FOREIGN DIRECT INVESTMENT

AND WELL-BEING, 1985-2010:

A STRUCTURAL APPROACH

by

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ABSTRACT

This paper examines the relationship between foreign direct investment and well-being in poor countries, as measured by life expectancy and child mortality. The effect of foreign direct investment on impoverished nations has long been the subject of debate in both economics and sociology. While much of the previous literature has investigated foreign direct investment's effect on measures of well-being, this paper constitutes a new contribution by examining the structure of this investment in the form of foreign direct investment concentration. Foreign direct investment concentration is the proportion of investment from the top investing nation, and greater levels are hypothesized to have a detrimental impact on life expectancy and under-five mortality.

Drawing from a variety of theoretical perspectives, including modernization/liberalism and dependency theory, this paper uses a panel data set and a longitudinal methodology. The hypothesis is partially supported: while neither FDI nor FDI concentration are significant indicators of life expectancy or under-five mortality, FDI concentration reduces life expectancy in Asian countries.

Dedicated to my brilliant mother, Dr. Nancy E. Winitzky. Thank you for teaching me

everything I know.

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CHAPTER 1

INTRODUCTION

The scope of the problem

In this paper I examine the relationship between economic globalization and human well-being. More specifically, I wish to unpack the effects of both the structure and magnitude of foreign direct investment (FDI) on child mortality and life expectancy in the less developed world. This is a novel approach to this type of research, as the structure of FDI is often overlooked as an important explanatory factor.

The study of infant mortality and life expectancy in less developed countries (LDCs) fits into the broader scope of research into the quality of life for people dwelling in impoverished nations. Poverty in the less developed world is a pressing issue, with 1.4 billion people living on less than $1.25 per day (International Fund for Agricultural Development 2011). Though such projects as the United Nations' Millennium Development Goals (MDG) shed light on poverty in poor countries and motivate action to reduce it, the problem persists. The UN stresses eight major areas for improvement in its MDG project: end poverty and hunger, universal education, gender equality, child health, maternal health, combat HIV/AIDS, environmental sustainability, and global partnerships.

While all the goals are important, I have chosen to focus on infant mortality and life expectancy for several reasons. First, preservation of life and the lives of one's

children is arguably the most fundamental piece of well-being. The infant mortality rate and life expectancy of a country displays clearly, and in a simple snapshot, the extent of human suffering. Second, these measures are important indicators of other aspects of well-being: a nation with low infant mortality and high life expectancy will likely thrive in other areas as well. Third, observing and understanding differences in infant mortality and life expectancy between countries throws light on the most basic inequalities in the world.

The UN reports that, despite continued efforts, "child deaths are falling, but not quickly enough" (United Nations 2010:1). Developed nations have an average under-five mortality rate of eight deaths per 1,000 live births. In less developed countries, the figure is nine times higher, at 72 deaths per 1,000 live births. The deaths of young children in poor countries are largely due to "malnutrition and lack of access to adequate primary health care and infrastructure, such as water and sanitation" (United Nations 2010:1). Similarly, life expectancy at birth in the most developed countries is about 77 years; in LDCs, it is only about 57 (United Nations 2011). On average, people in LDCs can anticipate a lifespan fully twenty years shorter than their counterparts in developed countries.

Life expectancy at birth is one of three indicators that make up the UN Human Development Index (HDI), along with measures of education and income. The impetus for developing the HDI was to provide a metric for development not solely based upon country-level economic indicators like GDP. Life expectancy is included in the index as a proxy for the ability of a person in a given country to live "a long and healthy life" (United Nations n.d.:4).

Reducing infant mortality and increasing life expectancy are worthy ends in and of themselves, as these are painful and traumatic experiences for families as well as the larger community. However, there is also evidence that improvements in these areas can make national economies stronger, as the workforce is happier, healthier and more reliable. It is my goal in this paper to come to a better understanding of one of the causes of differences in infant mortality and life expectancy between nations, and thereby contribute to the improvement in quality of life for people in LDCs.

<div align="center">Hypotheses</div>

This paper contributes new ideas to the relationship between FDI and infant mortality/life expectancy in two areas. First, I will examine both the structure and the magnitude of FDI. While previous studies have focused mainly on magnitude, there has been no published research to date exploring the effects of the structure of FDI on measures of well-being. While magnitude refers to the amount of foreign dollars invested into a less developed economy, structure refers to the type of investment. I will consider FDI concentration, the proportion of FDI contributed by the single largest investing nation. Second, the data and methodology I use are the most current available. I have access to the most recent data available for these measures. I utilize longitudinal panel analysis, the standard statistical method for these types of data.

I hypothesize the structure of FDI and its magnitude have different effects on infant mortality and life expectancy. Previous researchers have disagreed on whether the magnitude of FDI is on balance positive or negative for well-being in LDCs. The reason for the divergent findings may be due to differences in the structure of that investment (Kentor and Boswell 2003). Regardless of the amount of investment, the type of

investment and where the investment originates may be important. I hypothesize that, when controlling for structure of investment, the effect of magnitude of investment will wash out. Greater FDI concentration will have a negative impact on human well-being, reflecting a situation in which a single investing country has greater control over a less developed economy. Thus, decision-making in the interest of the needs of the LDC may be hindered.

Hypothesis 1: Greater FDI penetration reduces life expectancy

Hypothesis 2: Greater FDI concentration reduces life expectancy

Hypothesis 3: Greater FDI penetration increases under-five mortality

Hypothesis 4: Greater FDI concentration increases under-five mortality

CHAPTER 2

LITERATURE REVIEW

In the literature, four distinct modes of thinking emerge to explain the variation in infant mortality and life expectancy across LDCs: modernization/neoliberalism, dependency/world system, gender stratification, and developmental state theories. While modernization/neoliberalism and dependency theories tend to dominate, the gender stratification and developmental state theories are important variants. Neither are as well fleshed out or thoroughly explored as modernization and dependency, but both have added important theoretical concepts to the field.

Sociologists and thinkers in sister disciplines tend to agree that economic development—the creation of a robust, diversified and growing economy—is a precursor to social development, which yields an improvement in quality of life. Where they differ is how to bring about such economic development. Modernization theorists and neoliberals point to internal barriers; dependency theorists point to external barriers.

Modernization/Neoliberalism

Neoliberalism is the doctrine that has prevailed as the dominant economic policy framework in contemporary globalization and international trade. Its influence is so profound that it is regarded by many as simply the "common sense" approach (Kukoč 2009:65). Its philosophical predecessor is classical liberalism, and many of the ideas developed by the early economists Adam Smith and David Ricardo in the eighteenth and

nineteenth centuries (Kiely 2007). These thinkers stressed the importance of free markets unencumbered by government regulations or trade barriers in initiating and sustaining economic growth (Smith 1982). In addition, Ricardo argued regions should specialize in producing certain goods and services that lend them a comparative advantage (Ricardo 1948). Combined with minimal regulations and tariffs, specialization means consumers may have access to the highest quality goods at the lowest cost; meanwhile, producers may reap the financial benefits. In this way, the market will tend to regulate itself, as producers of lower quality or higher cost goods will be eliminated by their competition (Smith 1982).

The approach of these early liberal economists was highly nuanced. While Smith "has sometimes been caricatured as someone who saw no role for government in economic life" (The Concise Encyclopedia of Economics 2008), in fact he advocated for a strong state to intervene in the interest of the public good. These interventions include enforcing patent laws, protecting private property, and building and maintaining physical infrastructure.

In the postWorld War II, postcolonial era, economists and other social scientists adapted this approach to improving the lot of those living in the so-called Third World and called it "Modernization Theory" (Shandra et al. 2004, 2005). For sociologists like W.W. Rostow (1960) and Alex Inkeles (1969), "development was a question of instilling the 'right' orientations—values and norms—in the cultures of the non-Western world" (Portes 1997:230). Modernization theorists emphasized the importance of imitation in development (Shandra et al. 2004, 2005; Shen and Williamson 2000). They argued that traditional societies can modernize only if they undergo certain structural changes similar

to those undertaken by European countries in the previous century (Boehmer and Williamson 1996; Shen and Williamson 1997).

These changes included internal factors as well as external linkages to more developed economies (Shen and Williamson 2000). Most basic to the modernization approach is the idea of a free market, as it is believed to be the most efficient means by which to distribute scarce goods (Rostow 1960). Global economic openness is thought to bring the greatest benefits to the most people (Mihalache-O'Keef and Li 2011), so LDCs were encouraged to attract foreign capital and trade. This interaction would in short order lead to knowledge and technology transfers to LDCs (Rostow 1960). In addition, LDCs must focus on improving educational opportunities, invest in industrialization, and encourage the growth of cities (Shen and Williamson 2000).

Once a nation has undergone this transformation from a traditional to a modern society, other benefits will naturally accrue (Shandra et al. 2004, 2005). Modernization theorists argue that industrialization and economic development promote human well-being by fostering "improvements in education, housing, nutrition, health care, sanitation and various public services" (Frey and Field 2000:217). Technology spillovers as a result of trade with more developed economies will improve health and medical care in LDCs (Owen and Wu 2007). Most important for this paper, modernization is thought to reduce infant and child mortality (Frey and Field 2000; Owen and Wu 2007). In short, developing economies greatly benefit from their links with those that are more advanced (Mihalache-O'Keef and Li 2011).

Modernization theorists recognize that not everyone benefits from industrialization and economic growth. In fact, greater income inequality is expected to

occur in the early stages of modernization (Kuznets 1963; Stokes and Anderson 1990), though countries will eventually achieve a more equitable distribution of income over the long term. Kuznets (1963) hypothesized that the relationship between gross domestic product (GDP) per capita and income inequality was U-shaped: at lower and higher levels of development, income distribution is fairly equitable; at only modest levels of development, inequality is quite high. However, "even if dependency leads to inequality and relative deprivation, most of the population reaps absolute gains through rising standards of living, increased wages, and ultimately better well-being" (Brady, Kaya, and Beckfield 2007:3). While it is not perfect, "aggregate economic growth benefits most of the people most of the time; and it is usually associated with progress in other, social dimensions of development" (Stiglitz and Squire 1998:139).

Following the global economic crises of the 1970s and 1980s, economists began to rethink some of their long-held principles. During these decades, "import substitution, five-year plans, government ownership and control of strategic industries, regulation of the labor market and state controls over the flow of savings and investment seemed less effective" (Fine, Lapavitsas, and Pincus 2001:x). The "new political-economic liberalism—neoliberalism—mandated the removal of governments' hold over the economy and the reintroduction of open competition into economic life" (Cohen and Centeno 2006:33). In developed countries, certain elements of postwar Keynesianism, such as social security and worker protections, began to be rolled back in favor of market solutions (Massey et al. 2006). Meanwhile, in the LDCs, supranational organizations such as the International Monetary Fund and the World Bank began to encourage development strategies based on the new economic orthodoxy (Cohen and Centeno

2006).

　　While neoliberals maintained that the benefits able to be accrued through economic growth were the same, the means by which to attain that growth shifted. Economist John Williamson coined the term "Washington Consensus" in 1989 (Sheppard and Leitner 2010) to describe the neoliberal approach, "10 policy instruments about whose proper deployment Washington can muster a reasonable degree of consensus" (Williamson 1990:7). These prescriptions include 1) fiscal discipline, and the avoidance of large debts relative to GDP; 2) redirection of subsidies toward education, health care and development of infrastructure rather than consumer goods, as well as overall reduced government expenditure; 3) tax reform to reduce the marginal tax rate; 4) interest rates being determined by the market; 5) exchange rates being determined by the market; 6) export-oriented trade policy; 7) liberalization of foreign financial flows such as FDI; 8) privatization of state enterprises; 9) deregulation; and 10) legal security of private property rights. For LDCs, this meant a shift from governments to markets (Williamson 1990) and greater integration with the global economy through trade, investment, and financial liberalization (Dollar and Kraay 2002). In addition, the neoliberal approach stressed an export-led growth strategy rather than the import-substitution one that dominated the earlier era (Stiglitz 2002).

　　In more recent years, a postWashington Consensus has begun to emerge. The new neoliberalism retains a belief in the global capitalist free market, but makes space for some Keynesian prescriptions (Sheppard and Leitner 2010). Shaped in large part by the ideas of the Nobel laureate Joseph Stiglitz, these new development economists point out the imperfections of a market system in which information does not flow freely to all

parties (Fine 2001). It remains to be seen whether the new development economics represents a significant departure from neoliberalism, or is merely a tweak (Fine 2001; Sheppard and Leitner 2010). Those at the other end of the neoliberal spectrum still contest this view. In recent years they have advocated for an even more extreme market approach, including the privatization of education and other sectors previously seen as the purview of the state (Collins and Wiseman 2012; Klees, Samoff, and Stromquist 2011).

Sociologists and economists alike have found empirical support for the neoliberal and modernization perspectives in explaining differing rates of infant and child mortality. Shin (1975) observed that, while social development indicators may account for more of the differences in infant mortality cross-sectionally, longitudinal analysis reveals economic development is more important. Yang and Pendleton (1980) concluded economic development indirectly decreases infant mortality by improving living standards. In a seminal work, Firebaugh and Beck (1994) found beneficial effects of economic development are "large and robust" (631). Pritchett and Summers (1996) concluded "over half a million child deaths in 1990 alone can be attributed to poor economic performance in the 1980s" (841). More recently, Shandra et al. (2005) found mixed results, but concluded high levels of development as well as education helped decrease infant mortality in LDCs. Finally, Owen and Wu (2007) found increased trade openness is associated with lower infant mortality rates.

There has been similar support for the positive effects of FDI on life expectancy. Firebaugh and Beck (1994) found that life expectancy tends to increase with greater FDI. Similarly, Owen and Wu (2007) concluded that, while the effects vary somewhat by

country, trade openness is associated with increased life expectancy. Bergh and Nillson (2010) tested the effects of three dimensions of globalization on life expectancy: economic, social, and political. They concluded that, while social and political globalization are insignificant, economic globalization is "good for living" (1200) in that it increases life expectancy.

In sum, theorists who subscribe to modernization and neoliberalism argue participation in the global economy is the most efficient way to bring about economic development and its concomitant social benefits. Trade liberalization, privatization and a freely operating market are significant elements in this global economic participation.

<u>Dependency</u>

Largely as a reaction against the modernization and neoliberal schools of thought, Marxist-derived theories argue that, for poor countries, development is nearly impossible under the current political-economic regime (see Arrighi 1994; Chase-Dunn 1989; Frank 2000; Wallerstein 1979). Recognizing the emergence in the new economic world order of monopoly capitalism and corporate enterprise, they declared that a new type of imperialism had developed, one that was more subtle, but nevertheless powerful. Dependency theorists argued that "the global capitalist system, largely but not exclusively through transnational corporations (TNCs), operated actively to underdevelop the Third World and that no genuine development was possible as long as this system survived" (Sklair 1995:36). Many incarnations of this theory emerged over the ensuing years, and "there are still points of serious disagreement among the various strains of dependency theorists; it is a mistake to think that there is only one unified theory of dependency. Nonetheless, there are some core propositions which seem to underlie the

analyses of most dependency theorists" (Ferraro 2008:59).

The proponents of the original theory of dependent underdevelopment took issue with the modernization idea that the barriers to development are internal. Instead, these scholars looked to external forces. Dos Santos (2003) defined dependency as "a situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected" (278). In these cases, the dependent economy can expand only in the image of the dominant one, which can in the short term have either a positive or negative effect (Frank 2000). In addition, they argued that the model of modernization was oversimplified and ignored larger political issues and structural relations between countries (Shen and Williamson 1997).

The mechanisms by which dependency can hinder development—both economic and social—are not entirely clear. The effects change with regard to which dimension of dependency one examines. In general, dependency scholars assert that it makes LDCs beholden to the interests of developed countries, which may or may not be their own. This means that policy-makers may forgo enacting laws to protect citizens and the environment because they hamper the free movement of capital (e.g., Jorgenson 2009; Shandra et al. 2005; Wimberley 1990). In addition, dependency exacerbates income inequality by creating a well-connected elite, while the benefits tend not to trickle down to the masses. Income inequality is anathema to economic development, as the majority of people are barred from participating in the opportunities made available by development (Shen and Williamson 1997; Stokes and Anderson 1990; Wimberley 1990). Scholars have also found that, even at comparable levels of economic development, countries with greater inequality in the distribution of income tend to be less healthy; this

suggests that inequality itself may be bad for one's health (Brady 2009; Kawachi and Kennedy 2002; Wilkinson 1996).

The first studies demonstrating a link between inequality and health were performed within-country. Wilkinson (1996) refers to such important historical case studies as that in Roseto, Pennsylvania and the experience of Britain during and immediately following World War II. In both examples, researchers were able to observe these regions over time. Roseto was known to have very low incidence of heart disease, though the behavior patterns of its residents did not differ substantially from those in surrounding towns. What was different, however, was the astounding degree of social cohesion and outward egalitarianism. Though there was income inequality, Roseto residents chose not to engage in the conspicuous consumption that characterized other areas. Another important small-sample, longitudinal study was the Whitehall Study (Marmot and Smith 1997). This research examined a group of middle class, white, male civil servants. Because of the nature of study design, controls for certain demographic variables, as well as access to health care, were built in. The main finding was that there was a clear gradient effect as those with more powerful positions in the bureaucracy had better health outcomes and those lower in the hierarchy had worse ones.

Perhaps more critically, dependent economies can fall victim to unequal exchange. When a given commodity is sold at a consistent price everywhere in the world, consumers who live in countries where they receive higher wages are paying a smaller proportion of their income toward purchasing that commodity. Transnational corporations use this wage differential to their advantage and produce goods in poor countries to sell in rich countries where consumers can afford to purchase them

(Emmanuel 1972). This can be problematic for a dependent economy because its market position is weakened when it is consistently producing a good at a much lower price than it is later sold (Frank 2000). This situation results in so-called superprofits for TNCs, a consequence of exploitation of workers in LDCs (Lenin 1968).

Because researchers recognize that many dimensions of dependency exist, those interested in studying this concept utilize a range of measures of dependency. Debt dependence describes a situation in which an LDC is rendered dependent upon one or more developed nations because of crippling national debt incurred through either unilateral or IMF/World Bank lending strategies. These strategies often require poor countries to engage in structural adjustment and austerity measures in order to repay the loan, thus limiting the ability of nations to provide for their citizens in even the most basic ways (e.g., Bradshaw and Huang 1991; Chase-Dunn 1975; Shandra, Shandra, and London 2010). This limits the country's ability to invest in human health and infrastructure as well as domestic entrepreneurial endeavors.

Others focus on export commodity concentration dependency, when an LDC's economic development is limited by reliance on producing goods for export to developed nations, and has little or no domestic market for these products (Kentor and Boswell 2003; Shen and Williamson 1997). Very often, an LDC will specialize in just one or a few products. While this can mean the production of these goods is extremely efficient, it may also lead to a crisis if the commodity suddenly loses value in the global marketplace. In this way, the LDC is especially vulnerable to the vicissitudes of global economics (Lee, Nielsen, and Alderson 2007; Ragin and Delacroix 1979). Export partner concentration dependency occurs when an LDC exports to one or just a few nations,

which can make the LDC beholden to that one nation's economic interests rather than its own (Lee, Nielsen, and Alderson 2007). Aid dependency occurs when the LDC relies upon regular injections of foreign aid in order to support its basic needs. Foreign aid, despite its good intentions, is not always targeted appropriately (Karlan and Appel 2011). Food aid, for example, can make local farmers obsolete by driving down the price of food (McMichael 2004).

However, many believe FDI has the greatest impact (Bornschier and Chase-Dunn 1985; Brady, Kaya, and Beckfield 2007; Jorgenson 2009a; Jorgenson 2009b; Shen and Williamson 1997; Wimberley 1990). As Shen and Williamson assert, "investment dependence is more important than other forms of dependence in the exploitation of the LDCs" (670) for a variety of reasons. First, TNCs hamper economic growth in LDCs by repatriating profit to their country of origin as well as displacing local businesses. Second, they increase within-country income inequality. Third, TNCs may influence domestic politics in their own interests, which is often at the expense of democratic processes. Such measures may include reducing corporate taxes and relaxing labor and environmental laws (Jorgenson 2009b). Fourth, they appropriate land for their own use that could otherwise be utilized for small-scale food production and thus displace family farmers. Finally, they "corrupt local consumer tastes" (Wimberley 1990:76).

Scholars typically measure FDI dependence in terms of the *magnitude* of investment, measured in FDI stocks as a proportion of GDP. However, Kentor and Boswell (2003) argue FDI *concentration* may be a more powerful explanatory tool. FDI concentration describes the proportion of FDI stocks held by the largest investor. This measure is useful in that it enables us to distinguish the "structure of foreign capital

dependence" (304) from the level. Because dependency theorists posit FDI dependence inhibits the autonomy of LDCs, it makes theoretical sense that a very large investor might wield inordinate power over the economy of an LDC.

Dependency theory underwent a barrage of criticism on both theoretical and methodological grounds. Skocpol (1977) accused Wallerstein of economic reductionism and class determinism. Some international development scholars noted that it appeared many of the so-called dependent countries were, in fact, developing (Chase-Dunn 1998). The spectacular successes of the newly industrializing countries (NICs), located predominantly in East Asia, seemed to refute the neoimperialist theories and toll the death knell for dependency theory. However, new permutations of the theory emerged. Cardoso (2000) and Evans (1989) theorized that the relationship is more nuanced than originally observed. For example, Evans proposed that the state can play a pivotal role in the development of dependent economies. In this way, some growth for the economies of LDCs remains possible, even within the context of dependency.

Methodologically, Firebaugh's damning 1992 article showed Bornschier, Chase-Dunn, and Rubin (1978) had misinterpreted a key statistic. Referring to this mistake as the Denominator Effect, Firebaugh concluded dependency theorists were in fact showing that FDI was good for the economies of poor nations. Dixon and Boswell (1996a, 1996b) responded by using new measures and models to show that their original hypothesis was correct. They demonstrated that "foreign capital dependence diminishes economic growth, enhances income inequality, and very probably impairs domestic capital formation, all *irrespective of denominator effects*" (Dixon and Boswell 1996a:544; emphasis in original) by distinguishing between FDI and foreign capital penetration.

While FDI refers to any investment, penetration refers only to the long-term accumulation of foreign capital relative to the overall economy. This is the type of investment world system and dependency scholars theorize to be the source of many of the problems facing less developed economies. This distinction is important because it separates "what is bad about foreign investment from what is merely not as good" (546).

There is much empirical support for the idea that greater, or the wrong type of connectivity to the prevailing global economic system can have detrimental effects on human well-being. Among the first to study the effects of dependency on human well-being, Shandra et al. (2004, 2005) and Wimberley (1990) found that transnational corporate penetration is strongly associated with higher infant mortality in LDCs. Additionally, Shandra et al. (2004) put forth that this relationship was conditional upon the level of democracy present in the country: more autocratic nations tended to have higher levels of infant mortality. Similarly, Bradshaw et al. (1993) concluded that "externally imposed austerity measures" (629), such as those imposed by the International Monetary Fund in response to the debt crisis, have had a negative impact on child survival. In a study that included political factors as well as economic, Lena and London (1993) found those countries with left-leaning economic systems tend to have better infant survival rates than right-leaning ones. Shen and Williamson (1997, 2000) claimed, while internal factors such as democracy and trade openness are the most important in predicting infant mortality rates, it is crucial to consider external factors as well. Kick et al. (1990) found militarization and military dependency to be important indicators of infant mortality. They argue "arms imports rob public health initiatives and thereby indirectly block mortality declines" (295).

Economic dependency acts as a powerful force in indirectly increasing child mortality. In an analysis performed by Frey and Field (2000), debt dependency was shown to have a powerful positive effect on infant mortality, though other forms of dependency did not. Moore, Teixeira, and Shiell (2006) use a network approach measuring world system position by volume of trade between partners. They conclude that "peripheral countries are structurally disempowered and may be viewed as being at a higher level of vulnerability to the negative effects of globalization and trade" (176). This finding implies that, no matter their level of economic development in terms of gross domestic product per capita, these nations will remain underdeveloped in terms of human well-being. Finally, Burns, Kentor, and Jorgenson (2003), Jorgenson (2009a, 2009b), and Jorgenson and Burns (2004) showed that environmental degradation is a crucial mediating variable in determining infant mortality rates. They observed that greater levels of investment and trade in LDCs are associated with higher levels of water pollution, which in turn are associated with greater infant mortality rates.

Scholars have also found empirical support for these dependency-oriented theories when examining life expectancy. Ragin and Bradshaw (1992) observed trade openness is detrimental to life expectancy. More recently, Bussmann (2008) found that economic integration, measured in terms of trade openness, does not directly improve women's life expectancies. However, it may have indirect positive effects: for instance, access to education may increase. Tausch (2010) concluded penetration through FDI by TNCs has significant negative effects on life expectancy.

In addition, other studies show a decoupling of economic growth and life expectancy improvements. Most notably, Brady et al. (2007) concluded that, while

growth in GDP per capita has strong positive effects on life expectancy, the effect has become weaker over time. Similarly, Dollar (2001) argues that globalization can have a negative impact on longevity, and advocates the enactment of good health policies to complement trade openness.

<div align="center">Gender stratification</div>

Gender stratification theorists stress the important role of women in development. They argue that infant mortality is closely related to the status of women in society. This theory is alternately described as a variant of modernization theory and a critique of it (Shen and Williamson 1997; 2000). According to the modernization argument, gender equality will occur as a natural outcome of industrialization. As economies industrialize and populations become increasingly urban, gender relations will naturally become more egalitarian (Scott 1996).

Boserup (1970) is leery of this claim, asserting that women are often left behind in the processes of industrialization. This can occur in several ways. In the context of dependency, the economic development that does take place is likely to favor men rather than women as the restructuring of economies replaces traditional women's work, removing the means by which many women support themselves. The new jobs created are typically taken by men. Simultaneously, "women often lost control over resources such as land and are generally excluded from access to new technology" (Momsen 1991:1). Thus, women are unlikely to be able to take advantage of whatever economic opportunities become available (Ward 1984), and women's status would be expected to decrease. In addition, the system "maintains the economic value of children for subsistence production…[which] obstructs fertility reduction" (Chase-Dunn 1998:254).

In this way, whatever cultural norms and attitudes that might be expected to flow from the West that would reduce the high fertility rate typical of many LDCs will be rendered ineffectual.

Theorists in this vein typically use measures of education, literacy and employment to tap into economic and political power (i.e., Frey and Field 2000; Miller 1992; Scanlan 2004; Shen and Williamson 2000, 1997; Wickrama, Nandy, and Wickrama 2003). It is thought that increased levels of education will enable women to have more financial autonomy, and this will directly relate to the health of their children. In addition, these same researchers measure contraceptive prevalence as an indicator of greater personal autonomy, which can have a powerful impact on the well-being of women as well as their children: "Women's use of contraceptives directly reflects their ability to make decisions concerning their lives and to acquire and use health services" (Wickrama et al. 2003:242).

This theory as an explanatory model is less than satisfying, because it is unclear why some countries are more stratified than others along gender lines. More research needs to be done in order to determine what sorts of political and economic arrangements increase gender equality. Nevertheless, it is consistently among the most powerful indicators of infant mortality, so I will include it in my analysis and discussion.

Developmental state

There is great disagreement over the proper role of states in the economic development process. In mainstream neoliberal economics and modernization theory, the laissez-faire doctrine has dominated over the past few decades. The emergence of the newly industrialized countries (NICs), nations such as South Korea and Brazil that

developed rapidly after instituting growth strategies promoted by neoliberal economists, has been brought forth as evidence of the power of the free market. However, there is much evidence to suggest that it was not the free market at all, but state intervention that allowed for the rapid growth of countries like the so-called Asian Tigers (South Korea, Taiwan, Singapore, and Hong Kong) and others (Gilpin 2001).

Developmental state theorists argue that states "can operate in ways that increase human well-being" (Frey and Field 2000:219) as their national economies grow. For example, they can provide health, education and other basic services to the poor. According to this perspective, economic dependency is only harmful to human well-being when the state is unresponsive. Thus, a powerful state can mediate many of the negative effects associated with globalization.

At its heart, the development state is an effective bureaucracy, with clear goals and an internal sense of coherence. Unlike Weber's ideal-typical bureaucracy, however, those operating in developmental states are embedded within the wider society rather than insulated from it. This creates the possibility for exchange between government and society that is missing from other types of states. The policies that such a bureaucracy can put into place, then, are responsive to the needs of the people rather than reactive or irrelevant (Evans 1985).

Evans claims that the role these states take on is one of "midwife." By this, Evans means that the state aids in the process of birthing infant industries and nurses them into maturity, rather than policing them or establishing competing enterprises. For instance, the state can assist emergent entrepreneurs or encourage existing businesses to try their hand with more challenging ventures. These entrepreneurial nurseries can be built on

such edifices as import tariffs or subsidies.

Political economists like Gilpin (2001) favor a blend of free markets and strong states. This is antithetical to the neoliberal approach, which contends that a large state will hamper economic growth. Indeed, Moon (1991) asserts that

> The state is the key institution for basic needs provision for a simple reason. If the natural propensity to inequality is to be minimized, the productive capacities of the economy must be directed toward the provision of basic human needs. That direction must be accomplished outside a system dominated by the logic of capital accumulation and microeconomic rationality; that is, it must occur in the political realm. (110)

Developmental state theorists point to the success of the Asian Tiger economies. These strong states were able to leverage rapid growth into human well-being gains by use of redistributive policies (Evans 1985).

These theorists typically measure state strength (Frey and Field 2000; Shen and Williamson 1997, 2000) as well as state spending on human welfare (Frey and Field 2000).

<center>Other explanatory factors</center>

In addition to these models, cross-national scholars have identified several other factors which may have an impact on infant mortality. While it is unclear whether these are direct, intervening or conditional factors, they are nevertheless correlated highly with infant mortality rates and life expectancy. These include democracy, income inequality, presence of nongovernmental organizations (NGOs), and urban slum prevalence.

Level of democracy/autocracy has been shown to influence infant mortality by several scholars (Lena and London 1993; Shandra et al. 2004, 2005; Shandra, Shandra, and London 2010; Tsai 2006). In each case, greater levels of democracy, typically indicated by "the degree to which freely elected and open regimes respond to popular

demands for solving development problems" (Shandra et al. 2004:325), decrease the rate of infant mortality. This is a robust finding, regardless of which other controls are accounted for.

Some scholars have also found that, even at comparable levels of economic development, countries with greater inequality in the distribution of income tend to be less healthy. This suggests that inequality itself may be bad for one's health (Kawachi and Kennedy 2002; Wilkinson 1996). In addition, there appear to be diminishing returns to increases in GDP. Up to roughly $5000 per capita GDP, there is a strong positive correlation between GDP and health. After this level, however, the relationship all but disappears and GDP is no longer a strong predictor of a nation's health (Wilkinson and Pickett 2005). This initiated a debate on whether absolute or relative deprivation matters more. While nearly every scholar would agree that absolute poverty has a negative impact on health (i.e., Feinstein 1993, Subramanian et al. 2002), the idea that relative poverty matters was at first quite controversial. However, Wilkinson and those who followed him were quite successful in showing empirically that it is "the most egalitarian rather than the richest developed countries which have the best health" (Wilkinson 1996:75).

However, the inequality-health finding is not without its detractors. The sources of data typically used by Wilkinson and others have sometimes been called into question. Judge (1999) takes issue with the fact that one of the income measures Wilkinson uses is based on household-level income, but fails to take into account family size. Using what he considers more reliable data, Judge reevaluates Wilkinson's claim and finds no relationship between inequality and health. Similarly, Beckfield (2004) finds the datasets

used by many inequality and health researchers to be flawed. He claims that "much cross-national research uses income inequality data from multiple sources but does not control for technical differences in the data that can limit international and intertemporal comparability" (234). Further, he asserts many researchers in this field do not use adequate control variables. When statistical controls such as year and economic development are added to the model, the relationship washes out. Beckfield also suggests the use of an FEM model to account for heterogeneity bias, which "can affect this research because sampled countries often differ from each other in ways that are left unmeasured and thus cannot be included directly in statistical models" (233). Like Judge, Beckfield corrects these perceived shortcomings and finds that the relationship between inequality and health all but disappears. A potential problem with Beckfield's study, as well as other broad cross-national research designs, is that the relationship between inequality and health holds most strongly for developed countries. Proponents of the relative income hypothesis argue that for poor countries (i.e., those with GDP per capita of $5000 or less), absolute poverty is still the most pressing issue.

A final criticism of this literature is that it simply represents a statistical artifact resulting from using population-level data to model what is essentially an individual-level measure. Gravelle (1999) argues that the absolute income hypothesis "is supported by a considerable body of evidence…[and] we do not need the relative income hypothesis to explain the observed associations between health and income inequality" (99). He charges the relative income hypothesis proponents with committing the ecological fallacy.

Proponents of the relative income hypothesis have responded to these criticisms

by rethinking which indicator variables they choose to employ (Kawachi and Kennedy 1999) as well as utilizing multilevel modeling techniques in order get away from the charge of ecological fallacy (Kennedy et al. 1999). These more recent studies have lent greater support to the relative income hypothesis. Brady (2009) examined the effects of inequality in wealthy Western democracies. He observed that "countries with high poverty [despite high GDP] experience more crime and suicide, greater health problems, weaker economic productivity, and undermined development and well-being among children" (5).

Even scholars who accept that a relationship exists between income inequality and health disagree over the mechanisms by which it occurs. Researchers tend to fall into one of two main camps: the psychosocial and the neomaterial. The psychosocial, first proposed by Wilkinson (1996), emphasizes how stress derived from coping with an inegalitarian society has direct and adverse effects on health. In addition, Wilkinson argues there are indirect effects of inequality. In order to cope with such a stressful social environment, the poor are more likely to engage in risky lifestyle behaviors.

In contrast, the neomaterialists emphasize how the poor in inegalitarian societies lack physical resources rather than social capital (Lynch 2000). They argue that communities that tolerate inequality are also characterized by systematic underinvestment in infrastructural projects, which takes a disproportionate toll on the poor. In addition, the poor lack the political capital to demand changes to this system. For neomaterialists like Lynch and Coburn (2000), social connectedness matters, but the type is more important. Whereas Wilkinson pays attention to horizontal (informal) connections, they argue that vertical (formal) connectedness better predicts the health of a community. Disadvantaged

groups tend to lack linkages to powerful political, economic, legal, and other institutions.

Empirically, Flegg (1982) found, net of other factors, inequality is associated with an increase in infant mortality. Waldman (1992) concluded a greater share of income going to the rich is correlated with higher infant mortality. In a study of both developed and LDCs, Hales et al. (1999) found "average measures of population health are influenced by the distribution of income within societies" (2047), higher infant mortality being more widespread in the most inegalitarian societies. Beckfield (2004), however, found the effects of income inequality disappear when models are correctly specified and a wider array of controls is included in the analysis.

CHAPTER 3

METHODOLOGY AND DATA

Design

I am interested in understanding how the structure and magnitude of FDI affect

life expectancy and infant mortality in LDCs over time. Panel data analysis is the clear

choice in conducting this research, both in terms of theory and as informed by previous

research. Because many scholars hypothesize the effects of FDI and other macrolevel

factors take several years to compound (i.e., Chase-Dunn 1975; Firebaugh and Beck

1994; Singer and Willett 2003), it is necessary to view these phenomena over the long

term. Following this logic, virtually all past researchers have striven for longitudinal data,

even from the first cross-national studies examining the effects of FDI on the economies

of poor countries (i.e., Chase-Dunn 1975). Since that time, the methodology has become

increasingly more sophisticated and researchers consistently rely upon it to reach their

conclusions (i.e., Alderson and Nielsen 1999; Firebaugh 1992, 1996; Firebaugh and Beck

1994; Jorgenson 2009a, 2009b; Kentor 2001).

Singer and Willett (2003) urge researchers to use longitudinal, rather than purely

cross-sectional data, as the latter will simply not suffice for statistical purposes. The

authors have a methodological definition of longitudinal: "(1) multiple waves of data; (2)

a substantively meaningful metric for time; and (3) an outcome that changes

systematically" (4). A pooled dataset, or time-series cross-sectional data, has the ability

to increase the sample size quickly by including earlier time periods (when available), thus making the analysis more robust. In dynamic models of this type, that account for change over time, "current levels of the dependent variable are influenced by prior levels of that variable" (Sanderson and Kentor 2009:312). Countries that have received FDI in the past are likely to attract more in the future because they have built up necessary infrastructure and communication networks to ease the flow of international capital. This phenomenon is known as "cumulative causation" (Myrdal 1957). In order to control for events that occurred at earlier points in time, many researchers assert that "a dynamic model requires the inclusion of a lagged dependent variable" (Sanderson and Kentor 2009:312). While this technique is able to account for the earlier condition of the dependent variable, it also introduces new bias in the form of residual autocorrelation, unobserved heterogeneity and nonstationarity. Residual autocorrelation occurs when the error terms of observations are correlated with each other. This is common in longitudinal research because errors tend to be correlated over time within countries. Unobserved heterogeneity occurs when a model does not contain relevant variables that are correlated with observed variables. Stationarity occurs when statistical properties of variables are constant over time. When variables are nonstationary, it may be difficult to determine whether the relationship between independent and dependent variables is spurious (Sanderson and Kentor 2009).

Fixed- and random-effects panel models represent an attempt to improve upon the earlier lagged dependent variable methodology. A fixed-effects model (FEM) assumes that unobserved variables, while they differ across cases, are constant within a single case through time. For countries, geographical location, history, and predominant ethnicity are

examples of such unobserved variables. A random-effects model (REM) assumes that some unobserved variables will be of the type described above, and others will vary randomly across time within a single case. In addition, in an FEM, variables that remain constant over time are dropped because their change score is equal to zero (Dougherty 2011).

While FEMs are considered more rigorous, REMs make more theoretical sense in this study because greater differences exist between countries than within them. An FEM would drop important explanatory variables simply because they do not change over time. An additional benefit of using REMs is they do not lose n degrees of freedom (Dougherty 2011).

Sociologists engaged in longitudinal macrocomparative research disagree regarding whether to include a lagged dependent variable when using either REM or FEM methodologies. Some argue that its inclusion is redundant. Worse, as discussed previously, a lagged dependent variable can introduce new bias into the model. On the other hand, a model lacking a lagged dependent variable as a control may suffer from omitted variable bias. See Sanderson and Kentor (2009) for a detailed outline of a battery of specification tests to undertake in order to determine which model is the most appropriate for the data at hand.

<u>Variables</u>

Sample

I focus on LDCs during the time period from 1985 to 2010. For the most part, scholars in this field exclude developed countries from their analyses because they wish to tease apart the factors which make some countries better off than others, even if they

are both poor (e.g., Firebaugh and Beck 1994; Jorgenson 2009a, 2009b; Jorgenson and Burns 2004; Shandra et al. 2004, 2005; Wimberley 1990; Yang and Pendleton 1980).

While examining the time period from 1960 to the present would yield the greatest insight into the success of differing economic strategies, the data simply do not exist. Particularly for LDCs, record-keeping did not begin in earnest until much more recently, and many of the records that do exist have not been digitized and folded into an easily accessible database. Thus, the analysis is limited to the more modest time span of 1985-2010.

The criteria for inclusion in this analysis were twofold: first, countries had to have a GDP per capita in purchasing power parity of less than $20,000 for at least one year between 1985 and 2010. Second, countries had to have a population of at least one million. This resulted in a dataset of 125 countries (see Appendix), mostly located in Africa, Latin America and Asia.

Dependent variables

I use two dependent variables in these analyses. The first is under-five survival mortality, which is available from the United Nations statistical database. It is calculated as the number of child deaths per 1000 live births. As Bradshaw et al. (1993) point out, UNICEF encourages researchers to utilize the under-five mortality rates rather than the more conventional measure of infant mortality. This is because "infant mortality severely underestimates hardship for children because many die between ages 1 and 5; and child death rate does not standardize by number of births" (639). The second dependent variable is life expectancy at birth. This variable is derived from life tables by the World Health Organization, and is available on its website.

Independent variables

<u>Modernization/Neoliberalism and Dependency/World System</u>

Both modernization/neoliberal and dependency/world system theorists view FDI as an important factor in economic and social development. However, they disagree regarding the direction of the relationship. While both tend to view economic development as a natural precursor to social development, modernization/neoliberal scholars expect FDI to spur economic growth and improve quality of life in LDCs; dependency/world system theorists anticipate that FDI will cause stagnation in economic and social development.

Though previous researchers have used multiple measures of dependency, FDI is the most typical (i.e., Firebaugh and Beck 1994; Frey and Field 2000; Lena and London 1993; Shandra et al. 2004, 2005; Shen and Williamson 1997, 2000; Wimberley 1990) because it is an essential feature of our increasingly globalized economy. While other measures of dependency—such as debt and trade—are certainly valuable, investment of capital via TNCs and their subsidiaries is the engine of global capitalism (Shen and Williamson 1997). D dependence is measured as the ratio of stocks of FDI to a nation's GDP. Stocks refer to accumulated FDI; this is to distinguish it from flows, which refer to the amount of incoming investment over a specified time period. This distinction is important because scholars are interested in capturing foreign capital penetration, the extent to which a less developed economy is dominated by foreign capital (Dixon and Boswell 1996a), rather than simply FDI. FDI stocks as percent of GDP is available through the World Bank online database.

In addition, Kentor and Boswell (2003) propose FDI concentration as an important dimension of dependency. Defined as the "percentage of total FDI stocks

accounted for by the top investing country" (304). The World Bank and International

Monetary Fund online databases provide directional investment data, and the calculation

to create the concentration is straightforward:

$$FDI_c = \frac{i_T}{\sum i},$$ (1)

where i represents investments made by companies in foreign countries, and i_T represents

the investment made by the top investing country.

Gender Stratification

Previous literature has tended to focus on absolute measures of women's status, as

well as relative to men's (Boehmer and Williamson 1996). As such, I will use both

female secondary school enrollment and male/female enrollment ratio. Contraceptive

prevalence taps into a different dimension of gender equality, that of domestic autonomy

(Boehmer and Williamson 1996; Scanlan 2004). As a measure of women's access to

political power, I will use per cent women in parliament (Boehmer and Williamson

1996). All measures are available from the United Nations online database.

Developmental State

State strength is measured as state revenue as a percent of GDP (Lena and London

1993). In addition, to explore how states allocate their resources, public health

expenditure is an important measure. Self and Grabowski (2003) found that public health

expenditure is a significant indicator of health among lower and middle income nations.

Both measures are available from the World Bank and United Nations databases.

Controls

Additional control variables are relevant to each of these perspectives. Controlling for GDP per capita is crucial, as there is great variability in standard of living between nations. In addition, larger economies will, by their nature, attract larger investments. Second, a country's geography and political regime are important considerations. Region, measured as a dummy variable, can exert a powerful influence on a state's economic and human well-being (Scanlan 2004; Sharma 2004; Tsai 2006). These relationships do not exist in a vacuum, and including region as a control allows researchers to take into account the cultural and historical context.

Regime ideology and political democracy can be powerful forces as well. Previous research has shown that left-leaning ideologies are more likely to favor redistributive policies which can reduce infant and child mortality (Lena and London 1993; Tsai 2006). Similarly, countries with more effective democracies tend to be more responsive to the needs of their citizenry (Frey and Field 2000; Jorgenson 2009a, 2009b; Lena and London 1993; Moore, Texeira and Shiell 2006). Previous literature has utilized Bollen's (1983) measure of democracy. More recently, scholars have begun to rely on the World Bank Governance indicators of "Voice and Accountability" (Moore, Texeira and Shiell 2006).

Income inequality has been shown to increase mortality and poor health (Kawachi and Kennedy 2002). Researchers utilize any one of several measures of inequality, including the Gini coefficient of income, the Robin Hood Index and Theil's entropy measure, among others. It is also common to measure income inequality as the share of wealth held by the poorest x% of the population, usually the poorest quintile (Beckfield

2004; Waldmann 1992). Beckfield (2004) asserts that "the choice in income inequality measure matters little in inequality-health research" (234), as results remain consistent across measures. The most typical measure of inequality is the Gini coefficient (Beckfield 2004; Bergh and Nillson 2010; Flegg 1982; Hales 1999). This figure is based on the Lorenz curve, which displays what proportion of income x% of the population earns. The further the curve is from the 45-degree angle line representing perfect equality, the more unequal the population. The Gini coefficient gives the ratio between the line of equality and the Lorenz curve to the total area (Beckfield 2004). It is available from the World Bank.

Finally, fertility rate is important to include as a control because it is so highly correlated with both child mortality and life expectancy (Brady, Kaya, and Beckfield 2007; Bussman 2008; Jorgenson 2009a, 2009b).

<u>Data imputation</u>

Because of gaps in the availability of data, I utilize a data imputation technique, which allows me to employ a more balanced dataset. For the outcome variables, and the theoretically relevant indicator variables, I made no changes. However, when there were data gaps in other explanatory variables, I filled them with an estimate based on the values in the cells around them. This has the effect of smoothing some of the within-country variability in the dataset. For instance, for Afghanistan, health expenditure data were missing from 1985-1999. I calculated the difference between the values in 2002 and 2007, then distributed that value evenly across the missing years. See Table 3.1 for an illustration of this process, and note that under-five mortality figures were missing for several years during the 1985-2010 time span, but I did not impute any of these values.

Table 3.1. Data imputation

Before imputation				After imputation			
Country	*Year*	*Health expenditure*	*Under 5 Mortality*	*Country*	*Year*	*Health expenditure*	*Under 5 Mortality*
Afghanistan	1985			Afghanistan	1985		
Afghanistan	1986			Afghanistan	1986		
Afghanistan	1987		213.1	Afghanistan	1987		213.1
Afghanistan	1988			Afghanistan	1988		
Afghanistan	1989			Afghanistan	1989		
Afghanistan	1990			Afghanistan	1990		
Afghanistan	1991			Afghanistan	1991		
Afghanistan	1992		176.8	Afghanistan	1992		176.8
Afghanistan	1993			Afghanistan	1993		
Afghanistan	1994		162.9	Afghanistan	1994		162.9
Afghanistan	1995			Afghanistan	1995		
Afghanistan	1996		152.0	Afghanistan	1996		152.0
Afghanistan	1997			Afghanistan	1997		
Afghanistan	1998			Afghanistan	1998		
Afghanistan	1999		139.8	Afghanistan	1999		139.8
Afghanistan	2000	0.369	136.2	Afghanistan	2000	0.369	136.2
Afghanistan	2001	0.435	132.8	Afghanistan	2001	0.435	132.8
Afghanistan	2002	0.624	129.2	Afghanistan	2002	0.624	129.2
Afghanistan	2003		125.9	Afghanistan	2003	0.858	125.9
Afghanistan	2004		122.7	Afghanistan	2004	1.092	122.7
Afghanistan	2005		119.4	Afghanistan	2005	1.326	119.4
Afghanistan	2006		116.3	Afghanistan	2006	1.560	116.3
Afghanistan	2007	1.794	113.4	Afghanistan	2007	1.794	113.4
Afghanistan	2008	2.353	109.7	Afghanistan	2008	2.353	109.7
Afghanistan	2009	1.493	106.7	Afghanistan	2009	1.493	106.7
Afghanistan	2010		103.9	Afghanistan	2010		103.9

CHAPTER 4

RESULTS

Life expectancy at birth

Table 4.1 provides bivariate correlations for each variable included in the

analyses, and Table 4.2 gives descriptive statistics for each. Table 4.3 reports findings for

the random-effects panel analyses performed for the dependent variable life expectancy

at birth. Table 4.4 reports the fixed-effects panel analyses for the same variables. Five

tested models are reported, all of which include the control variables of fertility, domestic

investment, income inequality, and GDP per capita. For each of the models, regime

ideology was dropped from the analysis due to sample size limitations.

Model 1 consists of FDI and FDI concentration, and represents a test of the

Modernization/Dependency debate. Neither variable is significant, meaning there is no

support for either Modernization or Dependency theory. Fertility is significant and

negatively associated with life expectancy, consistent with theoretical expectations:

countries with greater fertility tend to have lower life expectancy. Domestic investment

and GDP per capita are positively associated with life expectancy. While GDP per capita

is expected to increase life expectancy, the finding for domestic investment is surprising.

It is though that domestic investment would improve well-being outcomes. Random- and

fixed-effects models yield substantively similar results.

Model 2 tests the Developmental State hypothesis, adding state revenue,

Table 4.1. Bivariate Correlations for Life Expectancy and Its Predictors

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Life expectancy at birth	**1**														
FDI concentration	**2**	0.0484													
FDI	**3**	0.2143	-0.3798												
State revenue	**4**	0.2283	0.0603	0.0439											
Democracy	**5**	-0.3698	-0.0195	-0.2027	-0.2227										
Regime ideology	**6**	0.0548	0.0993	-0.0365	-0.0343	-0.0906									
Health expenditure	**7**	0.3194	-0.0006	0.1265	0.3014	-0.5245	0.0481								
F:M second school enroll	**8**	0.5158	0.0360	0.1397	0.5883	-0.3621	0.0976	0.3695							
F second school enroll	**9**	0.7786	0.0601	0.1995	0.2707	-0.4495	0.0657	0.3293	0.5344						
Contraceptive prevalence	**10**	0.7437	0.1062	0.1301	0.2469	-0.3576	0.0927	0.3409	0.5350	0.7699					
Women in parliament	**11**	0.0162	0.0145	0.0864	0.1297	-0.2968	-0.1367	0.2287	0.1139	0.0054	0.0390				
Fertility	**12**	-0.7258	-0.1078	-0.2749	-0.3003	0.4082	-0.0162	-0.3499	-0.4665	-0.7382	-0.6790	-0.1052			
Domestic investment	**13**	0.3655	-0.0349	0.2250	0.1668	-0.0703	-0.6480	0.1215	0.2559	0.3304	0.2779	-0.0679	-0.3474		
Income inequality	**14**	-0.0833	0.0426	-0.1005	-0.0025	0.3463	-0.1045	-0.3575	-0.1365	-0.1032	-0.2006	-0.2878	-0.1129	0.1634	
GDP per capita	**15**	0.7006	0.1273	0.1637	-0.4112	-0.4112	0.0416	0.4087	0.2344	0.6901	0.6760	0.0654	-0.6369	0.2976	-0.2584

Table 4.2. Descriptive Statistics for Life Expectancy and Its Predictors

	Mean	SD	Skew	Min	Max	N
Life expectancy at birth	4.1521	0.1624	-1.0315	3.2891	4.3857	2034
FDI concentration	-15.8318	1.9998	0.6356	-22.7964	-0.4213	2033
FDI	0.4585	1.635	-1.7074	-13.4953	4.9734	1986
State revenue	2.9406	0.985	7.2407	-1.4227	16.1799	1777
Democracy	4.093	1.6775	0.1000	1.0000	7.0000	2019
Regime ideology	-0.1271	0.6943	0.1755	-1.0000	1.0000	2006
Health expenditure	0.8588	0.6395	-1.6865	-5.0129	2.4202	2020
F:M second school enroll	4.4304	0.3766	0.5921	2.7473	7.8276	2021
F second school enroll	3.6934	0.8492	-1.5183	-2.2457	4.6987	1716
Contraceptive prevalence	3.6475	0.7015	-1.2276	0.5306	4.5643	2029
Women in parliament	2.4285	0.775	-0.9275	-1.2040	4.3347	2013
Fertility	1.1595	0.5218	0.3513	0.0733	4.3601	2034
Domestic investment	3.0503	0.3913	-1.8512	-1.2280	4.1589	1998
Income inequality	1.7042	0.4055	-0.9435	-0.1985	2.4087	1943
GDP per capita	8.105	1.0067	-0.7021	2.0281	10.2234	2003

Table 4.3. Unstandardized Coefficients for the Regression of Life Expectancy, Fixed-Effects Model Estimates

	Model 1: Modernization/ Dependency	Model 2: Developmental State	Model 3: Gender Stratification	Model 4: Full model	Model 5: Interactions
FDI concentration	-0.0003	-0.0003	0.0001	0.0026	0.0003
FDI	0.0011	0.0014	-0.0002	0.0011	0.0008
State revenue		-0.0209***		-0.0059	-0.0069
Democracy		-0.0086		-0.0037	-0.0033
Health expenditure		-0.0109		0.0099*	0.0095
F:M second school enroll			0.0259***	-0.0273	-0.0043
F second school enroll			0.0211**	0.0442***	0.0414***
Contraceptive prevalence			0.0275***	0.0126	0.0129
Women in parliament			0.0034	0.0032	0.0036*
Africa*FDI concentration					0.0001
Asia*FDI concentration					-0.0012
Americas*FDI concentration					0.0001
Fertility	-0.1371***	-0.0764***	-0.0779***	-0.0837***	-0.0783***
Domestic investment	0.0227***	0.0035	0.0277***	0.0047	0.0037
Income inequality	-0.0117	-0.0077	-0.0115*	-0.0171***	-0.0161***
GDP per capita	0.0463***	0.0691***	0.0349***	0.0455***	0.0462***
Constant	3.8962***	3.8177***	3.6056***	3.8207***	3.7168***
R-sq within	0.4210	0.4736	0.6692	0.8024	0.8061
R-sq between	0.4213	0.6181	0.5620	0.6128	0.6230
R-sq overall	0.3962	0.5363	0.6237	0.5648	0.5708
N of groups	100	78	59	46	46
Min/Max # of obs.	1/25	1/16	1/16	1/16	1/216

*p<0.05 **p<0.01 ***p<0.001

Table 4.4. Unstandardized Coefficients for the Regression of Life Expectancy, Random-Effects Model Estimates

	Model 1: Modernization/ Dependency	Model 2: Developmental State	Model 3: Gender Stratification	Model 4: Full model	Model 5: Interactions
FDI concentration	-0.0003	-0.0003	0.0001	0.0002	0.0003
FDI	0.0008	0.0010	-0.0002	0.0012	0.0012
State revenue		-0.0212***		-0.0089	-0.0068
Democracy		-0.0084		-0.0043	-0.0052
Health expenditure		-0.0066		0.0106*	0.0084
F:M second school enroll			0.0285	-0.0205	0.0079
F second school enroll			0.0245***	0.0498***	0.0436***
Contraceptive prevalence			0.0333***	0.0231*	0.0094
Women in parliament			0.0021	0.0017	0.0039*
Africa					-0.1346***
Africa*FDI concentration					0.0002
Asia					-0.0625*
Asia*FDI concentration					-0.0016*
Americas					-0.0116
Americas*FDI concentration					0.0001
Fertility	-0.1216***	-0.0742***	-0.0607***	-0.0685***	-0.0658***
Domestic investment	0.0226***	0.0036	0.0280***	0.0051	0.0044
Income inequality	-0.0133*	-0.0077	-0.0114*	-0.0163***	-0.0141**
GDP per capita	0.0608***	0.0766***	0.0435***	0.0498***	0.0412***
Constant	3.7422***	3.7208***	3.4702***	3.6747	3.7236
R^2 within	0.4177	0.4720	0.6632	0.7979	0.8036
R^2 between	0.4913	0.6346	0.6340	0.6651	0.8127
R^2 overall	0.4720	0.5497	0.6999	0.6368	0.8086
N of groups	100	78	59	46	46
Min/Max # of obs.	1/25	1/16	1/16	1/16	1/16

*p<0.05 **p<0.01 ***p<0.001

democracy, and health expenditure. In both random- and fixed-effects models, FDI and

FDI concentration beta values remain insignificant. Of the new variables added, only

state revenue has a significant impact on life expectancy. It is in the hypothesized

direction, suggesting that a stronger state apparatus can have a salutary effect on this

measure of well-being. In terms of the control variables, domestic investment is no longer

significant. Fertility and GDP per capita remain significant, and in the same directions.

In Model 3, the Developmental State indicators are replaced by those of Gender

Stratification theory: female-to-male secondary school enrollment ratio, female

secondary school enrollment rate, contraceptive prevalence, and percent women in

parliament. Neither FDI nor FDI concentration are significant. In the fixed-effects model,

female-to-male secondary school enrollment ratio, female secondary school enrollment

rate, and contraceptive prevalence are significant indicators, and in the positive direction.

Thus, life expectancy is higher in countries in which more women are enrolled in

secondary school (both in absolute terms, and relative to their male counterparts), and in

countries where women have greater reproductive freedom. The results are mirrored in

the random-effects model, with the exception of female-to-male secondary school

enrollment. These findings support Gender Stratification theory. For both fixed- and

random-effects models, all of the control variables are significant. Domestic investment

and GDP per capita are positively associated with life expectancy, while fertility and

income inequality are negatively associated.

Results change somewhat in Model 4, which includes both Developmental State

and Gender Stratification indicators. There continues to be no support for either

Modernization or Dependency theory. Health expenditure is positively significant,

lending some support to the Developmental State theory; state revenue, however, no longer has a significant beta value. In the fixed-effects model, female secondary school enrollment is significant, while female secondary school enrollment and contraceptive prevalence are significant in the random-effects model. This finding lends some support to Gender Stratification theory. Fertility, income inequality, and GDP per capita remain significant, and in the directions predicted. Domestic investment is not significant.

Model 5 adds region (in the random-effects analysis) and regional interactions with FDI concentration to the full model. When the region interaction is added to the fixed- effect model, the effects of health expenditure disappear. In addition, number of women in parliament emerges for the first time as a significant indicator of life expectancy. It is positively associated, so greater female political participation is associated with greater life expectancy. The control variables remain unchanged from Model 4.

The results are quite different in the random-effects model. While Development State, Gender Stratification, and control variables mirror the findings in the fixed-effects model, regional differences now emerge. Africa, Asia, and Asia-FDI concentration interactions variables are all significant and negative. This suggests that African and Asian nations tend to have lower life expectancy than other poor countries, even when controlling for things like GDP per capita and fertility. In addition, while FDI concentration is not a significant indicator of life expectancy, it is when included as an interaction with Asia. However The Africa regional dummy variable is significant and negative, though the two other regional dummy variables (Asia and the Americas) are not significant. The negative beta value for this interaction term indicates support for

dependency theory, and suggests that countries in Asia are uniquely affected by the nature of the relationship between FDI concentration and life expectancy.

These analyses suggest arguments posed by Dependency, Developmental State, and Gender Stratification theorists may all contribute to the explanation for the variation in life expectancy between poor countries. In opposition to predictions posited by Modernization, FDI is consistently insignificant across all models. However, Dependency theory appears to apply only to Asian countries.

Under-Five Mortality

Table 4.5 provides bivariate correlations for each variable included in the analyses, and Table 4.6 gives descriptive statistics for each. Table 4.7 reports findings for the random-effects panel analyses performed for the dependent variable under-five mortality. Table 4.8 reports the fixed-effects panel analyses for the same variables.

As for the analyses performed for the life expectancy dependent variable, five tested models are reported. Each includes the control variables of fertility, domestic investment, income inequality, and GDP per capita.

In both random- and fixed-effects Model 1, FDI is negatively significant while FDI concentration is not significant. This lends support to Modernization theory. Of the control variables, higher fertility is associated with higher under-five mortality, while greater GDP per capita reduces it. Neither domestic investment nor income inequality is significant.

Model 2 adds the Development State indicators. In both models, the effect of FDI disappears, meaning there is no support for either Modernization or Dependency

Table 4.5. Bivariate Correlations for Under-Five Mortality and Its Predictors

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Under 5 mortality	**1**														
FDI concentration	**2**	-0.1354													
FDI	**3**	-0.2739	-0.3790												
State revenue	**4**	-0.3051	0.0602	0.0441											
Democracy	**5**	0.4633	-0.0198	-0.2024	-0.2230										
Regime ideology	**6**	-0.0469	0.0982	-0.0349	0.0328	-0.0933									
Health expenditure	**7**	-0.4555	0.0007	0.1274	0.3019	-0.5240	0.0512								
F:M second school enroll	**8**	-0.5475	0.0359	0.1410	0.5880	-0.3619	0.1004	0.3718							
F second school enroll	**9**	-0.7373	0.0359	0.2021	0.2712	-0.4479	0.0693	0.3315	0.5365						
Contraceptive prevalence	**10**	-0.7070	0.1058	0.1309	0.2477	-0.3569	0.0960	0.3426	0.5368	0.7705					
Women in parliament	**11**	-0.1177	-0.0142	0.0879	0.1287	-0.2956	-0.1363	0.2254	0.1114	0.0044	0.0370				
Fertility	**12**	0.8291	-0.1072	-0.2746	-0.3006	0.4064	-0.0198	-0.3495	-0.4676	-0.7380	-0.6800	-0.1028			
Domestic investment	**13**	-0.3325	-0.0347	0.2240	0.1674	-0.0700	-0.0636	0.1236	0.2566	0.3305	0.2787	-0.0698	-0.3477		
Income inequality	**14**	0.0612	0.0419	-0.0985	-0.0029	0.3470	-0.1040	-0.3574	-0.1373	-0.1024	-0.2001	-0.2844	-0.1129	0.1625	
GDP per capita	**15**	-0.7226	0.1264	0.1650	-0.0947	-0.4089	0.0447	0.4091	0.2365	0.6909	0.6771	0.0646	-0.6381	0.2979	-0.2560

Table 4.6. Descriptive Statistics for Under-Five Mortality and Its Predictors

	Mean	SD	Skew	Min	Max	N
Under 5 mortality	3.8186	0.9119	-0.1637	1.3350	5.7484	2047
FDI concentration	-15.8339	1.9963	0.6362	-22.7964	-0.4213	2046
FDI	0.4609	1.6328	-1.7069	-13.4953	4.9734	1999
State revenue	2.9416	0.9829	7.2404	-1.4227	16.1799	1788
Democracy	4.0233	1.6782	0.0975	1.0000	7.0000	2031
Regime ideology	-0.1260	0.6943	0.1734	-1.0000	1.0000	2016
Health expenditure	0.8608	0.6399	-1.6782	-5.0129	2.4202	2032
F:M second school enroll	4.4305	0.3763	0.5823	2.7473	7.8276	2033
F second school enroll	3.6953	0.8492	-1.5183	-2.2457	4.6987	1726
Contraceptive prevalence	3.6488	0.7006	-1.2310	0.5306	4.5643	2041
Women in parliament	2.4311	0.7749	-0.9314	-1.2040	4.3347	2025
Fertility	1.1574	0.5221	0.3543	0.0733	4.3601	2046
Domestic investment	3.0507	0.3914	-1.8415	-1.2280	4.1589	2009
Income inequality	1.7066	0.4053	-0.9492	-0.1985	2.4087	1956
GDP per capita	8.1082	1.0056	-0.7082	2.0281	10.2234	2015

Table 4.7. Unstandardized Coefficients for the Regression of Under-Five Mortality,
Fixed-Effects Model Estimates

	Model 1: Modernization/ Dependency	Model 2: Developmental State	Model 3: Gender Stratification	Model 4: Full model	Model 5: Interactions
FDI concentration	-0.0013	0.0007	-0.0004	-0.0008	-0.0003
FDI	-0.0232***	-0.0965	-0.0027	0.0003	0.0012
State revenue		0.0485		0.0853*	0.0900*
Democracy		0.0668**		0.0786*	0.0787*
Health expenditure		-0.0551		-0.0519	-0.0496
F:M second school enroll			0.0303	0.3662*	0.2798
F second school enroll			-0.0969*	-0.1522*	-0.1407*
Contraceptive prevalence			-0.1453**	-0.0537***	-0.3503***
Women in parliament			-0.0447***	-0.0692***	-0.0706***
Africa*FDI concentration					0.0004
Asia*FDI concentration					0.0037
Americas*FDI concentration					0.0020
Fertility	0.8239***	0.6141***	0.8053***	0.9982***	0.7040***
Domestic investment	0.0013	0.0294*	-0.0587*	0.0176	0.0222
Income inequality	0.0701	0.0111	0.0326	0.0846***	0.0807
GDP per capita	-0.6601***	-0.8193***	-0.6220***	-0.7283***	-0.7325***
Constant	8.0432	9.5070***	8.9266***	8.8833***	9.2594***
R-sq within	0.7950	0.8043	0.7855	0.8630	0.8061
R-sq between	0.6234	0.7429	0.6400	0.7069	0.6230
R-sq overall	0.6324	0.7218	0.7008	0.7241	0.5708
N of groups	100	78	59	46	46
Min/Max # of obs.	1/25	1/16	1/16	1/16	1/16

$*p<0.05$ $**p<0.01$ $***p<0.001$

Table 4.8. Unstandardized Coefficients for the Regression of Under-Five Mortality, Random-Effects Model Estimates

	Model 1: Modernization/ Dependency	Model 2: Developmental State	Model 3: Gender Stratification	Model 4: Full model	Model 5: Interactions
FDI concentration	-0.0014	0.0007	-0.0004	-0.0002	-0.0002
FDI	-0.2419***	-0.0079	-0.0052	-0.0088	-0.0091
State revenue		0.0502		0.0384	0.0494
Democracy		0.0727**		0.0906*	0.0969**
Health expenditure		-0.0548		-0.0284	-0.0227
F:M second school enroll			-0.0669	0.3243*	0.1357
F second school enroll			-0.1316**	-0.2306**	-0.2058
Contraceptive prevalence			-0.1435**	-0.1667*	-0.1482
Women in parliament			-0.0463***	-0.0828***	-0.0886***
Africa					0.1086
Africa*FDI concentration					0.0010
Asia					0.3716
Asia*FDI concentration					0.0084
Americas					0.1511
Americas*FDI concentration					-0.0029
Fertility	0.7929***	0.5549***	0.6076***	0.6216***	0.5569***
Domestic investment	0.0003	0.0250	-0.0575*	0.0100	0.0167
Income inequality	0.0677**	-0.0022	-0.0011	0.0542	0.0446
GDP per capita	-0.6629***	-0.8028***	-0.5755***	-0.5829***	-0.5675***
Constant	8.0432***	9.4815***	7.3854***	7.7216***	8.2075***
R^2 within	0.7849	0.8039	0.7799	0.8533	0.8528
R^2 between	0.6275	0.7469	0.6926	0.7112	0.7313
R^2 overall	0.6386	0.7260	0.7457	0.7165	0.7353
N of groups	100	78	59	46	46
Min/Max # of obs.	1/25	1/16	1/16	1/16	1/16

*p<0.05 **p<0.01 ***p<0.001

theories. In both models, greater levels of democracy are associated with lower under-five mortality rates. This suggests some support for the Developmental State theory. Fertility and domestic investment are positively associated with under-five mortality in the fixed-effects model, while GDP per capita is negatively associated. Mirroring Model 1, fertility and GDP per capita are significant in the random-effects model.

In Model 3, Developmental State indicators are replaced by those of Gender Stratification. A lack of significance for the Modernization/Dependency indicators persists. However, in both the fixed- and random-effects models, female secondary school enrollment, contraceptive prevalence, and percent women in parliament are negatively significant. This finding lends strong support to Gender Stratification theory. Fertility, domestic investment, and GDP per capita are all significant, and in the same directions as in previous models for both fixed- and random-effects estimates.

The full model reintroduces the Developmental State variables. Neither FDI nor FDI concentration is significant. Results for the democracy indicator are consistent in both fixed- and random-effects models, but state revenue is positively associated with under-five mortality in the fixed-effects model. This finding is surprising, as Developmental State theory predicts a negative relationship. All Gender Stratification variables are in both fixed- and random-effects models. However, female-to-male secondary school enrollment ratio is positively associated with under-five mortality, contraindicated by Gender Stratification theorists. In the fixed-effects model, greater fertility rates and higher income inequality increase under-five mortality. On the whole, results of Model 4 strongly support Gender Stratification theory, with mixed support for Developmental State.

In Model 5, regional dummy variables and regional interactions are introduced. FDI and FDI concentration continue to lack significance. In addition, the region and region-FDI concentration interaction do not reach significance. Results for Developmental State variables remain unchanged from Model 4. However, results for Gender Stratification indicators differ substantially in the fixed- and random-effects models. While female secondary school enrollment, contraceptive prevalence, and percent women in parliament are all significant in the hypothesized directions in the fixed-effects model, only percent women in parliament appears significant in the random-effects model. The difference between the two models lies in the presence of regional dummy variables, suggesting that region itself may account for much of the variability between countries. Fertility and GDP per capita are both significant, and in directions observed in previous models.

CHAPTER 5

DISCUSSION AND CONCLUSION

Discussion

Hypothesis 1: Greater FDI penetration reduces life expectancy

Hypothesis 2: Greater FDI concentration reduces life expectancy

Foreign direct investment penetration is not a significant indicator of life expectancy in any model; thus, Hypothesis 1 is not supported. Foreign direct investment concentration is not significant by itself, but is significant in its interaction with the Asia regional dummy variable. This lends some support to Hypothesis 2.

For life expectancy, no one theory can claim supremacy. These analyses suggest arguments posed by Dependency, Developmental State, and Gender Stratification theorists all contribute to the explanation for the variation in life expectancy between poor countries. However, these results do make clear that Modernization theory is untenable in the context of life expectancy. Foreign direct investment and FDI concentration are consistently insignificant across all models, in opposition to predictions posited by both Modernization and Dependency. However, Dependency theory appears to apply to countries in Asia.

Both Asia and Africa dummy variables are significant and negative in the random-effects model. In fact, the Africa dummy variable has the largest beta value (-0.1346), meaning that, simply being situated in Africa—or not—has the greatest impact

on a nation's life expectancy. Historical, cultural, and social contexts matter, and Africa has consistently been the poorest region on the planet for many decades. For example, during the time period examined, the urban slum population in Africa has increased dramatically in response to a variety of push and pull factors. These concentrations of "poverty, overcrowding, malnutrition, insufficient garbage disposal, lack of adequate water drainage, and unsafe drinking water and sanitation" (Jorgenson, Rice, and Clark 2012: 3498) constitute a major public health issue.

Similarly a nation's geographic position in Asia is associated with a reduction in life expectancy. The interaction between Asia and FDI concentration suggests that the unique historical, cultural, and social context in Asia creates a situation in which greater dependence on FDI from just a few investor nations is detrimental to life expectancy.

Hypothesis 3: Greater FDI penetration increases under-five mortality

Hypothesis 4: Greater FDI concentration increases under-five mortality

Hypothesis 3 is not supported. In Model 1, FDI penetration is negatively associated with under-five mortality, but the relationship washes out when other variables are included. FDI concentration never reaches significance in any model, even when included as an interaction term with the regional dummy variables. Thus, Hypothesis 4 is also not supported.

For the dependent variable under-five mortality, findings lend support to Developmental State and Gender Stratification theories. In contrast to the life expectancy results, region does not seem to be relevant for child mortality. Instead, fertility rate and GDP per capita consistently have the largest beta value. In addition, while FDI concentration has an injurious effect on life expectancy in the context of Asian countries,

neither FDI nor FDI concentration seem to matter for under-five mortality.

The seemingly contradictory findings for life expectancy and under-five mortality are puzzling. The two measures are very highly correlated (-0.864), as they should be—life expectancy is calculated by examining mortality at each age, including children under five years old. Life expectancy at birth reflects the overall mortality of a population, while under-five mortality focuses on a smaller segment. Thus, these analyses show that greater levels of FDI and greater concentration of foreign direct have no effect on young children. However, a greater concentration of FDI is detrimental to older children and/or adults (these analyses are not able to parse more detail in benefits meted out to each age group) in Asia.

Perhaps foreign investment is sometimes directed toward sectors of the economy where it is harmful to longevity, but not to young children. Another possibility is that investors are wielding whatever political power they have gained to enact policies safeguarding the health of young children while disregarding the health of others. Reducing child mortality is a relatively straightforward endeavor: Focusing on inexpensive solutions like sanitation, vaccinations, and basic prenatal care can drastically reduce under-five mortality (Bryce, Black and, Victora 2013; Darmstadt et al 2013; Peterson, Haidar, and Merialdi 2012). Extending life expectancy is more complicated. While efforts to reduce child mortality would surely help all members of a community, adults and older children have additional needs. Health hazards like unsafe working conditions, accumulated exposure to environmental toxins, and chronic illness would not affect people in LDCs until later in life. Indeed, prescriptions for increasing life expectancy tend to be a bit more indirect: reduce poverty and inequality (Marmot and

Smith 1997; Wilkinson 1996, 1999).

This is borne out by examining the rates of change of life expectancy and under-five mortality. While both have improved since 1985, the first year examined in this paper, under-five mortality has improved much more rapidly. The mean child mortality rate for countries in this dataset was 78 per 1,000 live births. In 2011, the figure was 52, a 33% reduction. Alternatively, the increase in life expectancy was only 3%, from 64 to 66 years old. There is more room for improvement in child mortality than life expectancy—in Sweden, for example, the child mortality rate is 3 deaths per 1,000 live births, while the upper limit for life expectancy in 2012 was 86 years old for women in Japan (World Bank online database http://data.worldbank.org/indicator/).

Thus, framing the debate as between either Modernization or Dependency is too simplistic an approach. Neither approach satisfactorily explains changes in the health of human populations. In order to truly seek solutions to problems facing the Global South, strategies offered by Dependency must be combined with those of Gender Stratification and Development State theories.

<div align="center">Conclusion</div>

Drawing from the theoretical and empirical research in economic and health sociology, this study examined the effects of foreign investment and foreign investment concentration on life expectancy and under-five mortality in 125 less developed countries. Results of fixed- and random-effects panel regression analyses suggest a complicated relationship. While FDI concentration decreases life expectancy in Asia, it has no effect in other regions or on under-five mortality.

This research has shown that, in some cases, the shape of FDI matters more than

its size. For life expectancy, there was no model for which the amount of FDI was significant. Overall, the structure of the investment does not matter either. However, the structure of the investment is important in Asian countries. Life expectancy in Asian countries is longer when the source of FDI is diverse, regardless of how much FDI is coming in. For child mortality, neither the structure nor the level of FDI is important.

On the whole, neither FDI nor FDI concentration are the main drivers of the health of human populations, as argued by Modernization theorists. No one strategy can be called upon to provide definitive solutions to the problems plaguing poor countries. Instead, solutions must be tailored to fit each nation's unique economic, cultural, geographical, and historical context. More research should be devoted to understanding these contexts. However, the analyses presented in this paper may give some guidance. First, efforts to enhance the status of women should accelerate. Countries with greater gender parity in education and politics, and those granting more extensive reproductive rights are associated with increases in life expectancy. Those with a larger proportion of women in parliament have lower under-five mortality. Thus, countries granting women more power in educational, reproductive, and political realms have better health outcomes.

Second, governments should devote greater resources to providing public health services, including "[preventive and curative treatments], family planning activities, nutrition activities, and emergency aid designated for health" (World Bank). A stronger state, as measured by state revenue per capita, is associated with better outcomes for child mortality. Thus, efforts should be made to shore up weak governmental structures. In addition, countries with greater levels of democracy tend to have lower under-five

mortality.

Finally, these analyses show that in some cases, the nature of FDI matters more than the volume. Asian nations should either seek to diversify their FDI countries of origin, or shun it altogether. This is not the case for countries in other regions. In Africa and the Americas, FDI concentration has no significant effect on life expectancy. In contrast, it is not associated with under-five mortality rates in any region.

This research is not without its limitations. As always, data availability is a major issue, particularly for the less developed countries. While many researchers hypothesize the greatest changes occurring in the 1980s (McMichael 2004), country-specific investment data do not go back further than 1985, placing a boundary on the front end of this analysis.

The mechanisms by which FDI and FDI concentration affect countries, and why they do so differently depending on geography and outcome measured, are unclear. Future research exploring this question would contribute a great deal to this literature. Perhaps the industry or sector typically invested in is responsible for the difference: for example, do investments in Asia tend to be more destructive to the environment, or limited to primary sector endeavors such as agriculture and mining? In addition, investigating the effect of FDI and FDI concentration on other measures of well-being, such as food security, would be beneficial.

Sectoral investment may have an impact as well. Primary and secondary sector industries tend be environmentally unfriendly (Jorgenson 2007; 2009b), and may have detrimental impacts on human health and longevity. The effects of tertiary investment may be a bit more ambiguous. Greater urban employment draws people to the city and

may contribute to semiproletarianization (Evans and Timberlake 1980). However,

Firebaugh and Beck (1994) argue the higher wages that accompany tertiary sector jobs

create competition, stimulating higher wages in all sectors. Indirectly, tertiary investment

may in the long run contribute to better infrastructure (Mihalache-O'Keef and Li 2011).

APPENDIX

COUNTRIES INCLUDED IN THE ANALYSIS

Afghanistan	Czech Republic	Lebanon	Romania
Albania	Dominican Republic	Lesotho	Russian Fed
Algeria	Ecuador	Liberia	Rwanda
Angola	Egypt	Libya	Senegal
Argentina	El Salvador	Lithuania	Serbia
Armenia	Eritrea	Macedonia	Sierra Leone
Azerbaijan	Estonia	Madagascar	Slovakia
Bangladesh	Ethiopia	Malawi	Somalia
Belarus	Gabon	Malaysia	South Africa
Benin	Gambia	Mali	Sri Lanka
Bhutan	Georgia	Mauritania	Sudan
Bolivia	Ghana	Mauritius	Swaziland
Bosnia & Herzegovina	Greece	Mexico	Syria
Botswana	Guatemala	Moldova	Tajikistan
Brazil	Guinea	Mongolia	Tanzania
Bulgaria	Guinea-Bissau	Morocco	Thailand
Burkina Faso	Haiti	Mozambique	Togo
Burundi	Honduras	Myanmar	Trinidad & Tobago
Cambodia	Hungary	Namibia	Tunisia
Cameroon	India	Nepal	Turkey
Central African Republic	Indonesia	Nicaragua	Turkmenistan
Chad	Iran	Niger	Uganda
Chile	Iraq	Nigeria	Ukraine
China	Jamaica	Oman	Uruguay
Colombia	Jordan	Pakistan	Uzbekistan
Congo, DR	Kazakhstan	Panama	Venezuela
Congo, Rep	Kenya	Papua New Guinea	Vietnam
Costa Rica	Korea, Rep (South)	Paraguay	West Bank & Gaza
Cote d'Ivoire	Kyrgyz Republic	Peru	Yemen
Croatia	Lao PDR	Philippines	Zambia
Cuba	Latvia	Poland	Zimbabwe

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