

## **Do Development INGOs Really Work? The Impact of International Development NGOs on Human Capital and Economic Growth**

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We argue that the presence of development INGOs has both a direct and an indirect effect on economic growth. Directly, development INGOs help economic growth through providing access to capital, supporting entrepreneurship, and facilitating economic stability. Indirectly, development INGOs impact economic growth through increasing human capital. Following recent research, we develop a simultaneous equation statistical model to assess the direct and indirect effect of development INGOs on growth cross-nationally. We find much support for both the direct and indirect effects of development INGOs on economic growth. These findings have positive implications for the ability of these organizations to improve economic well-being in lesser developed countries.

Keywords: civil society, development rights, female education, human capital

### **Statement of the Question**

Do development international non-governmental organizations (INGOs) have an impact on economic growth? Since the 1960s, the number of INGOs concerned with economic growth and development has tripled; in some developing countries, the number of INGOs actively engaged in poor relief, microfinance, and other economic endeavors has increased more than 800% (Hulme & Edwards 1997).<sup>1</sup> Likewise, funding for development INGOs by major donors, including the World Bank and European Union, has been steadily rising (Nancy and Yontcheva 2006). Despite their proliferation and connections to powerful forces within the international system, the academic literature writ large has almost completely overlooked the potential impact of development INGOs on development and economic outcomes.

Drawing on the multidisciplinary literature concerning the workings of these organizations, this paper argues that development INGOs have both direct and indirect effects on economic growth within a country. Directly, development INGOs help economic growth through providing access to capital for population who may otherwise lack it, creating employment opportunities, supporting local entrepreneurship, and facilitating economic stability. Indirectly, development INGOs impact economic growth through increasing human capital.

We test the empirical implications of our argument using a new panel (cross-sectional time series) dataset of development INGO involvement in developing countries. Using a system of simultaneous equations, we model explicitly both the direct and the indirect impact of development INGO on economic growth through improvements in human capital. Below, we discuss the existing literature and use it to inform our theoretical argument and research hypotheses. After presenting this argument, we discuss the empirical validity of our central claim that development INGOs are important actors for economic growth and conclude with calls for future research.

### **Literature Review**

There exists a multidisciplinary literature on the workings of development INGOs. Review of this literature provides many propositions on how the work of development INGOs could impact economic growth in developing countries. First, many development INGOs, especially the faith-based ones, transfer funds directly to local households (Sparr & Moser 2007). These “social transfers” can be limited to rent or food monies but also include larger amounts of funds to support local business initiatives (Sparr & Moser 2007). Importantly, social transfers do not require reciprocity or accountability of the recipient: the funds transferred are not contingent on results and do not need to be repaid. More often, development INGOs are involved in microcredit programs within a host

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state, where limited funds are transferred to individuals within the host country specifically for business or livelihood pursuits (Mohanty 2006). Receipt of these funds is contingent on participation in the development INGOs skill-building or business-development programs and the money provided generally has to be repaid in full within a specific time period. Such microcredit programs differ from bank loans in the ability of local populations, especially marginalized groups, with limited prior credit experience to gain access to funds for economic pursuits (Mohanty 2006).

Finally, development INGOs are often the key actors in large-scale development projects, some of which, such as the building of irrigation systems or grain processing facilities, have the potential to directly impact the economy of the entire country by providing capital and creating new jobs (Hulme & Edwards 1997). It should be noted that most development INGOs projects involve the employment of the local population; in fact, as part of ensuring local commitment and helping the probability of success, many organizations require that the local population is actively employed in their projects (Fisher, 1998).

Development INGOs are thought to succeed where governments fail because of their grassroots approaches, community organization, and adaptability. They are also considered to be more flexible and innovative than governmental or bilateral development organizations (Clark 1995; Streeten 1997; Lewis & Wallace 2000) and more able to include local and especially marginalized or politically disenfranchised populations, in decision making to a greater degree than governmental agencies (Warkentin 2001, p. 105). Finally, they are thought to be more efficient in poverty alleviation efforts than governmental or intergovernmental agencies because they operate with lower overhead costs and less bureaucratic red-tape (Clark 1995).

Despite the proliferation of theoretical and normative arguments indicating that developmental INGOs have a positive impact on economic growth in developing countries, empirical evidence regarding their impact is mixed. While many case studies have shown a positive impact of development INGOs, scholars, practitioners, and journalists have pointed out that some development NGOs, both international and domestic, are often formed with the intention of gathering money from donors without fulfilling their end of the contract (Chege 1999; Saeed 2004; Deliso 2003). This problem is compounded in areas where NGOs are scrambling to obtain limited donor aid and intergovernmental organizations contracts (Cooley and Ron 2002). Likewise, some argue that the Western bias of many development INGOs severely limits any impact they could have on economic growth (Hulme & Edwards 1997; Cooley & Ron 2002). One reason

for the discrepancy between theoretical arguments concerning the potential impact of development INGOs economic growth and the empirical literature on successes (and failures) of INGOs is that the latter consists mostly of case studies of a single country or even a single organization. To date, no systematic study has been undertaken that evaluates the impact of INGOs on economic growth using a large, cross-national sample. Therefore, the question still remains: despite the problems with some development INGOs, do these organizations writ large have an impact on economic growth? It is with this question in mind that we outline our theoretical argument.

## Theoretical Background and Argument

### *A case study illustration*

Consider the following example of the work of one development INGO: "Sopich's voice blends with the sing-song of his classmates chanting their teacher's words in unison. This morning the grade 4 students are continuing their lessons in Khmer, the national language of Cambodia, and Sopich pays close attention, eager to expand his vocabulary. The 13-year-old appreciates the value of his new language skills, as it makes doing business with visiting Khmer-speaking traders much easier. He also knows it will help him achieve his long-term ambition - to become a police officer and protect his family and community from crime... Such enthusiasm for learning is new to the village - not for of lack of interest, but for lack of opportunity....This is changing, thanks to a CARE project that is educating children and training teachers in Cambodia's remote northeastern province of Ratanakiri."<sup>2</sup>

The section above comes from one of "success stories" that can be found on the website of the Cooperative for Assistance and Relief Everywhere, Inc. (CARE) – one of the largest development-oriented INGOs in the world. CARE was established in 1945 as a relief organization for the survivors of World War II and today, it has a staff of over 12,000 and, in addition to emergency relief, carries out programs in agriculture, education, economic development, general health, nutrition, water and sanitation, and HIV/AIDS prevention. Two aspects of Sopich's story pertain to the basic premise of this paper.

First, CARE, like other development INGOs, is improving educational attainment and health in developing countries. CARE's project in Ratanakiri increased primary school enrollment in this remote area of Cambodia to 98%.<sup>3</sup>

Second, by improving education and health, two principal dimensions of human capital, CARE, like other INGOs, contributes to increased productivity of

the population and to developing countries' economic growth.

Another paragraph from Sopich's story clearly links the services CARE provided with improvements in his ability to conduct business and thus, on the macro-scale, with economic growth: "I used to have difficulty calculating prices for goods I was selling with my family at the market. I didn't know how much change to give," he explains. "Now that my family can speak Khmer and understand mathematics, we can make good business."<sup>4</sup>

It is important to note that the link between health, education and economic growth is not lost to CARE and other development INGOs. Improving health and education is seen by these organizations as a key part of their mission to fight poverty and foster growth: "CARE believes that working to improve the quality and accessibility of basic education is one of the best investments we can make in efforts to overcome poverty." "Health is a critical part of CARE's work to help people overcome poverty. As communities solve their most threatening problems, they are able to embrace new economic and educational opportunities."<sup>5</sup>

In addition to initiatives aimed at improving health and education, CARE carries out a wide array of programs aimed directly at improving economic security and income opportunities for people in developing countries. CARE's economic development programs encompass financial services, such as savings and credit, and business development services, such as training in marketing and accounting. In addition, CARE's marketing programs aim at identifying market opportunities, improving processing and storage infrastructure and practices, organizing producer groups, addressing quality control issues and disseminating market information. For example, CARE's Agri-business Entrepreneur Network and Training (AGENT) Program in Zimbabwe serves as a broker between agents and agricultural input distributors to improve the terms of purchase and transportation received by agents, and works with the farmers to help them successfully market their produce.<sup>6</sup>

Currently, the organization sponsors over 130 Small Economic Activity Program (SAED) project in 39 countries providing approximately 800,000 people, 90 percent of them women, with the assistance they need to increase their incomes and make their futures more secure.<sup>7</sup>

### *Direct and indirect effects of development INGOs*

The above illustration of one development INGO highlights the principal intuitions guiding this paper. First, development-oriented INGOs strive to improve

the wellbeing of low-income populations worldwide. Second, they use a two-fold strategy to tackle poverty: directly, they carry out programs aimed at stimulating and supporting economic activity; indirectly, they carry out programs that improve human capital, which, in turn, contributes to economic growth.

Human capital, defined as the deliberate investment in accumulation of knowledge or skills, is important for economic growth in that it improves the production capabilities of the labor force. An educated and healthy labor force is able to use physical capital advantageously. Without high levels of human capital, returns on physical capital investment, such as the purchase of new machinery, will not be realized (Lucas 1988). Many studies on human capital focus on education enrollment and expenditures; however, recent studies have defined human capital more broadly, including life expectancy and other labor force health indicators (Mankiw, Romer, & Weil 1992; Baum & Lake 2003; de la Fuente & Domenech 2006). Existing studies have shown a link between the work of development INGOs and improvements in human capital in developing countries. Development INGOs provide relief aid, health care services, vocational education, and access to business-development training to local populations (Streeten, 1997; Makoba, 2002). As Caparico (2000) points out, in the Middle East and North Africa, for example, development INGOs' activities encompass a wide array of programs from community organization to provision of pre- and post-natal health care. In many developing countries, these organizations "are considered good substitutes for weak states and markets in ...the provision of basic services to most people" (Makoba 2002, p. 62). In fact, recent research has shown that NGOs have enjoyed more success in improving infant mortality rates than other international actors (Masud & Yontechva 2005).

### *Hypotheses*

Given these existing studies, it is easy to see development INGOs as providers of human capital improvements, both in health care and in education, within developing countries. It follows that:

*Hypothesis 1:* Development INGOs will exert a positive, direct effect on human capital measures.

While not particularly counterintuitive, this hypothesis has not been directly addressed in the literature prior. Furthermore, it challenges some recent arguments (e.g. Cooley & Ronn, 2002) that posit that INGO lack the capacity to influence health and education level at the national level. Also, it goes against the arguments of Cooley and Ron (2002) and others concerning the overall limitations of development INGOs.

As mentioned above, development INGOs are often also crucial actors in economic development projects and major sources of credit and capital. Although microcredit projects are not designed to impact a country's overall growth (Mohanty 2006), on a whole, their impact on economic growth has not been comprehensively examined, due, in part, to the limited time such programs have been part of development NGOs' strategy.

Development INGOs are also involved in large scale credit and development projects that produce large inflows of capital into domestic economies. For example, within Cambodia, in 2002 alone, INGOs spent over 76 million dollars on various development projects (Senevitatne 2006). Such large amounts of monies, like bilateral aid, need to be examined for their direct effect on economic growth as well. Therefore, we also propose the following hypothesis. *Hypothesis 2:* Development INGOs will also exert a positive, direct effect on economic growth.

Like hypothesis 1, this hypothesis has not been rigorously tested in the extant literature. Furthermore, if development INGOs impact human capital and human capital impacts economic growth, it follows that development INGOs will also have an indirect impact on economic growth (Baum & Lake 2003). Therefore, consistent with the literature on the impact of human capital on economic growth, we propose that:

*Hypothesis 3:* Development INGOs will exert a positive indirect effect on economic growth through improvements in human capital.

Hypothesis 3 has been, perhaps, part of the logic of the workings of development INGOs for some time. However, the particular causal mechanisms, as discussed above, have not been systematically assessed in the extant scholarship on economic growth, human development, and INGOs. Figure 1 illustrates and summarizes the three research hypotheses presented above.

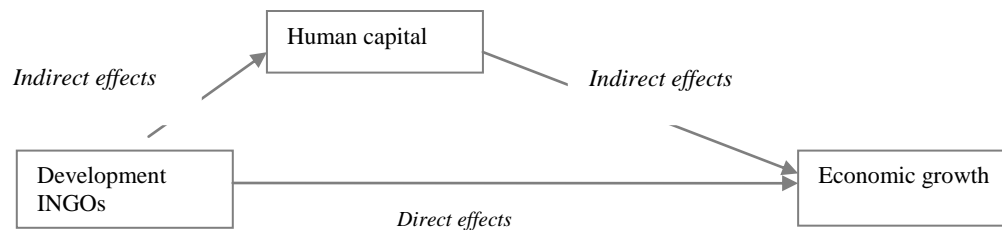


Figure 1. Impact of development INGOs on economic growth

## Data and Measures

In order to examine the validity of these hypotheses, drawing from Baum and Lake (2003), we employ a recursive regression technique. This statistical approach is utilized because it allows us to capture both the direct effects of development INGOs on human capital (Hypothesis 1) and economic growth (Hypothesis 2) and the indirect effect of development INGOs on economic growth through human capital (Hypothesis 3). The recursive regression technique uses a system of simultaneous equations. In the first equation, we estimate the effects of development INGOs on human capital. In the second, we estimate the effects of human capital and development INGOs on economic growth.

The second equation incorporates information from the first one and allows us to model explicitly direct effects of INGOs on growth and their indirect effects on growth through improvements in human capital (see Kmenta, 1997).

## Dependent variables

We use two separate indicators of human capital: percent *female life expectancy* and *female secondary enrollment* (Baum & Lake, 2003, Romer, 1990; Barro & Lee, 1993). Following Baum and Lake (2003) we argue that these indicators of females, compared to measures of total population (male and female combined) literacy and life expectancy indicators, are be more sensitive to change and to the impact of development INGOs. This intuition is consistent with the emphasis INGOs have put on programs aimed improving health, education, and economic agency of girls and women in developing countries. We obtained the data on female life expectancy and secondary enrollment from two sources: World Bank World Development Indicators and UNESCO. Because data on female life expectancy is not collected yearly, we linearly interpolated the missing values in the baseline model. As a validity check, we replicated our model using

only non-interpolated data. The results remained substantively similar.<sup>8</sup> Consistent with previous scholarship, we contend that an increase in female secondary enrollment should have an almost immediate impact on economic growth while female life expectancy's impact has more of a gradual or lagged effect (Mayer, 2001; Baum & Lake, 2003; Acemoglu & Johnson, 2006). In other words, educating women and girls provides them with tangible skills (e.g. vocational training) in relatively short period of time, and thus has the potential to translate into economic growth on the macro-scale short term. In contrast, improvements in life expectancy mean that workers can work longer and retire or leave the work force at an older age. Those changes, however, take longer to manifest themselves in terms of improvements in economic development. Therefore, we lag female life expectancy three years and lag female secondary enrollment one year in the growth equations. Changing this specification does not change the findings substantially. We use female life expectancy and secondary enrollment as dependent variables in the first set of equations, which assess the impact of INGOs on human capital. We use those indicators as independent variables in the second set of equations which model the indirect effects of INGOs on economic growth. For our second equation where we are interested in the effects on economic growth, we follow precedent and use the natural log of the annual *growth* rate of real GDP, based on international prices in a stationary year, as the dependent variable (World Bank).

### **Key independent variable**

One of the key factors behind the scarcity of quantitative research concerning the impact of specific types of INGOs is the absence of readily assessable data on NGOs that is divided out into specific NGO types. We use previously unreleased data provided by Smith and Wiest, which was collected from the hard-copies of the *Yearbook of International Organizations*, at 2-3 year intervals, from 1953 to 2005 (linear interpolation was utilized to fill in the years not coded) (Smith & Wiest, 2005). Given its time span, this data represents a real advance, especially in capturing long-term impacts of development INGOs. Smith and Wiest (2005) count only those development INGOs, which they consider "social-change oriented." In order to assess the validity of their data and to insure that it conceptually matches our definition of development INGOs, we created our own measure of development INGOs active within a country in 1998 and 2001 using the *Yearbook of International Organizations* CD-Roms.<sup>9</sup> For those two years, we counted all INGOs identified by the *Yearbook's* coding system as

development-oriented.<sup>10</sup> For 1998 and 2001, the correlations between Smith and Wiest (2005)'s data and our own data is greater than 0.93, indicating that our definition of a development INGO matches quite well their definition of a sustainable development "transnational social movement organization" (Smith & Wiest 2005).

Our key independent variable is thus the *number of development INGOs* in a particular state in a particular year. Because the Fisher test for panel unit roots indicated variance nonstationarity in this series, we use the natural log of the number of development INGOs in all models (Maddala & Wu 1999).<sup>11</sup> It is also lagged one year in all statistical analyses to help account for any simultaneity bias. Using the number of INGOs operating in a given country in a given year allows us to examine cross-nationally the association between INGO presence and economic and human development, which, as mentioned above, to date has only been examined through single country and even single organizations case studies. Our measure of INGO engagement in a country also goes beyond other measures used in the literature, which has tended to focus only on the number of all INGOs, not accounting for issue-area focus in a meaningful way (Hafner-Burton & Tsutsui 2004; Neumeyer 2005). We acknowledge that this measure has limitations. Nevertheless, we believe that in terms of construct validity and availability of the data, it is the most comprehensive measure of INGO engagement used to date. In our sample of developing countries, the number of development INGOs in a given country in a given year varies from 6, at the minimum, to 342 at the maximum with the average developing country having some 101 organizations active within its borders. In the sample, India was the country with the highest number of INGOs within its borders (in an average year, there were 261 working in India). Peru and the Philippines have the next highest numbers development INGOs within its borders (Peru with a mean of 230 in the sample and a high value of 232 and Philippines with a mean of 229 and a high value of 261). In addition to India, Peru, and the Philippines, 10 countries with the highest number of INGOs in the sample included Tanzania, Kenya, Sri Lanka, Nigeria, Pakistan, Bangladesh, and Senegal. These countries are widely regarded in the qualitative literature as home to many development INGOs, increasing the face validity of our measure (Cooley & Ron 2002).

### **Control variables**

Following extant literature, both sets of equations include a lag of the *natural log of GDP per capita* to account for the baseline wealth of each country. In

the human capital equations we control for *population size* (in millions) due to the theoretical relationship between population and public service provision (Baum & Lake, 2003; Mankiw, Romer, & Weil, 1992). We also control for *regime type* using the 21 point Polity IV scale, which ranges from -10, indicating full autocracy to 10, indicating full democracy. We control for regime type to account for the arguments that democracies provide more public goods, like education or health services, due to the increased power democratic elections give to the mass public (Baum & Lake, 2003).<sup>12</sup>

Our human capital equations also include both short (1 year) and long (10 years) lagged values of the dependent variables, which capture prior investments in human capital and allow us to account for any temporal trends in human capital development. Following the typical neoclassical growth models, in the growth equation, we include variables for *investment* (gross domestic fixed investments a percentage of real GDP) and *labor force growth* (percentage change in size of a country's labor force). These indicators were taken from World Bank and, following Baum and Lake (2003), were lagged one year. We expect each of these indicators will have a positive impact on economic growth. Because we have multiple observations of the same units over time, we control for temporal autocorrelation and ensure that the variables are stationary by using lags of the dependent variable in the economic growth equations (Greene 2005). As an additional control, following Baum and Lake (2003), we include measures of the residuals of the alternative human capital variable in the growth equation. These residuals represent the unexplained portion of each human capital specification.

### Sample and Data Considerations

Our sample encompasses the period from 1953 through 2005. Because we are interested in the impact of development INGOs on developing countries, we limit our analysis to the countries in the bottom half of GDP per capita levels. A complete list of countries

included in the analyses and the number of years of data available for each country can be found in the appendix. All models included country-specific fixed effects.

### Estimation

Given these variables, therefore, our equations are as follows when we focus on female life expectancy as our indicator for human capital:

**Equation 1 (Human Capital Equation):** Female life expectancy =  $\gamma_1$  development INGOs +  $\gamma_2$  GDP + ...controls

**Equation 2 (Economic Growth Equation):** GDP growth =  $\beta_1$  female life expectancy +  $\beta_2$  development INGOs + ...controls

The first set of equation estimates the association between the number of development INGOs and indicators of human development (female life expectancy and secondary enrollment), controlling for other factors described above. The second equation estimates the direct effects both human development (female life expectancy and enrollment) and development INGOs have on GDP growth. We can also use the coefficients from both equations to calculate the indirect effects development INGOs have on growth through their impact on female life expectancy. As shown in the equation, an increase of one in the number of development INGOs has a direct effect on growth – it increases the (natural log) of economic growth by  $\beta_2$  units. However, it also has an indirect impact on growth through affecting female life expectancy. Every additional development NGO increases, we hypothesize, female life expectancy by  $\gamma_1$ . An increase in female life expectancy, in turn, increases economic growth by  $\beta_1$ . Therefore, by improving female life expectancy, an increase in the number of development INGOs also increases economic growth, and these indirect effects equal to  $\gamma_1 * \beta_1$ . The total effects of development INGOs on growth can be estimated by adding the direct and indirect effects, as illustrated in Figure 2.

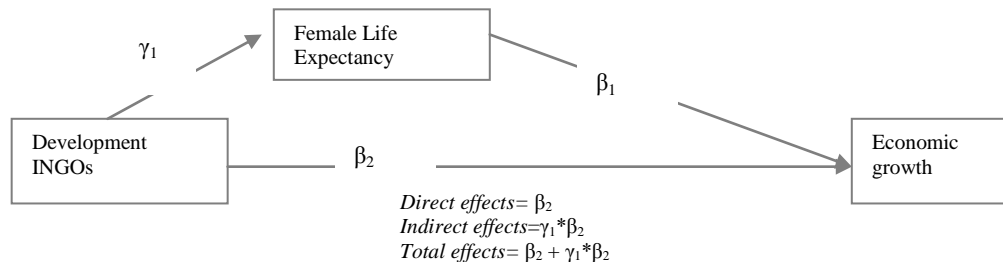


Figure 2. Direct, indirect and total effects

In a similar way we estimate the association between the number of development INGOS, growth, and female secondary enrollment, using the following set of equations:

*Equation 1* (Human Capital Equation): Female secondary enrollment =  $\gamma_1$  development INGOS +  $\gamma_2$  GDP + ...controls

*Equation 2* (Economic Growth Equation): GDP growth =  $\beta_1$  female secondary enrollment +  $\beta_2$  development INGOS + ...controls

This set of equations is identical to the one discussed above except for here we substitute female life expectancy for female secondary enrollment.

## Results

The results of quantitative analysis provide confirmation of our research hypotheses. First, the analysis confirms Hypothesis 1 and demonstrates that the number of development INGOS in a country is significantly associated with increases in both measures of human capital. Model 1a, the impact of development INGOS on female life expectancy, in Table 1 shows that an increase in the natural log of development INGOS is associated with an increase in female life expectancy of 0.44 years ( $\gamma_{\ln(\text{Dev INGOS})} = 0.437$ ,  $P(\gamma_{\ln(\text{Dev INGOS})}) < 0.1$ ). Model 2a in Table 1 shows that there is a significant positive association between the number of development INGOS and female secondary enrollment ( $\gamma_{\ln(\text{Dev INGOS})} = 3.095$ ,  $P(\beta_{\ln(\text{Dev INGOS})}) < 0.1$ ).

Table 1. Recursive regression of indirect and direct effects of development INGOS on growth, through female life expectancy and female secondary school enrollment, with country-specific fixed effects.

	MODEL (1a)	MODEL (1b)	MODEL (2a)	MODEL (2b)
	Female life expectancy	Growth - female life expectancy	Female secondary enrollment	Growth - female secondary enrollment
	$\gamma$ (S.E.)	$\beta$ (S.E.)	$\gamma$ (S.E.)	$\beta$ (S.E.)
Number of Dev. INGOS (natural log) $t-1$	0.437* (.080)	4.661* (-.782)	3.095* (-.642)	1.850* (-.568)
Female Life Expectancy $t-3$		0.216** (-.092)		
Female Secondary Enrollment $t-1$			0.310* (-.060)	-0.106 (-.061)
Female Life Expectancy $t-1$	1.042* (.008)			
Female Life Expectancy $t-10$	-0.152* (.014)			
Female secondary enrollment $t-10$			0.061 (.058)	
Population (millions)	0.002 (.002)		0.017 (.010)	
Regime Type $t-1$	-0.016** (.006)		-0.031 (.049)	
GDP per Capita (ln) $t-1$	-0.187 (.202)	-23.065* (3.109)	-0.386 (1.847)	-10.825* (1.817)
GDP annual growth rate $t-1$		-0.029 (.055)		0.038 (.041)
Total labor force $t-1$		0.000* (.000)		0.0001* (.000)
Fixed investment as % of real GDP $t-1$		0.06 (.061)		0.090* (.033)
Female secondary enrollment residuals		-0.167 (.103)		
Female life expectancy residuals				0.175 (.318)
Constant	5.172* (1.145)	105.759* (16.965)	13.367 (10.651)	62.005* (10.465)
Number of observations	833	272	278	557
Number of unique countries	66	49	49	63
R-squared	0.964	0.27	0.417	0.098

Notes: \*\* Significant at 0.05 level; \* significant at 0.1 level (two-tailed); Standard errors in parentheses.

Since we used the natural log of the number of development INGOs, a more intuitive interpretation of results in terms of changes in the actual number of development INGOs becomes somewhat complicated.

In order to calculate expected changes in the dependent variables (female life expectancy, female secondary enrollment, and economic growth) we have to take the natural log of the number of development INGOs and then multiply it by the regression estimate. Since taking a natural log is a non-linear transformation, the impact of development INGOs will depend on the absolute number of development INGOs in a given country, as well as the actual magnitude of change in this number.

For example, an increase from 1 to 10 development INGOs, like the one experienced in Albania between 1990 and 1993, will be associated with an increase in female life expectancy of about 1 year, while an increase from 30 to 40, like the one, which took place in Angola between 1990 and 1992 – of 0.13 years<sup>13</sup> (if all other factors affecting life expectancy were held constant between those two point in time).

Similarly, an increase from 47 to 57 development INGOs, like the one experienced in Armenia between 1999 and 2001, all else being equal, would be associated with a 0.6% increase in female secondary enrollment. Models 1b and 2b, the growth equations, in Table 1 confirm Hypotheses 2 and 3. In both models development INGOs show a significant and positive association with economic growth ( $\beta_{\ln(\text{Dev INGOs})} = 4.66$ , ( $P(\beta_{\ln(\text{Dev INGOs})}) < 0.1$ ) in the model with female life expectancy and  $\beta_{\ln(\text{Dev INGOs})} = 1.85$  ( $P(\beta_{\ln(\text{Dev INGOs})}) < 0.1$ ) in the model with female secondary enrollment).

This confirms Hypothesis 2: development INGOs will have a direct and positive impact on economic growth. All else being equal, an increase from 30 to 40 development INGOs (again, like the one experienced by Angola between 1990 and 1992) would be associated with an increase of some \$20 million in real GDP growth. Model 1a also confirms Hypothesis 3, namely, that development INGOs will have an indirect effect on growth through their impact on increasing human capital. Those indirect effects can be calculated in the following manner:

$$\text{Indirect effects}_{\ln(\text{Dev INGOs})} = \gamma_{\ln(\text{Dev INGOs})} * \beta_{\text{female life expectancy}}$$

Where  $\gamma_{\ln(\text{Dev INGOs})}$  is the coefficient of the natural logs of development INGOs from the Model 1a and  $\beta_{\text{female life expectancy}}$  is the coefficient of the female life expectancy from Model 1b. Again, the intuition behind this way of calculating indirect effects is that an increase in the number of development INGOs increases female life expectancy, which, in turn, increases the rate of economic growth. Thus, indirect effects of development INGOs on growth through female life expectancy are  $0.44 * 0.22 = 0.096$ . We can calculate standard error of

the direct effects following the delta method described by Baum and Lake (2003):

$$\text{S.E.}(\beta * \gamma) = \sqrt{(\beta^2 * \text{S.E.}(\gamma))^2 + \gamma^2 * \text{S.E.}(\beta)^2}$$

Where  $\beta$  is the coefficient of the number of development INGOs from the growth equation and  $\gamma$  is the coefficient of the number of development INGOs from female life expectancy. These standard errors are provided in Table 2, which shows that the indirect effects are significant at the 0.05 level.

Table 2. Direct and indirect effects of development INGOs on economic growth through female life expectancy

	Direct effects (S.E.)	Indirect effects (S.E.)
Female life expectancy	4.66 (0.78)	0.096 (0.04)

In total, an increase from 30 to 50 development INGOs, like the one that took place in Jordan between 1979 and 1991, would be associated with an increase in the growth rate of real GDP of some \$74.03 million through direct impact on growth and through improvements in human capital. The number of development INGOs shows a statistically significant and positive association with female secondary enrollment and with GDP growth. However, female secondary enrollment does not seem to be associated with economic growth (Model 2b in Table 1 shows insignificant association between female secondary enrollment and growth and insignificant indirect effects of the number of INGOs).

There are two plausible reasons for this lack of association. The first one is the limited availability of the data on female secondary enrollment. It is possible that with more accurate and non-interpolated data female enrollment would turn out to show a significant association with economic growth, as predicted. The other reason is substantive. It is plausible that increased female secondary enrollment is in fact unrelated to economic growth. William Easterly argues that education fosters growth only where there exists a demand for skills which education provides (Easterly 2001b). In developing nations, where employment opportunities, especially for women, are scarce, improving education opportunities for women may increase their potential productivity, but will have no impact on the national economy.

## Discussion and Conclusion

Do development INGOs make a difference? The quantitative analysis presented in this paper allows us



to give a confirmatory answer: the number of development INGOs is associated with improvements in human capital, measured as female life expectancy and percent female secondary enrollment, and shows both direct and indirect effects on economic growth. It is easy to imagine other types of international non-governmental organizations having similar effects. A major limitation of our study stems from the fact that we only consider the number of development INGO in the country. Clearly, what matters is not so much how many INGOs are present, but what they actually do. However, at present such data is not available for a quantitative cross-country comparison. Further research needs to address the impact of particular activities development INGOs engage in (e.g. microcredits, conditional cash transfers, leadership building and so forth) and examine the effects of different types and levels of activities. Also, differences in quality and effectiveness of individual INGOs need to be addressed.

Despite these limitations, the findings of this project has wide implications not only for scholars interested in INGOs or economic development, but, perhaps more importantly, for the development “industry” and practitioner community as well. The presence of development INGO matters. Even with concerns about accountability and transparency, overall, development-oriented international non-governmental organizations seem to deliver the results that they promise.

## Notes

1. An NGO is minimally defined as any non-profit, open membership, transparent, and legal organization. This is the definition agreed to in the Yearbook of International Organizations, the standard reference on NGOs and international organizations (IOs). To this minimal definition, however, the focus here will be on organizations that define their major aim to be fostering economic growth and development, as classified in the Yearbook of International Organizations. Additionally, within the Yearbook of International Organizations, an NGO is classified as an international NGO (INGO) only if it has active members within 3 different states. Two well-known examples of development INGOs would be CARE Inc and Oxfam Inc. In restricting our focus to only INGOs, we do not intend to downplay the importance of domestic NGOs. We focus only on INGOs both due to data limitations and because most of the extant literature has followed this approach. Future work on the impacts of specifically domestic organizations is definitely necessary.
2. [http://www.care.org/newsroom/articles/2007/04/20070406\\_cambodia\\_schools.asp](http://www.care.org/newsroom/articles/2007/04/20070406_cambodia_schools.asp)
3. [http://www.care.org/newsroom/articles/2007/04/20070406\\_cambodia\\_schools.asp](http://www.care.org/newsroom/articles/2007/04/20070406_cambodia_schools.asp)
4. [http://www.care.org/newsroom/articles/2007/04/20070406\\_cambodia\\_schools.asp](http://www.care.org/newsroom/articles/2007/04/20070406_cambodia_schools.asp)
5. <http://www.care.org/careswork/whatwedo/index.asp>
6. <http://www.care.org/careswork/whatwedo/index.asp>

7. <http://www.care.org/careswork/whatwedo/index.asp>.
8. Results available from authors.
9. These years were not chosen at random. Instead, the only publicly available Yearbook of International Organizations CD-Roms within the United States are for the years 1998 and 2001.
10. Under the Yearbook’s coding scheme development INGOs are coded as those that self-define as being concerned mainly with economic development
11. Using the natural log of this number helps us account for the idea that more error could be going into our model simply because some raw values are larger.
12. We obtained data on population from the World Bank Development Indicators and data on regime type from the Polity IV dataset.
13. Note that non-linear relationship between the number of development INGOs and the outcome variables is not dictated by the theory but by concerns about non-stationarity in the number of development INGOs in the long time series encompassed by the data.

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