reducing the level of emigration.

While the short-term, negative effect of FDI flow was expected, the long-term negative effect of FDI flow was not hypothesized. This finding suggests that it may be necessary to further distinguish between FDI in different sectors of the host economy, as FDI in each of these sectors may have differential effects on migration patterns (Sassen, 1988). It may be that the long-term negative effect of FDI flow reported here reflects the differential effects of FDI across sectors. This is a worthwhile area of investigation for future research.

The analysis also suggests that higher levels of export production decrease levels of emigration in LDCs. Integration into the global economy through expanding export production may decrease emigration levels in LDCs by increasing the level of economic development and expanding employment opportunities, as neoclassical theory contends. If future studies replicate this finding, these results suggest a more nuanced approach to the study of migration patterns than either global political economy or neoclassical economics currently provides. However, it may be that different forms of trade integration have different effects on migration in LDCs. Similarly, there is reason to believe that the effect of exports may not hold after controlling for the potential differential effects of FDI across sectors. This is because FDI, as a capital flow, underlies much of the expansion of export production in LDCs. In this respect, the effect of exports found here may be epiphenomenal to capital flows in different sectors of the host economy. Nevertheless, further distinguishing between the relative effects of trade in primary and secondary goods is warranted on the basis of this research.

Two additional findings are worth noting. First, the analysis does not find evidence that the level of economic development affects migration. Migration levels may appear to respond to changes in the level of economic development, as the neoclassical economics literature suggests. However, this analysis suggests that migration levels are actually influenced by structural factors such as trade integration and foreign capital, which are situated at the global level. These global, macro-structural factors seem to be more important than the level of economic development per se in determining migration levels in LDCs. Thus, this analysis suggests a reorientation of the literature away from economic development per se as a factor influencing migration patterns in LDCs, and toward a focus on the macro-structural factors that impede or promote either or both economic development and migration.
Finally, the findings also provide empirical support for the theory of cumulative causation, which contends that migration, once initiated, has a strong ‘internal momentum’ that increases the level of emigration over time (Kandel and Massey, 2002; Massey, 1990a, 1990b; Massey et al., 2005). Emigration has two effects that make future emigrations more likely. First, migrants build knowledge about the migratory process and accumulate resources, both financial and social, that reduce the costs and risks associated with movement (Massey, 1990a, 1990b; Massey et al., 2005). When the risks and costs of migration are reduced, higher levels of emigration can be expected. Second, migrants also remit money, which can increase inequality and a sense of relative deprivation in the sending community, enlarging the potential pool of migrants (Stark, 1991; Stark and Taylor, 1989).

While the findings from this analysis have important implications for theoretical and empirical research, an important limitation of this study is the relatively small sample size. Although the sample of countries included in the analysis represents a cross-section of countries across the world, similar findings in a larger sample of countries would lend additional credence to the findings of this study.

Notwithstanding this limitation, this analysis suggests the importance of FDI for future macro-structural research on migration. As the movement of humans in general, and labor power in particular, migration is a critical issue currently confronting both developed and less-developed countries. On the one hand, emigration from an LDC may be beneficial in that it can serve as a ‘release valve’ for social, political and economic tensions. Similarly, emigration may even serve to equalize wage levels across the global economy, thereby reducing emigration levels over time. On the other hand, however, emigration is detrimental in that it removes valuable human capital from LDCs. Although an expanding population can produce difficulties for a country, particularly if the economy cannot absorb the expanding population, a larger population can be viewed as beneficial in that there is simply more labor power to utilize in the drive toward increased economic development. To the extent that an LDC invests in the training and education of its population, emigration results in a loss of such an investment, and therefore a loss of a potential source of economic development.

The importance of migration to LDCs should provide impetus for cross-national research that attempts to uncover the general, macro-structural factors that influence human movement in the contemporary global economy. This study provides initial findings in this area of research, but much work still remains.
## Appendix

Zero-Order Correlations, Means, Standard Deviations, and Skewness Statistics

<table>
<thead>
<tr>
<th></th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>(d)</th>
<th>(e)</th>
<th>(f)</th>
<th>(g)</th>
<th>(h)</th>
<th>(i)</th>
<th>(j)</th>
<th>(k)</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Out-migration, 2000 (ln)</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.748</td>
<td>1.621</td>
<td>−.541</td>
</tr>
<tr>
<td>(b) Out-migration, 1995 (ln)</td>
<td>.985</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.873</td>
<td>1.461</td>
<td>−.330</td>
</tr>
<tr>
<td>(c) Out-migration, 1990 (ln)</td>
<td>.888</td>
<td>.906</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>11.790</td>
<td>1.180</td>
<td>−.049</td>
</tr>
<tr>
<td>(d) FDI stock/GDP, 1985 (ln)</td>
<td>−.182</td>
<td>−.217</td>
<td>−.267</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>−16.789</td>
<td>1.501</td>
<td>−.987</td>
</tr>
<tr>
<td>(e) FDI flow/GDP, 1985 (ln)</td>
<td>−.383</td>
<td>−.403</td>
<td>−.341</td>
<td>.594</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>−19.482</td>
<td>1.378</td>
<td>−.333</td>
</tr>
<tr>
<td>(f) GDP per capita, 1985 (ln)</td>
<td>−.091</td>
<td>−.076</td>
<td>−.012</td>
<td>.265</td>
<td>.312</td>
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<td></td>
<td>6.800</td>
<td>.855</td>
<td>−.296</td>
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<tr>
<td>(g) Exports/GDP, 1985 (ln)</td>
<td>−.572</td>
<td>−.584</td>
<td>−.511</td>
<td>.566</td>
<td>.330</td>
<td>.349</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.020</td>
<td>.561</td>
<td>.091</td>
</tr>
<tr>
<td>(i) Secondary school enrollment, 1985</td>
<td>.075</td>
<td>.105</td>
<td>.102</td>
<td>−.058</td>
<td>−.012</td>
<td>.381</td>
<td>.340</td>
<td>.005</td>
<td></td>
<td></td>
<td></td>
<td>41.960</td>
<td>17.082</td>
<td>−.022</td>
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<tr>
<td>(j) ‘Free’ political structure</td>
<td>−.025</td>
<td>.055</td>
<td>.110</td>
<td>−.074</td>
<td>−.188</td>
<td>.141</td>
<td>.120</td>
<td>−.035</td>
<td>−.012</td>
<td></td>
<td></td>
<td>.48</td>
<td>.510</td>
<td>.080</td>
</tr>
<tr>
<td>(k) ‘Partly free’ political structure</td>
<td>.136</td>
<td>.077</td>
<td>.014</td>
<td>.100</td>
<td>.064</td>
<td>−.212</td>
<td>−.077</td>
<td>.064</td>
<td>−.023</td>
<td>−.721</td>
<td>.36</td>
<td>.490</td>
<td>.583</td>
<td></td>
</tr>
</tbody>
</table>
Notes

1. Major reporting agencies differentiate between inward and outward FDI stocks and flows. Theoretically, inward and outward stocks and flows should be equal, but in practice they are slightly different, reflecting different accounting standards among sending and receiving countries and corrections made to reporting. UNCTAD generally prefers to report outflows for analyzing FDI trends, as developed countries are assumed to have more accurate reporting capabilities. Inward flows and stocks are used here because the interest lies primarily in explaining the effects of FDI on LDCs, and LDCs tend to be net capital importers.

2. FDI is to be distinguished from foreign portfolio investment (FPI), which includes stocks, bonds and other equity investments. The critical distinction between FDI and FPI is that FDI confers legal and usually lasting control over operations to the investor. See Dunning and Dilyard (1999) for a more detailed treatment of the difference between FDI and FPI. FDI is used here as a measure of capital flows because of its utility as a mechanism of direct control, or influence in the host economy, and because it represented more than half of all private capital flows in 2006 (Stallings, 2007).

3. US GDP in 2004 was US$11.7 trillion (World Bank, 2006a). In comparison, Japan’s GDP was US$4.7 trillion, Germany’s GDP was US$2.7 trillion, the UK’s GDP was US$2.1 trillion and France’s GDP was US$2.0 trillion (World Bank, 2006a).

4. There is considerable overlap, of course, between categories in this typology.

5. The dichotomy between individual and structural-level migration studies is presented here to make the contrast within migration theory more apparent. There is a large and growing literature on ‘mezzo-level’ migration studies, which is concerned with understanding how social networks are implicated in the migration process. See Massey (1990a, 1990b) and Portes (1997a) for examples of this literature.

6. For example, most studies of the role of social networks in migratory processes are in fact studying the perpetuation of migration, often through the process of ‘cumulative causation’ (Massey, 1990a, 1990b).

7. FDI has been shown, however, to have a positive effect on economic growth in the short term. See Kentor (1998).

8. The countries included in this analysis are: Bolivia, Botswana, Brazil, Columbia, Dominican Republic, Egypt, Fiji, Guatemala, Guyana, Haiti, India, Indonesia, Lesotho, Mali, Mauritius, Mexico, Morocco, Nepal, Nigeria, Peru, Philippines, Sri Lanka, Syria, Thailand and Tunisia.

9. The use of two separate FDI measures follows Bornschier et al. (1978), who reviewed the literature on the effects of FDI on economic growth and found that studies using FDI stocks reported different findings of the FDI effect on growth than studies using FDI flows. FDI stocks have a long-term, negative effect on growth, while FDI flows have a short-term positive effect on growth. Hence the need to control for the unique and independent effects of both FDI stocks and FDI flows.

10. The Freedom House measures of democratic development are commonly utilized in political, sociological, environmental and economic cross-national...

11. Moreover, inclusion of the LEV is common practice among similar structural cross-national studies investigating the effects of FDI on economic growth (Chase-Dunn, 1975; Dixon and Boswell, 1996; Firebaugh, 1992; Kentor, 1998).

12. Five-year intervals are used here out of necessity because the World Bank only reports net migration estimates in five-year intervals.

13. Theory suggests that the relationship between economic development and migration may take the form of an inverted-U, or migration hump. We tested for the existence of a migration hump by including a quadratic term for GDP per capita, but neither of the terms was statistically significant.

14. Theory suggests that the effect of FDI may work through the effect of GDP if FDI impacts the labor market through its effect on employment. Thus, interaction effects between FDI and GDP and FDI and exports were tested and none of the coefficients was statistically significant at any of the time intervals.

References


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