Effects of the Transnational Network and Neoliberal Restructuring on Infant and Neonatal Mortality Rates: Cross-National Comparison of 63 LDCs*

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Abstract

Previous research on infant mortality rate (IMR) and neonatal mortality rate (NMR) in less developed countries (LDCs) has emphasized various socio-economic factors explaining an increase or decrease in IMR and NMR. Among those factors, neoliberal restructuring through structural adjustment programs, foreign direct investment, and trade liberalization have an ambiguous effect on IMR and NMR, while transnational network also plays an important role in improving global health conditions. The present paper classifies LDCs into low-income countries and lower-middle-income countries and shows how the socio-economic factors have different effects in these two country-income groups. By conducting a cross-national time-series analysis on IMR and NMR in 63 less developed countries during the periods 1971-2011 (IMR) and 1990-2011 (NMR), this study finds that international non-governmental organizations (INGOs) are effective in promoting IMR and NMR in low-income countries. Both IMF structural adjustment programs and foreign direct investment have harmful effects on IMR and NMR. These findings suggest that women and children's health in LDCs suffers more from neoliberal restructuring than it benefits from the transnational health network comprised of INGOs. In sum, the findings indicate that the variables affecting IMR and NMR work differently in the low-income and lower-middle-income country-groups.

Key words

Infant mortality rate, neonatal mortality rate, neoliberalism, transnational network, international non-governmental organizations (INGOs), less developed countries (LDCs), cross-national time-series

Introduction

Since the 1970s, global economic conditions dominated by neoliberal restructuring through international institutions such as the World Bank and the IMF. Though there have been many concerns and debates about the negative influence of neoliberal restructuring on health (Moore, Teixeira, & Shiell, 2006; Shen & Williamson, 2001), the installed loan programs through the World Bank and the IMF have seemed to give new opportunities to women and children by improving their living conditions and health in less developed countries (LDCs). This confirms the efforts to call for a reduction in infants' mortality in 1990s and 2000s as of Millennium Development Goal (Rajaratnam et al., 2010; United Nations, 2013). It is true that infant mortality rates (IMR) and neonatal mortality rates (NMR) in LDCs have been drastically improving in the last four decades (Black, Morris, & Bryce, 2003; Lawn, Cousens, & Zupan, 2005), and, for some scholars, these two world development indicators are referred to as proofs of positive effects from World Bank and IMF interventions (World Bank, 1993). Scholars also argue that not only World Bank and IMF structural adjustment programs (SAPs) but also foreign direct investment and trade openness may have positive influences on overall quality of life for women and children through improving women's economic status in targeted countries (Ghosh, 2002; Maki, 1993; Palley, 1990). The penetration of multinational corporations (MNCs) and investment programs can provide women with needed jobs, and thus they can afford to buy health insurance or food, ultimately lowering IMR and NMR.

While transnational economic linkages have multiplied in poor countries, the global women's advocacy network has also been playing an important role in improving women's health conditions through providing education programs, basic health services and financial support (Doyle & Patel, 2008; Turshen, 2007; Valadez, Hage, & Vargas, 2005). Some argue that the rise of global civil society and the network of international non-government organizations (INGOs) and local NGOs has helped to decrease IMR, especially in underdeveloped countries (Boli & Thomas, 1999; Inoue & Drori, 2006; Mercer et al., 2006). The recent growth of a transnational women's health network, including women's international non-governmental organizations (WINGOs) and other

health-related NGOs, is the main force behind the decrease in IMR. For example, an international women's organization like International Women's Health Coalition (IWHC) involves in sexual and reproductive rights education programs, NGO networks, policy advocacy, and youth-led initiatives (IWHC, 2007). In line with this networked effort, a series of UN conferences on women and the international human rights framework, including the Convention to Eliminate All Forms of Discrimination against Women (CEDAW), has also raised significant attention to women's health issues and shed new light on these issues from a human rights perspective (Ferree & Tripp, 2006; Schrecker et al., 2010).

However, previous research suggests that the effectiveness of INGOs and WINGOs may be limited because they undertake small-scale projects (Fisher, 1997; Newell, 2000) or projects focused only on donor countries' interests (Edwards & Hulme, 1996) or are restrained by government intervention (Chapin, 2004). The challenges faced by INGOs and local NGOs can be more complicated if neoliberal restructuring intervenes or transnational economic conditions fluctuate with consequences for poor countries. Though these two groups of countries have been treated as a single group under names such as "developing countries," "less developed countries" or "underdeveloped countries," this study argues that the current "LDC" typology does not capture important differences between low-income countries and lower-middle-income countries in terms of the effects of neoliberalism and the global health advocacy network.

Thus, this paper conducts a cross-national analysis examining the effects of INGOs and WINGOs and neoliberal restructuring programs on IMR and NMR. In addition, to specify the exact mechanisms by which transnational conditions affect IMR and NMR, the research design divides a group of 63 LDCs into low-income countries and lower-middle-income countries and compare the two income groups. This will lead to meaningful conclusions and policy implications for future researchers and policy makers concerned with women's health in LDCs.

Background

Previous research has emphasized the role of industrialization, political democratization, and social development in reducing IMR and NMR.

Economic development fosters a higher quality of living and brings access to advanced medical technology, whereby it can lower mortality rates (Frey & Field, 2000; Shen & Williamson, 2001). Social development indicators such as literacy rates, female secondary education, and energy consumption per capita have similar effects on IMR and NMR (Caldwell, 1993; Frey & Field, 2000; Lena & London, 1993). Finally, some theorists argue that democracy is important for lowering IMR and NMR (Lena & London, 1993).

A number of studies on infant and neonatal mortality have focused on the effects of free trade, debt, and foreign investment on women's and children's health in poor countries from the dependency perspective (Boehmer & Williamson, 1996; Shandra et al., 2004; Shen & Williamson, 2001). This line of research indicates that foreign direct investment and trade openness through MNCs can worsen mortality rates. These findings are convincing because infant and neonatal mortality have often been linked to women's status, which fluctuates greatly with international economic exchanges. The underlying assumption here is that socio- economic institutions in low-income countries are highly vulnerable to external economic changes (Bornschier & Chase-Dunn, 1985; Frank, 1969; Wimberley & Bello, 1992), and this leads to increased mortality rates as a result of devastated women's status. Some empirical studies have even found a positive relationship between MNCs or foreign debt and IMR (Bradshaw et al., 1993; Frey & Field, 2000; Lena & London, 1993; Shen & Williamson, 2001; Wimberley, 1990).

Though previous research has used the term 'dependency', the arguments are all related to the neoliberal forces of globalization that operate through the SAPs of the IMF and the World Bank, foreign direct investment, packages of privatization, and trade liberalization. Not only penetration by MNCs and foreign indebtedness but also the IMF's SAPs force states to make their policies more suitable to MNCs' local operations and to cut back welfare budgets (Gerring & Thacker, 2005; Shandra et al., 2004). However, previous research yields conflicting findings on the effects of neoliberal economics on women and children's status. Many scholars consistently argue for the harmful effects of neoliberal policies on women and the general population (Sadasivam, 1997), while some find the positive effects of such policies on women's economic status (e.g., through women-friendly labor regulations; Ghosh,

2002), especially in East Asian export-oriented countries (Evans, 1987; Gereffi & Fonda, 1992). This debate extends to the question of whether the neoliberal forces of economic globalization have positive or negative effects on IMR and NMR in the two country-income groups study. Few studies have yet examined the effect of neoliberal policies on infant and neonatal mortality quantitatively from a cross-national perspective (e.g., Shandra et al., 2004; Moore et al., 2006).

Recent studies have emphasized the role of INGOs in social development (Boli & Thomas, 1999; Dobbin, Simmons, & Garrett, 2007; Keck & Sikkink, 1998; Stubbs, 2003). INGOs and WINGOs work as part of the global health advocacy network to improve health in developing and poor countries (Inoue & Drori, 2006). They provide financial and technological services to improve basic health conditions at the local level (Smith, 1995) and are at the center of efforts to address IMR and NMR in poor nations. INGOs and WINGOs are not only effective in delivering materials and services to local populations but also influential in generating and spreading new discourses and ideas around health issues. Governments are becoming very attentive to the voices of international organizations when they implement new health programs and projects, and, indeed, INGOs and WINGOs can work as maneuvering forces to improve health conditions (Boli & Thomas, 1999; Schofer & Hironaka, 2005).

However, there are some limitations to the positive effects of INGOs and WINGOs in poor countries (Shandra, Shandra, & London, 2010). NGOs may launch an ineffective small-scale project in a limited region (Bryant & Bailey, 1997; Livernash, 1992), and governments may heavily rely on foreign aid for health services rather than building a national health system (Cliff, 1991). Furthermore, non-government organizations face legitimacy and accountability problems when they get their funding from private sources (i.e., corporations; Chapin, 2004), or get more resources than they can manage (Edwards & Hulme, 1996). INGOs and WINGOs sometimes lose their controls in the fields while working at the local level, and their activities are sometimes strictly limited by their donor organizations or donor countries (Fisher, 1997; Fisher, 1998). It is obvious that many local and global NGOs are the main conduits for improving women's and children's health in LDCs by providing sanitation, education programs, basic health facilities and health care.

Therefore, it is expected that INGOs and WINGOs play very positive roles in reducing IMR and NMR in LDCs.

Methods

Outcome Measures

Data on IMR and NMR were obtained from the World Development Indicators (WDI) (World Bank, 2013a). IMR measures the number of infants that die before reaching one year of age per 1,000 live births in a given year, and NMR is the number of neonates that die before reaching 28 days of age per 1,000 live births in a given year.

Independent Variables

To control possible correlation with extraneous variables with both dependent and independent variables, female population (% of total), GDP per capita (current US $), and level of democracy were collected as control variables for the estimated models. Female population variable is to control the size of female population, which might affect IMR/NMR differently across countries. Data on female population and GDP per capita were obtained from the WDI (World Bank, 2013a). To measure the level of democracy, the study used the scale from the Polity IV Project (Marshall, Gurr & Jaggers, 2013). It ranged from -10 (autocracy) to 10 (full democracy).

To test the relationship between female educational attainment and infant mortality, the research used the measure female gross secondary enrollment rate (%). In addition, to control the effect of domestic investment while testing the impact of foreign investment (Jorgenson, 2006; Shandra et al., 2010), this study included a measure of domestic investment (% of total GDP). Both measures were from the WDI (World Bank, 2013a).

For neoliberal economics variables, first, I included a conventional measure of foreign direct investment (% of GDP) from the WDI (World Bank, 2013a). I also updated the IMF structural adjustment program data in Abouharb and Cingranelli (2006) using an IMF database (http://www.imf.org/external/np/fin/tad/exfin1.aspx, accessed May 28,

2013) to construct the IMF SAP variable. This dummy variable indicated whether a country enters into an IMF loan program in a given year. ff

To evaluate the impact of INGOs and WINGOs on IMR and NMR, this research used the logged number of INGO memberships from the Yearbook of International Organizations (Union of International Associations, various years). The data on WINGOs measuring country-level membership for the years 1971, 1978, 1984, 1988, 1992, 1995, 2000, and 2003 (Paxton, Hughes & Green, 2006) were used, and the data included interpolated missing values for an cross-sectional time-series analysis (Fallon, Swiss & Viterna, 2012). Domestic NGOs were all excluded. Though the data used in this study is the best available data counting the number of INGOs, it has the drawback of not reflecting the intensity of INGOs input.

Thus, the dataset used is an unbalanced panel of 1,230 observations in 63 low- and lower-middle-income countries from 1971 to 2011 (for IMR) and 792 observations in 62 low- and lower-middle-income countries from 1990 to 2011 (for NMR). The classification of countries by income follows the method of the World Bank Atlas (World Bank, 2013b). Countries in the low-income group have less than $1,035 GNI per capita in 2012, and countries in the lower-middle-income group have $1,035-$4,085 GNI per capita in 2012. The low-income group includes Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Comoros, Eritrea, Gambia, Guinea, Guinea-Bissau, Kenya, the Kyrgyz Republic, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Tajikistan, Tanzania, Togo, Uganda, and Zimbabwe (27 countries), and the lower-middle-income group includes Albania, Armenia, Bhutan, Bolivia, Cameroon, the Republic of Congo, Djibouti, Egypt, El Salvador, Fiji, Georgia, Ghana, Guatemala, Guyana, Honduras, India, Indonesia, Laos, Lesotho, Moldova, Mongolia, Morocco, Nicaragua, Pakistan, Papua New Guinea, Paraguay, the Philippines, Senegal, the Solomon Islands, Sri Lanka, Switzerland, Syria, Ukraine, Uzbekistan, Vietnam, and Zambia (36 countries).

Analytic Approach

The study implemented fixed-effects models (FEMs) to control varia-

bility within countries (Wooldridge, 2002). FEMs are very effective for my purpose of analyzing whether changes in independent variables are associated with changes in IMR and NMR during the sample period. Following Greene (2011), the models are based on the equation:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

where α_i is the unknown intercept for country i, Y_{it} is the infant neo-natal mortality rate for country i in year t, X is a country-level vector of independent variables, and u_{it} is the error term. To avoid autocorrelation, the equation includes a time variable (in years). All time-variant independent variables are lagged by one year. In addition, I conducted a supplementary analysis by testing the interactions between the level of democracy and the INGOs and WINGOs variables. STATA 11.2 was used for the analyses (StataCorp., 2009).

Results

The data used in this analysis show that IMR decreased from 121.85 to 41.16 during the period 1971-2011 and NMR decreased from 37.57 to 21.91 during the period 1990-2011 in all 63 of these less developed countries. The coefficients of FEM models are interpreted as in the regression models. Table 1 presents the outcomes of the FEMs for IMR and NMR in low-income countries and Table 2 shows those for lower-middle-income countries. In both tables, the negative signs of the coefficients on the year variable show that infant and neonatal mortality rates have almost decreased from 0.5 percent to 1 percent in all 63 countries during the sample period. As expected, in lower-middle-income countries female gross secondary enrollment rate is negatively associated with infant and neonatal mortality rates (Table 2). An increase of about 2% in the female gross secondary enrollment rate is associated with one infant per 1,000 live births in a given year. Though the size of the effect is much smaller for NMR (columns 3 and 4 in Table 2), it also decreases with a higher level of education for women. Yet, in low-income countries, the positive association of female secondary education completely disappears for both dependent variables. This suggests that maternal educa-

tion is not associated with IMR or NMR in countries with extreme poverty and low institutional and social support.

The results for the effects of level of democracy and economic development on IMR in lower-middle-income countries show no support for the development thesis. However, NMR decreases in these countries when the levels of political and economic development increase. These findings are interesting in comparison with the analyses in Table 1, which show that political and economic development are important in reducing both IMR and NMR in low-income countries. This suggests that a certain level of both political and economic development is necessary for reducing IMR and NMR, but the relationships between these variables are not linear beyond some level of development. As shown in Table 2, other socio -economic factors are more influential than political and economic development in reducing IMR in lower-middle-income countries.

Turning to the results for the neoliberalism variables, IMF structural adjustment programs do not have any effect on IMR or NMR in lower-middle-income countries, while foreign direct investment has a significant adverse effect on IMR (Table 2). The analysis indicates that a country associated with one more infant per 1,000 live births if there is an increase of about 3 percent in foreign direct investment. For low-income countries, IMF structural adjustment programs show an almost 6~7 percent IMR increase and an 1.5 percent NMR increase, while foreign direct investment has no association.

The global health networks of INGOs and WINGOs do not have any association on NMR in lower-middle or low-income countries in the 1990-2011 period. However, the transnational network of INGOs has significant effects on IMR in low-income countries, as shown in model 1 of Table 1. Thus, for low-income countries, INGOs are more effective in reducing IMR than target-specific non-governmental organizations like WINGOs. Contrary to the previous study's findings using panel regression analysis with lagged dependent variables (Shandra et al., 2010), there are no interaction effects between the level of democracy and INGOs or WINGOs for either income group. In sum, WINGOs are not effective in promoting women's and children's health in LDCs.

Discussion

This study differentiates the effects of political, economic, and social factors on IMR and NMR by classifying LDCs into a low-income group (less than $1,035 GNI per capita) and a lower-middle-income group ($1,036-$4,085 GNI per capita). Previous research grouped these countries together "LDCs" or "developing countries without attention to the different effects of risk factors at different country-income levels. Moreover, there have been few studies comparing the different effects of risk factors on IMR and NMR (e.g., Macassa et al., 2003) and it is noteworthy to point out that the same factors affecting IMR and NMR differently.

The modernization thesis asserts that economic development and higher levels of democracy promote population health in general. Also, many scholars claim that economic development has an inverse relationship with IMR (Lena & London, 1993; Shen & Williamson, 2001) and democracy is beneficial to population health, including that of women and children (Beckfield & Krieger, 2009; Lena & London 1993; Mackenbach et al., 2013). Yet, the findings in this paper suggest that these claims are only applicable to NMR across the whole sample of low-income and lower-middle-income countries. For IMR, the modernization thesis holds true only in low-income countries. As suggested, when a country reaches a certain level of development, further improvements in economic and political conditions are not effective in reducing IMR. Rather, transnational economic linkages through foreign direct investment turn out to be the factor that most hinders improvements to infant health in lower-middle-income countries. This may be related to the previously demonstrated harmful effects of FDI on women's economic and social status (Moghadam, 1999; Pyle & Ward, 2003).

The most important factor in reducing IMR and NMR in lower-middle-income countries, female educational attainment, also has different effects across country-income groups; it is not linked to a significant improvement in low-income countries. This tempers the claims of previous research (Frey & Field, 2000; Lena & London, 1993) that higher female educational attainment can significantly reduce IMR and NMR. As Macassa et al. (2003) point out, the extreme hardships experienced by low-income countries (e.g., civil wars and natural disasters)

cancel out the beneficial effects of female secondary education. Another reason why education among mothers does not reduce IMR in low-income countries is the lack of implementation of policies to increase health and family planning services; without these, better education for mothers is insufficient to improve their children's health (Houweling et al., 2006).

This study shows that IMF SAPs foster a higher level of IMR in low-income countries. Foreign direct investment shows the same pattern in low-income countries when the effect of INGOs is controlled. The harmful effect of foreign direct investment appears when countries enter into the lower-middle-income group. As previous research on FDI suggests (Shandra et al., 2004), its harmful effect on IMR is pervasive in developing countries where a certain level of political stability, economic opportunities, and urbanization is required (Bennett & Green, 1972; Crenshaw, 1991; Dunning, 1994). It is possible that the amounts of FDI in low-income countries are not sufficient to have a threshold effect, and therefore, that neoliberal restructuring and transnational economic linkages affect IMR and NMR more strongly in lower-middle-income countries. However, it should be briefly mentioned here that no effect of FDI on NMR in the lower-middle-income group was found in this analysis. This accords with a previous study's finding that mother's occupation was not significantly associated with NMR (Macassa et al., 2003), indicating that degradation of women's economic status through foreign investment is not a risk factor for NMR. Instead, other demographic factors, such as birth order, birth interval, and place of residence, are more relevant (Macassa et al., 2003). This suggests that basic health conditions directly influencing demographic factors are more important in explaining rate changes in NMR than just FDI or other economic degradation in lower-middle income countries.

The findings with regard to the transnational network are also significant. Other scholars have argued that there has been a global institutionalization of health-related international organizations over time (Boli & Thomas, 1999; Inoue & Drori, 2006). The predicted effect of this is that INGOs and WINGOs are positively associated with reducing IMR and NMR (Inoue & Drori, 2006; Turshen, 2007). Specifically, WINGOs are expected to be the most influential distributors of health-related services for women and children. Contrary to this pre-

diction, for low-income countries, this analysis finds that INGOs are the most effective in preventing infant deaths. A possible explanation is that INGOs are multifunctional (Kennedy et al., 1999); thus, they take on the role of representing the transnational network along with carrying out other, general civic activities. In addition, the partnerships of grass-roots women's NGOs with WINGOs may be still in the latent stage in low-income countries. This also holds true in lower-middle-income countries, where the domestic NGOs who take on actual tasks and provide health services to local populations are still relatively few in number and suffer from a lack of resources (Chapin, 2004; Edwards & Hulme, 1996; Miraftab, 1997). Further, it is possible that neoliberal developments may cancel out the effect of INGOs in lower-middle-income countries.

Despite the potential contributions of this study, one limitation has to do with the difficulty of getting data on the exact number of health INGOs and the types of activities they engage in. However, a previous study also proved that health-related INGOs are not associated with IMR in less developed countries (Shandra et al., 2010). This provides partial confirmation of the results of this study, but it is a new finding that the effect of INGOs is salient in low-income countries. It is possible that governments in the low-income group tend to welcome INGO initiatives as long as they are additional to development assistance, yet factors affecting government-NGO relations, which are mostly political, may hinder the coexistence or cooperation of INGOs (including WINGOs) (Bratton, 1989; Ndegwa, 1996). More theoretical elaboration and careful analytical approaches are needed to solve this complexity. In spite of these limitations, this study provides the important suggestion that international political and economic linkages work differently in low-income and lower-middle-income countries and have different effects on IMR and NMR.

Table 1.
FEMs on infant mortality rate and neonatal mortality rate in 27 low-income countries.

	(1)	(2)	(3)	(4)
	IMR		NMR	
Modernization				
Level of Democracy	-0.725**	-0.670*	-0.0742	-0.0800
	(-2.87)	(-2.51)	(-1.79)	(-1.67)
Economic Development (GDP per capita)	-25.04**	-24.97**	-7.594**	-7.029*
	(-2.89)	(-3.05)	(-3.04)	(-2.76)
Female Secondary School Enrollment (% gross)	-0.212	-0.128	-0.0143	-0.00107
	(-1.06)	(-0.61)	(-0.37)	(-0.02)
Neoliberalism				
FDI (% of GDP)	0.414	0.557*	0.0748	0.0702
	(1.57)	(2.18)	(1.49)	(1.39)
IMF SAPs (dummy)	7.131*	6.052*	1.548**	1.466**
	(2.70)	(2.28)	(3.02)	(3.16)
Global Health Networks				
INGOs	-7.722*		-0.337	
	(-2.26)		(-0.15)	
WINGOs		0.362		0.120
		(0.84)		(0.97)
Control Variables				
Year	-1.064**	-1.661***	-0.535***	-0.581***
	(-3.14)	(-7.84)	(-4.41)	(-7.69)
Female Population (% of total)	5.024	3.881	-0.982	-1.147
	(0.83)	(0.62)	(-0.56)	(-0.61)
Gross Domestic Investment (% of GDP)	-0.298	-0.291	-0.0120	-0.00883
	(-1.80)	(-1.85)	(-0.31)	(-0.22)
Constant	2147.5**	3352.8***	1202.8***	1296.0***
	(3.17)	(6.88)	(5.83)	(8.53)
N of Obs.	511	511	318	318
N of Countries	27	27	27	27

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$(two-tailed test)

Table 2.
FEMs on infant mortality rate and neonatal mortality rate in 36 lower-middle-income countries.

	(1)	(2)	(3)	(4)
	IMR		NMR	
Modernization				
Level of Democracy	-0.0291	0.0133	-0.100*	-0.1000*
	(-0.16)	(0.07)	(-2.57)	(-2.49)
Economic Development (GDP per capita)	-0.698	-0.921	-2.733**	-2.725*
	(-0.15)	(-0.19)	(-2.78)	(-2.56)
Female Secondary School Enrollment (% gross)	-0.482*	-0.497**	-0.087**	-0.086**
	(-2.55)	(-2.88)	(-3.15)	(-3.12)
Neoliberalism				
FDI (% of GDP)	0.392**	0.328**	0.0299	0.0284
	(3.40)	(3.02)	(1.42)	(1.28)
IMF SAPs (dummy)	-0.755	-0.555	0.406	0.401
	(-0.44)	(-0.39)	(1.56)	(1.61)
Global Health Networks				
INGOs	-1.891		-0.05	
	(-1.54)		(-0.22)	
WINGOs		-0.429		-0.003
		(-1.76)		(-0.05)
Control Variables				
Year	-0.882***	-0.888***	-0.280***	-0.283***
	(-4.73)	(-5.51)	(-4.50)	(-5.07)
Female Population (% of total)	-9.994***	-9.734***	-2.761***	-2.788***
	(-5.80)	(-5.61)	(-4.15)	(-4.73)
Gross Domestic Investment (% of GDP)	-0.136	-0.098	-0.002	-0.001
	(-1.24)	(-0.89)	(-0.13)	(-0.05)
Constant	2357.7***	2349.2***	745.5***	752.6***
	(6.41)	(7.35)	(5.98)	(6.96)
N of Obs.	719	719	474	474
N of Countries	36	36	35	35

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$(two-tailed test)

Appendix

Table A1.
Correlation Coefficients for 63 Countries, 1971-2011

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Year	1											
(2) IMR	-0.351	1										
(3) NMR	-0.3123	0.945	1									
(4) GDP per Capita	0.0903	-0.6994	-0.7009	1								
(5) Level of Democracy	0.2309	-0.2806	-0.2228	0.2616	1							
(6) FDI	0.2979	-0.1501	-0.1403	0.0768	0.141	1						
(7) Female Population (% of total)	0.0559	-0.0803	-0.1746	0.0212	0.0973	0.2076	1					
(8) Female Secondary School Enrollment (% gross)	0.3322	-0.8013	-0.8181	0.5719	0.3179	0.2213	0.1976	1				
(9) Gross Domestic Investment (% of GDP)	0.1085	-0.2373	-0.1526	0.1179	0.0694	0.4198	0.1498	0.2459	1			
(10) IMF SAPs	0.0356	0.2421	0.2426	-0.2256	0.0288	0.0568	0.1135	-0.1345	0.0171	1		
(11) INGOs	0.1677	-0.3064	-0.2432	0.4872	0.248	-0.0179	-0.1278	0.2416	-0.0134	-0.1158	1	
(12) WINGOs	-0.0881	-0.089	0.0008	0.2516	0.2182	-0.1343	-0.2881	0.0393	-0.0083	-0.1287	0.6751	1

Table A2.

Descriptive Statistics for Low-Income and Lower-Middle-Income Countries,
1971-2011

Variables	Mean	SD	Min	Max	Mean	SD	Min	Max
	Low-Income Countries				Lower-Middle-Income Countries			
IMR	81.1563	26.8278	27	162	40.8445	24.4222	4	117
NMR	37.6318	9.2528	15.8	58.8	21.4068	11.6042	3.1	48.9
GDP per Capita	5.632	0.410	4.836	6.492	6.8612	0.9736	4.584	10.579
Level of Democracy	-0.2956	5.1807	-9	8	2.6519	6.5411	-9	10
FDI	2.2129	3.4953	-2.14	37.3	3.2812	4.2868	-2.76	35.2
Female Population (% of total)	50.4321	0.6828	48.5	52.4	50.3764	1.3329	47.1	54
Female Secondary School Enrollment (% gross)	24.2410	20.5918	3.32	89.9	57.5266	26.7416	8.29	104
Gross Domestic Investment (% of GDP)	19.5198	6.8694	4.69	61.5	24.1822	9.5258	1.76	74.8
IMF SAPs	0.4497	0.4982	0	1	0.2743	0.4466	0	1
INGOs	5.6115	0.5676	3.1781	6.8133	6.1537	0.9437	0.0000	8.2334
WINGOs	6.2080	4.1971	0	17	7.8592	5.4027	0	23

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