

# **The Globalization of Production, Industrial Upgrading, & Collective Labor Rights in the Global South**

Anthony Roberts  
Colorado State University

## **Abstract**

The impact of global production integration on labor rights in the Global South remains one of the more contested issues in the extant literature. Despite this ongoing debate, very few studies systematically investigate how global production integration affects the enactment and enforcement of collective labor laws through the empowerment of labor with industrial skill upgrading in global production networks. This study addresses this gap in the literature by empirically testing whether global production integration indirectly affects collective labor rights in developing countries through altering the skill composition of industrial labor forces. I test this proposition using unbalanced panel data for a sample of 55 low and middle-income countries from 1985 to 2002 and generalized structural equation modeling for path analysis. The results show the skill composition of the industrial labor force partially mediates the relationship between global production integration and collective labor rights. Specifically, manufacturing exports to high income countries is associated with a decline in the skill composition of the industrial labor force which, in turn, reduces collective labor practices. Additionally, manufacturing exports is directly associated with weaker collective labor practices in developing countries after controlling for institutional conditions, political conditions and economic development. Overall, the study elucidates industrial skill upgrading as an important mechanism linking the integration of Southern firms into global production networks and the enforcement of collective labor rights in developing countries.

**Keywords:** Globalization, Collective Labor Rights, Industrial Upgrading, Mediation Analysis

*Direct correspondence to* Anthony Roberts, Colorado State University, Department of Sociology, Fort Collins, CO 80523. Email: Tony.Roberts@colostate.edu.

## Introduction

Debate on the relationship between globalization and labor rights in the extant global political economy literature persists despite a proliferation of studies on the topic over the last ten years (e.g. Silver 2003; Mosley 2011; Mosley and Uno 2007; Flanagan 2006; Greenhill et al. 2009). At the center of this debate is whether the globalization of production induces firms and national governments to suppress labor rights in order to promote global competitiveness, attract foreign direct investment, and accelerate economic development. Proponents of the ‘liberalization’ thesis contend the intensification of international trade and investment amplifies global economic competition which pressures states into adopting neoliberal policy reforms that erode the collective power of labor while enhancing the position of global capital (Streeck 2009; Howell 2003; Glyn 2006; Hassell 1999; Baccaro and Howell 2011). Other researchers contend the globalization of production enhances labor rights through the development of globally integrated economics which produces positive externalities for labor (Flanagan 2006). Moreover, others argue the globalization of production leads to improved labor rights because industrialization provides workers with an improved bargaining position to acquire basic rights (Silver 2003). Despite these competing contentions, few studies systematically test these claims by observing whether the improvement of Southern firms leads to the establishment and enforcement of labor rights (Barrientos et. al 2011; Mosley 2011; Cole 2013). Therefore, the main objective of the study is to empirically examine the impact of production globalization on worker rights in the global South to adjudicate the persistent debate over the liberalization thesis.

While past research on the liberalization thesis in less-developed and emerging countries shows globalization exerts little to no impact on national policy (e.g. Spar and Yoffie 1999), other studies show globally-integrated firms pressure weak states into implementing formal and informal neoliberal reforms to reduce the cost of production and enhance the competitiveness in the world economy (Anner 2008; Neumayer and Sosa 2007; Rudra 2008; Mosley and Uno 2007; Cao 2012). Similarly, while research on advanced capitalist countries finds globalization is unrelated to the shift toward market-oriented policy (Campbell 2004; Iversen and Soskice 2009; Hall and Gingerich 2009), other studies claim globalization is partially responsible for the liberalization of economic policy in advanced capitalist countries (Simmons et al 2008; Baccaro and Howell 2011; Kapstein 1996). In sum, the conflictual empirical status of the liberalization thesis for labor rights warrants a systematic examination of the role of globalization plays in the formation and enforcement of labor rights.

One possible cause of disagreement in the literature is the failure to observe how firms in the global South are integrated in global production networks (GPNs) and the position these firms occupy in the production process. Firms in developed countries tend to occupy upstream roles in GPNs by specializing in capital- or skill-intensive production processes (e.g. high-tech and heavy manufacturing, research and development, branding, retail, etc.) while firms in less-developed countries tend to occupy downstream roles by specializing in labor-intensive production process (e.g. resource extraction, component manufacturing, assembly, etc.). Because these roles promote different types of upgrading of skill and tasks in local labor markets, the formation and expansion of GPNs increase low-skill labor-intensive manufacturing in the global South. To date, no study has attempted to systematically explain the relationship between global production integration and collective labor rights by observing the mediating role of industrial upgrading in this relationship. Accordingly, this article examines whether the skill composition

of industrial labor is an important mechanism behind the association between global production integration and collective labor rights.

Based on a sample of 55 low- and middle-income countries from 1985 to 2002, the analysis shows manufacturing exports to Northern countries and inward foreign direct investment exert a downward pressure on the enforcement of labor rights in less-developed countries. Moreover, manufacturing exports indirectly encourages the non-enforcement of collective labor law by reducing the skill intensity of the local industrial labor force which, in turn, reduces the bargaining position of labor in pressuring firms to comply with collective labor laws and governments to enforce these laws. The findings suggest the bargaining power of the industrial class in the global South is weakening because of the inability of Southern firms to ‘upgrade’ their position in GPN, but this indirect effect is significantly weaker compared to the direct effects of global production integration.

Overall, the article suggests the globalization of production induces weak collective labor practices in less-developed countries by promoting labor-intensive industrialization and increasing the competitive pressure to maintain low labor cost. The expansion of the unskilled industrial labor force signifies a developmental path based on minimize the role of collective labor in order to meet the demands of global production. This rise of unskilled industrial labor in less-developed countries setting into motion the weakening of new political coalition between capital, the state, and political parties by reducing the effective bargaining power of labor in negotiating the enactment and enforcement of collective labor rights. As a result, industrial relations systems are becoming increasingly dominated by the interest of global capital and their demand for flexible labor markets in the global South.

## **Industrial Upgrading in Global Production Networks**

**[Insert Figure 1]**

The breakdown of the vertically-integrated model of Fordist national production in the 1970s resulted caused the global diffusion of manufacturing processes to most regions of the world (Froebel et al. 1978; Feenstra 1998). In fact, from the late 1960s to 2000, the less-developed countries increased their share of global manufacturing value added from 6.9% to 24% (Kaplinsky 2008). Figure 1 shows the average trend of inward foreign direct investment and manufacturing exports to countries in the global North. Since the mid-1980s, most countries in the global South experienced an expansion in inward foreign direct investment and trade openness. On average, low and middle-income countries experienced an 83 percent increase in the value of foreign direct investment stock between 1985 and 2002. Over this same period, the average low and middle-income countries saw the value of manufacturing exports to the most developed countries in the world nearly double. Overall, Figure 1 illustrates two general trends in the globalization of production showing the consolidation of global production in the global South.

The intensification of manufacturing trade and investment over the 40 years is indicative of formation and consolidation of *global production networks* – “the [global] nexus of interconnected functions and operations through which goods and services are produced, distributed and consumed” (Henderson et al. 2002: 445). From this conceptual perspective, firms, governments, labor organizations, and other economic actors in the global South are increasingly integrated into dense and complex networks of production which affects the sociopolitical and

socioeconomic development of these areas. In analyzing these developmental impacts, it's important to distinguish between the two modes of global production integration: direct ownership and sub-contractual (Mosley 2011). The former refers to the long-term cross-border investment of a multinational firm into a local enterprise in order to promote their interest and managerial control over production (Ibid: 6). The latter refers to short-term agreement between foreign and local firms to produce and/or assemble goods (Ibid: 12).

This distinction between modes of integration is echoed in other conceptual work on the organization and governance of production globalization (Gereffi et al. 2005; Mahutga 2012). According to this literature, the capacity of local suppliers, complexity of the production process, and the barriers to entry determine how firms are integrated into global production networks. Lead firms in advanced capitalist countries outsource labor-intensive production processes to foreign firms in order to specialize in high-valued and non-manufacturing activities within global production networks (e.g. branding, research & design, retail, etc.). This outsourcing of industrial production among lead firms in advanced capitalist countries is especially acute in industries characterized with relatively low barriers to entry and a relatively simple production process (Mahutga 2012; Gereffi 1994). As firms specialized in their core competencies and upstream activities in production networks, they are better able to exert control over foreign suppliers through the high degree of competition for production contracts and the ownership of 'intangible assets' in the production process, such as branding and research design (Mahutga 2013). As a result, Southern firms are limited to downstream activities of resource extraction, component production, and assembly. The dependency of Southern firms forces them to occupy labor-intensive production processes in global production networks because of their relative abundance of labor to capital (Feenstra 1998; Silver 2003; Firebaugh 2003). This comparative factor advantage of Southern firms allows them to produce labor-intensive goods at a lower cost than their competitors in more advanced countries since these countries possessed a relative surplus of unskilled labor (Wood 1994).

Industrial upgrading is an important process in globalized production because the skill composition of local labor determines the position of firms in global production networks. Specifically, firms with skilled labor are better able to “upgrade” their position in global production networks. The concept of ‘industrial upgrading’ refers to “a move to higher value added activities in production, to improve technology, knowledge and skills, and to increase the benefits or profits deriving from participation in GPNs” (Gereffi, 2005: 171–175). Proponents of multinational production argue the integration of Southern firms into GPNs should promote skill acquisition through the transfer of technologies, best practices, and the adoption of more advanced production processes (Porter 1990; Breznitz 2007; Gereffi 1999; Firebaugh 2003). Others contend global production integration forces Southern firms into engaging in labor-intensive production and adopting low-cost labor regimes (Rudra 2002; 2005; 2008; Heintz 2003).

### **[Insert Figure 2]**

Figure 2 shows the average proportion of skilled industrial labor in 55 low- and middle-income countries between 1985 and 2002. According to Figure 2, the relative size of the skilled industrial labor force initially decreased in the 1980s, this segment increased during the 1990s, only to decline again in the early 2000s. In 1985, nearly 4 out of 10 industrial workers in low and middle-income countries were located in high-skilled manufacturing sectors, but by 1990 this

ratio decreased to about 3 out of 10 industrial workers. However, by 1999 the ratio increased to 3.5 out of 10 workers only to fall to nearly 2 out of 10 by 2007. The descriptive evidence in Figure 2 suggests labor-intensive industrialization of developing countries. The question remains on whether the growth of unskilled labor in developing countries is directly contributing to the enactment and enforcement of collective labor rights.

### **Global Production Integration, Industrial Upgrading, & Collective Labor Rights**

A consistent observation in the political economy literature is the industrial class plays a central role in the success of organized labor movements in establishing collective labor rights (D'Agostino 1992; Silver 2003; Fligstein 2001). Industrial workers occupy an advantageous socioeconomic position in the labor market because they possess scarce production skills (Neal 1995; Tang 2012; Wright). As a result, they are better equipped to pressure firms into complying with labor laws and lobbying governments to enact collective labor laws. Research on the global North shows industrial workers are the primary membership base for unions and a strong determinant of labor militancy (Alhquist 2010; Lee 2005). During the height of industrialization in the former half of the 20th century, skilled industrial labor was able to utilize its bargaining power to establish a set of institutions designed to socially regulate labor markets and employers. In most advanced capitalist countries, wage levels are at least partially impacted by the enactment of collective bargaining agreements between unions, employer associations, and state agencies. Contracts between employees and employers are governed by an elaborate set of legal procedures and requirements that restrict the ability of employers to immediately dismiss individual and groups of workers. In the event workers are unable to work, some countries provide generous welfare benefits that provide a non-market income to workers who are sick, searching for employment, or retired. Compared to less-developed countries, the capacity of labor to effectively bargaining with employers in the global North is enhanced by the central role of unions and confederations in developing social and economic policies.

Surprisingly, consideration of Southern workers in GPNs has been limited in academic research (Barrientos et al. 2011). More recent research, however, shows production globalization plays an important role in determining collective labor rights (Mosley 2011; Mosley and Uno 2007; Greenhill et al. 2009). According to this research, foreign direct investment is largely beneficial to worker rights. Multinational corporations are most concerned about the hiring and retention of skill workers because of their capability to productively perform complex production tasks (Brown et al. 2004; Spar and Yoffie 1999). Since MNCs want to attract the best workers, they are forced to promote collective labor rights and improve working conditions (Flanagan 2006). More importantly, MNCs may promote skill formation in local industrial labor forces by transferring new technologies and training workers in more advanced production process (Mosley 2011; Garcia-Johnson 2000). As workers acquire greater skill in manufacturing production, they are more capable of advocating for their rights and better working conditions. In contrast, this research shows sub-contracting is associated with worse collective labor rights because subcontracted firms are more concerned with labor costs and actively suppress labor rights to reduce the cost of production (Mosley 2011; Arrighi et al. 2003; Evans 1979). However, this research has failed to consider the role of industrial upgrading and whether this process mediates the association between global production integration and collective labor rights.

To date, no study examines the association between skill intensity of industrial production and the improvement of collective labor rights. While contemporary research focuses

on improvement in production, very few studies consider how industrial upgrading is related to the “social upgrading” – “the process of improvement in the rights and entitlements of workers as social actors, which enhances the quality of their employment” (Rossi, 2011; Sen 1999; 2000). Generally, improvement in the skill intensity of production is thought to correspond to improvement in working conditions and rights. Unskilled labor is largely excluded from social upgrading in order for the factory to remain cost-competitive and flexible in terms of last-minute changes in orders (Barrientos et al. 2011: 332). However, skilled labor is likely to see improvements in rights and entitlements because of their capacity to effectively pressure firms into promoting and complying these rights and entitlements. According to this emerging perspective, the globalization of production may affect collective labor rights through the process of industrial upgrading.

The distinction between unskilled and high skilled industrial production is central to understanding the formation of collective labor law in less-developed countries. In these countries, collective labor rights are in a formative phase of development where legal systems and industry norms are increasingly centered on negotiations over these rights. Silver (2003) contends the expansion of the industrial class in less-developed countries is responsible for the emergence of labor movements pushing for higher wages and greater working conditions. However, this research omits the differential impact of labor- versus capital-intensive industrialization. In fact, Rudra (2002; 2005) finds international trade and net foreign capital flows hinders the capacity for workers to resist the dismantling of the nascent welfare state, especially in economies where workers possess less bargaining power. Furthermore, Mosley (2011) notes subcontracted firms engaged in labor-intensive production processes actively reduce labor costs by resisting the enactment and enforcement of collective labor rights (see also Anner 2008; Murillo and Schrank 2005). Therefore, the successful enactment and enforcement of collective labor rights might be dependent on skill composition of the industrial labor force. In countries where most of the industrial labor force is composed of unskilled workers, collective labor rights are less institutionalized because of greater labor competition and the demand for low labor costs.

### [Insert Figure 3]

Figure 3 shows the average longitudinal trends of collective labor practices in developing countries and the strength of labor market institutions in advanced capitalist countries from 1985 to 2002. Both indicators are standardized in units of standard deviations for comparability. According to Figure 3, low and middle-income countries have experienced divergent trajectories of collective labor law and practices. While the enactment of collective labor laws has remained relatively constant over this period, the enforcement of these laws (via practices) has steadily declined during this period. This ‘decoupling’ of collective labor law and practices suggests a more nuanced picture of how global production integration and industrial upgrading affects collective labor rights.

### **Sample & Data**

I utilize a panel sample of country-year observations to test the direct and indirect effects of global production integration on collective labor laws and practices in low- and middle-income countries. The developmental status of a country is based on the 2010 World Bank Income

Group Classification scheme, where countries are defined as low income if gross national income (GNI) per capita is less than \$1,005 while countries are classified as middle income if GNI per capita is greater than \$1,005, but less than \$3,975.<sup>1</sup> The sample consists of 55 low- and middle-income countries from 1985 to 2002.<sup>2</sup> Due to missing data and listwise deletion, the sample is composed of 511 country-year observations. Unfortunately, the time period is restricted because of the availability of collective labor rights data.

### *Collective Labor Rights – Law & Practice*

The Collective Labor Rights (CLR) database (Mosley 2011) provides the most comprehensive and internationally-comparable measures of the right to, and practice of, collective bargaining, collective strikes, and formation of worker associations for a cross-section of 198 countries observed over a 17-year period (1985-2002). Data on collective labor rights and practices are based on the coding of national legislation and a number of country-specific official reports from the US State Department, International Labor Organization, and the International Confederation of Free Trade Unions.

The key feature of this data is that it provides standardized indices of collective labor laws and practices for each country-year in the database. Collective labor laws are measured by an additive scale based on 21 items covering whether countries possessed general prohibitions against the right to organize and form unions to whether rights are restricted in export-processing zones. Higher values of the scale indicate that countries have established laws that promote the organization of labor. Collective labor practices are measured with an additive scale based on 16 items covering whether there was a murder or disappearance of union organizers to whether the scope of collective bargaining agreements was limited by non-state employers. Similar to the other measures, higher values indicate collective labor laws are strictly enforced and promote the collective organization, bargaining, and disputes of labor.

### *Global Production Integration*

Global production integration is measured with two general cross-national indicators: (1) the value of international manufacturing trade and (2) the value of foreign direct investment. Since Southern firms occupy distinct roles in global production networks these indicators are intended to measure how these firms are related to lead firms within GPNs (Mahutga 2012; Gereffi et al 2005; Henderson et al 2002). More importantly, given the near impossibility of measuring subcontracting flows within GPNs, patterns of trade serve as reasonable proxy while controlling for foreign direct investment (Mosley 2011: 13).

I measure the aggregate integration of Southern firms into global production networks using two aggregated measures: (1) the value of manufacturing (SITC Rev.1 5-8) exports to OECD countries and (2) the value inward foreign direct investment stock. The first indicator

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<sup>2</sup> This sample includes the following countries: Albania, Armenia, Azerbaijan, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chile, China, Colombia, Republic of Congo, Costa Rica, Djibouti, Ecuador, Egypt, El Salvador, Ethiopia, Fiji, Gambia, Georgia, Ghana, Guatemala, Guinea, Honduras, India, Jordan, Kazakhstan, Kenya, Kyrgyz Republic, Lesotho, Madagascar, Malawi, Malaysia, Mali, Mauritania, Mongolia, Morocco, Mozambique, Namibia, Nepal, Niger, Pakistan, Panama, Paraguay, Peru, Philippines, Rwanda, Senegal, Sri Lanka, Swaziland, Tajikistan, Thailand, Togo, Tunisia, Turkey, Uganda, Ukraine, Uruguay, and Vietnam.

measures the total value of manufacturing exports to OECD countries as a percentage of gross domestic product (UNCOMTRADE 2012). Manufacturing exports to OECD countries (i.e. Northern export orientation) approximates the degree to which local industrial firms produce for markets located in advanced capitalist countries. The second indicator measures the total value of inward foreign direct investment stock as a percentage of GDP (UNCTAD 2012). Inward foreign capital stock (i.e. foreign capital penetration) approximates the degree to which local firms are foreign subsidiaries of multinational corporations with headquarters in advanced capitalist countries. More generally, these indicators serve as proxies for the aggregation of trade- and investment-based inter-firm linkages between Northern and Southern firms in global production networks.

### *Industrial Upgrading: Skill Composition of Industrial Labor*

The main indicator for industrial upgrading is the skill composition of the industrial labor force (Rudra 2005). To measure labor-intensive industrialization, I observe the ratio of industrial workers in high-skill manufacturing production (SITC Rev 2. 5, 71-78, 87-88) to industrial workers in low-skill manufacturing production (SITC Rev.2 61-67, 69, 78-79, 81-85, 89) (Rudra 2005; UNIDO 2013). Lower values of the skill-ratio indicate more labor-intensive industrialization and lower propensity for the industrial upgrading of local firms with GPNs.

### *Developmental, Institutional, and Political Controls*

In estimating the mediated relationship between global production integration and collective labor rights, I control for developmental, institutional, and political conditions of low and middle-income countries. Specifically, I include the following variables in the models as controls: secondary education enrollment, economic development, economic growth, population growth, domestic investment, democratization, and strength of the leftist party. Secondary enrollment is measured the percentage of the age-appropriate population enrolled in secondary education (World Bank 2012). Economic development is measured as the gross national income per capita (World Bank 2012). Economic growth is measured as the annual percentage change in gross domestic production (World Bank 2012). Population growth is measured as the annual change in the total population (World Bank 2012). Domestic investment is measured with gross capital formation as a percentage of gross domestic product (World Bank 2012) The level of democratization in a country is measured with the Polity IV democratization index (Marshall et al 2010). The strength of leftist parties is measured as the percentage of current legislative and executive seats possessed by leftist parties in the model (Keefer 2010).

### **[Insert Table 1]**

Table 1 provides descriptions, sources, and basic descriptive statistics for each variable in the analysis.

### **Analytical Strategy**



The analytical purpose of the study is to estimate the direct and indirect effects of production globalization on collective labor rights in low and middle-income countries. Specifically, I test whether the skill composition of industrial labor mediates the effects of inward foreign investment and manufacturing trade with Northern countries on collective labor laws and practices. Traditionally, researchers have theorized the mechanisms linking variables in a causal process without directly observing the purported mechanism in their analytical models. I extend on this traditional approach by conducting a mediation analysis designed to observe the structural mechanisms linking production globalization to collective labor rights.

In mediation modeling, researchers are concerned with whether an intervening variable accounts for the relationship between two other variables. The basic approach for this type of analysis is drawn from the recommendations of Baron and Kenny (1986), who propose a three step process for observing mediation using a series of unrelated regression models. In the first step, the researcher regresses the dependent variable on the independent variable to estimate the direct and unconditional relationship between the two variables. In the second step, the researcher regresses the dependent variable on the mediating variable to determine whether a direct relationship exists between the two variables. Finally, in the third step, researchers regress the dependent variable on the mediating and independent variables. Drawing on the work of Sobel (1982), researchers can then estimate the degree to which the mediation variable accounts for the effect of the independent variable on the dependent variable by comparing the difference in the coefficients of the independent variable in first and third steps and using a t-test to determine whether the difference is statistically significant.

Recent research suggests structural equation modeling (SEM) is preferable because it relaxes several critical assumptions of the traditional approach (Iacobucci, Saldanha, and Deng 2007; Zhao, Lynch, and Chen 2010; Preacher, Zhang, and Zyphur 2011). Baron and Kenny (1986) contend the evidence for mediation is strongest when the independent and dependent variable are not associated once the mediating variable is introduced into the model. Accordingly, their methodology is best suited for detecting *full* mediation and is inadequate for accounting for *partial* mediation. However, the empirical literature tends to be more supportive of multiple social processes operating at once. Theoretically, the relationship between production globalization and collective labor rights contains multiple mechanisms which implies industrial upgrading only partially mediates this relationship. Since the traditional approach starts from the assumption of full mediation it could potentially under-estimate the partial indirect effect of production globalization (Zhao, Lynch and Chen 2010: 200-202). Structural equation modeling relaxes this assumption by imposing a more complex mediation model onto the covariance structure that includes both direct and indirect pathways between variables.

An important assumption of the traditional approach to mediation analysis is the independence of the regression equations when estimating the indirect effects of covariates. Ignoring the dependence of the errors across each of the regression model causes an upward bias in the standard errors which increases the likelihood of committing a Type 2 error in hypothesis testing. SEM relaxes this assumption by simultaneously estimating each equation using the same covariance matrix. Additionally, the traditional approach does not allow a researcher to know how the mediation model fits the data while SEM is designed to assess how well the overall model explains variation among exogenous and endogenous variables (see Bollen and Brand 2010). Thus, evaluating fit statistics provide another criterion to evaluate whether the more complex model with mediation adequately describes the covariance structure of the variables. In

the analysis, I utilize likelihood-ratio tests and Bayesian Information Criterion (BIC) to evaluate whether a mediation model is preferred to a model without mediation.

The application of standard structural equation modeling is limited by the dependence of observations in panel data. The hierarchical structure of panel data, where observations are correlated within and between panels, inherently violates the assumption of independence required for the unbiased and efficient estimation with SEM (Preacher et al. 2010). Even more concerning is the propensity for omitted variable bias in panel data since unobserved covariates and correlated errors between endogenous variables to bias estimates (Halaby 2004). One solution is to utilize a variance component models that decomposes the error structure by including a latent random intercept for the endogenous covariates (see Krull and McKinnon 2001 for a review of these models). However, this approach assumes random intercepts are unrelated to the exogenous variables in the model. If this assumption is violated, estimates from these models are inconsistent. Another solution is to include a set of country-specific intercepts in the model. While this approach is inefficient, it does not depend on the assumption of the variance component model. Based on a series of Hausman tests, which compares estimates from both approaches, the assumption of the variance component model is violated and the fixed-effects approach is preferred for consistent estimation.

I estimate a series of generalized path models with country-fixed effects to assess the degree to which the skill composition of the industrial labor force mediates the relationship between production globalization and collective labor rights. Additionally, due to the non-spherical structure of the errors, I utilize standard errors that consistent under conditions of heteroskedasticity and serial-correlation for hypothesis testing of the path coefficients.

Below is a simple specification of the formal model:

$$(1) Y_{it} = \alpha_{it} + X_{it} + Z_{it} + W^*_{it} + V_{it} + U_i + \varepsilon_{it}$$

$$(2) W_{it} = \alpha_{it} + X_{it} + Z_{it} + V_{it} + U_i + \varepsilon_{it}$$

In Equation 1 Y is the either the collective labor law or collective labor practices index for country i in year t;  $\alpha$  is the grand intercept; X is manufacturing exports to the North, Z is inward foreign direct investment, W is the skills ratio and W\* is the endogenized version of each variable, V is a set of control variables, U is a vector of country-specific intercepts, and  $\varepsilon$  is the grand error term. Equation 2 shows the endogeneity of the skill ratio and directly models this process as a function of both indicators of production globalization and the controls variables.

## Results

### [Insert Figure 4]

Figure 4 shows the generalized path model of collective labor laws in low- and middle-income countries from 1985 to 2002. The model is composed of the observed variables and the theoretically-specified pathways between these variables. Each variable is transformed by subtracting the country-specific mean in order to control for unobserved time-invariant

heterogeneity by simulating country fixed-effects.<sup>3</sup> Additionally, each pathway between observed variables reports the model standardized coefficient and the standard error (bolded coefficients indicate statistical significance at  $p < .05$ ). Finally, each standardized coefficient is estimated net of additional controls.

According to Figure 4, inward foreign direct investment is not significantly associated with industrial skill composition or the enactment of collective labor laws.<sup>4</sup> However, manufacturing exports to Northern countries shows a significant and negative association with industrial skill composition and collective labor laws. A one standard deviation increase in manufacturing exports is associated with a .1 standard deviation increase in both collective labor laws and industrial skill composition. Surprisingly, industrial skill composition is not significantly associated with collective labor laws, which suggests it does not mediate the association between manufacturing exports and collective labor law.

### [Insert Figure 5]

Figure 5 shows the generalized path model of collective labor practices in low- and middle-income countries from 1985 to 2002. The model is structurally the same as the model in Figure 4 and includes the same variable transformation, standardized coefficients, and control variables. According to Figure 5, while inward FDI is not significantly associated with industrial skill composition, inward FDI shows a significant and negative association with collective labor practices. Specifically, for a one standard deviation increase in inward FDI, collective labor practices decline by .38 standard deviations. Similarly, manufacturing exports to Northern countries shows a significant and negative association with collective labor practices where a one standard deviation increase in exports is associated with .03 standard deviation decrease in practices.

The results in Figure 5 partially support the claim on the mediating role of industrial upgrading in the relationship between global production integration and collective labor rights. Manufacturing exports to Northern countries indirectly reduces the enforcement of collective labor rights through decreasing the skill composition of the industrial labor force. However, while the stock of inward foreign direct investment is unrelated to the skill composition of the industrial labor force, inward FDI exerts a much stronger direct effect on practices. This suggests integration through both subtracting and direct ownership increases the non-enforcement of collective labor rights which implies that international competition and the pressure to maintain low-labor costs is a more central concern of globally integrated firms in the less-developed countries (e.g. Anner 2008; Anner 2011). Overall, the findings from the generalized path models in Figure 4 & 5 partially confirms the indirect role of production globalization in the hindrance of collective labor rights in low and middle-income countries. However, given the relative magnitude of these effects, the skill composition of industrial labor plays a weak role in this relationship

### [Insert Table 2]

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<sup>3</sup> The variable transformation is intended to preserve degrees of freedom in the generalized path models. Including an entire vector of country-specific intercepts would increase the number of covariates in the model by 55 which is than multiplied by two for each endogenous variable in the model.

<sup>4</sup> In the model, inward FDI stock is shows a marginally significant and positive association with collective labor law ( $p < .10$ ).

Table 2 reports model summary statistics for three model types: no mediation, partial mediation, and full mediation. In the no mediation model, only direct pathways between variables are specified to simulate the traditional regression approach. In the full mediation models, the direct pathways between production globalization and collective labor rights are omitted, but indirect pathways are specified. The partial mediation models are shown in Figures 4 & 5. According to the results in Table 2, both types of mediation models summarize the covariance structure of the data better than the no mediation model. In both cases, the BIC of the model decreases substantially when mediated pathways are included.<sup>5</sup> Moreover, the likelihood ratio tests comparing the models suggests the mediated pathways significantly improve the fit of the model. Overall, the model comparison supports the general claim that skill composition mediates the association between production globalization and collective labor rights even though the extent of this mediation is somewhat weak in comparison with other effects.

**[Insert Table 3]**

Table 3 reports the direct, indirect, and total effects of inward foreign direct investment and manufacturing exports to Northern countries on collective labor laws and practices. Estimates of direct and indirect effects are derived from the models in Figure 4 & 5. The indirect effect is calculated by multiplying the standardized coefficient of the pathway between the indicator of global production integration and skill composition to the standardized coefficient of the pathway between skill composition and collective labor law/practices.<sup>6</sup> According to the results, inward foreign direct investment shows no significant indirect association with collective labor laws or practices, but is positively associated with collective labor laws ( $p < .10$ ). Moreover, inward FDI is negatively associated with collective labor practices. In contrast, manufacturing exports to Northern countries exerts a significant direct and indirect effect on collective labor practices. However, the indirect effect only accounts for less than 10 percent of the total effect of manufacturing exports. The weak indirect effect suggests other unobserved mechanisms account for most of the relationship between manufacturing exports and collective labor practices. Skill composition and industrial upgrading play by a smaller role in the social upgrading of worker in globally integrated countries of the South.

**[Insert Table 4]**

Table 4 reports the standardized coefficients and standard errors of the control variables in the partial mediation models of Figures 4 and 5. According to the results, only economic development and population growth are associated with improvements in the skill composition of the industrial labor force. A one standard deviation increase in GNI per capita and population growth is associated with a .13 standard deviation in skill composition. When it comes to collective labor rights, strength of leftist parties exerts a positive effect on the enactment and enforcement of rights. Specifically, a standard deviation increase in the representative of leftist parties in government is associated with a .16 standard deviation increase in collective labor law

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<sup>5</sup> BIC reductions of 0–2 indicate weak evidence; 2–6 indicate positive evidence; 6–10 indicate strong evidence and greater than 10 indicates very strong evidence (Raftery, 1995).

<sup>6</sup> The indirect coefficient and standard error is estimated using the non-linear combination (nlcom) function in STATA 14.

and practices. However, the findings show domestic investment reduces collective labor laws. A one standard deviation increase in gross capital formation is associated with a .09 reduction in collective labor law. Overall, the developmental and political context matters for explaining collective labor rights. Subsequent research needs to explore how production globalization influences domestic political conditions and coalition formation (e.g. Thelen 2014).

## **Discussion & Conclusion**

The paucity of systematic research on the link between global production integration and collective labor rights continues to limit our understanding of how GPNs are reshaping the socio-legal status of workers in the global South. The persistence of debate over this topic in the comparative political economy requires more theoretically elaborate models to clarify important contention. Accordingly, this study provides further evidence showing the deleterious effect of global production integration on the enactment and enforcement of collective labor rights. The findings suggest both modes of global production integration induce firms to violate and suppress collective labor rights in order to maintain global competitiveness through lower labor costs.

Prior studies suggest economic globalization pressures firms and states into adopting market-oriented reforms to improve firm competitiveness in the world economy (Howell 2003; Glyn 2006; Anner 2008; Simmons et al 2008), but this research ignored the role of the industrial working class in the enactment and enforcement of collective labor rights in the global South. According to the results, the globalization of production plays a direct and indirect role based on generalized path models of low and middle-income countries. Manufacturing exports to Northern countries induces labor-intensive industrialization in these countries while pressuring states to avoid enacting new collective labor laws and enforcing existing laws. In turn, the ‘de-skilling’ of the industrial labor force hinders their position in pressuring firms to comply with existing collective labor laws. Moreover, the models show foreign direct investment may also directly incentivize the non-enforcement of collective labor rights in developing countries. In sum, the findings suggest the role of production globalization in formation and enforcement of collective labor rights is more complex than previously perspective acknowledge in the extant literature on production globalization and worker rights in the global South. Industrial upgrading appears limited because of the subordinate role Southern firms occupy in GPNs. Moreover, improvement in the skill-base of industrial labor exerts a relatively weak effect on collective labor rights. Therefore, we need to start explicating other developmental mechanisms linking the formation and consolidation of GPNs to the rights of Southern workers.

The association between labor-intensive industrialization and the decline of collective labor practices challenges prior research showing the relationship between industrial development and the advancement of working class politics in less-developed countries (e.g. Silver 2003; Flanagan 2006). According to this research, the relocation of productive capital to less-developed countries contributed to the emergence of labor movements by expanding the industrial working class. However, this research ignores important variation in the nature of industrial development. Labor-intensive industrialization requires a large surplus of unskilled labor for the production of low-value goods in highly competitive industries. The weak market bargaining position of unskilled labor in this context ensures political coalitions among labor, capital, and the state are dominated by the interests of globally integrated firms. As result, social and economic policies reflect the decoupling of collective labor law and practices. While new

industrial classes may show success in the enactment of collective labor rights, new policies are designed to aid firms in avoiding the labor costs associated with these rights. For example, Anner (2008; 2011) finds export processing zones are effective in helping firms avoid the legal requirements of collective labor laws which causes lower rates of unionization in the apparel exporting sector. Subsequent research needs to explore the types of development and labor policies that are implemented to hinder the development of robust collective labor rights designed to protect and promote bargaining, unionization, and disputes.

In addition to promoting labor-intensive industrialization, international manufacturing trade with advanced capitalist countries may incentivize the non-enforcement of collective labor rights independent of restructuring the industrial class. Since developing countries possess a comparative advantage in labor-intensive production, firms in these countries tend to specialize in low-value stages of the production process (Wood 1994; Mahutga 2012). The high degree of competition among firms for production contracts requires employers to minimize production costs by reducing labor costs, which often pressures them into violating collective labor rights. According to the generalized path models, manufacturing exports to advanced capitalist countries exerts both a direct and indirect effect. This evidence suggests the intensification of competition for contracts and the weak bargaining position of the industrial class may explain why the formation of unions and industrial systems remains retarded in developing countries. Subsequent research needs to explore this process of decoupling by examining whether production globalization promotes the enactment of collective labor rights, but the non-enforcement of these rights.

Overall, the findings of this article shows the need to systematically examine more complex models to account for the socio-legal status of workers in the global South. Comparative literatures across sociology and political economy are showing a renewed interest in the dynamics of social and economic policy, but have yet to explore the interactions between global and national transformations. Understanding this interaction between the globalization of production and changes in national policy and regulations is critical to explaining the dynamics of the 'embedded economy'. As the political coalitions behind the formation and enforcement of collective labor rights erode, we should expect a new era of social and economic policy that may promote the interests of capital over labor. Subsequent research needs to explore the implications of this process, especially given the recent growth of domestic inequality across the developing world.

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## Tables & Figures

**Table 1.** Variable List & Descriptive Statistics

<b>Variable</b>	<b>Description</b>	<b>Mean</b>	<b>SD</b>
Collective Labor Law Index	Standardized index of 21 indicators of collective bargaining, organizing, and industrial conflict laws (Mosley 2011)	-.217	.820
Collective Labor Practices Index	Standardized index of 16 indicators of collective bargaining, organizing, and industrial conflict practices (Mosley 2011)	-.517	1.053
Foreign Capital Penetration	Inward foreign direct investment stock as a percentage of gross domestic product (UNCTAD 2012)	15.58	14.41
Northern-Export Manufacturing	Manufacturing exports (SITC Rev. 1: 5-8) to OECD countries as percentage of gross domestic product (UNCOMTRADE 2012)	1.53	2.67
Skill Composition of Industrial Labor	The ratio of high skill (SITC Rev. 2: 5, 71-78, 87, & 88 ) to low skill (SITC Rev. 2: 61-67, 69, 78-79, 81-85, & 89 ) manufacturing workers (UNIDO 2012)	.358	.205
Democratization	POLITY IV democratization index (Marshall et al. 2010)	3.21	3.45
Strength of Leftist Party	Percentage of current legislative and executive seats possessed by leftist parties (Keefer 2010)	12.92	28.53
Secondary Education Enrollment	Percentage of the age-appropriate population enrolled in secondary education (World Bank 2012).	45.58	24.65
Domestic investment	Gross capital formation as percentage of GDP (World Bank 2012)	22.57	8.02
Gross National Income Per Capita	Gross national income divided by total population (World Bank 2012)	1823.19	1093.8
Gross National Product Growth	Annual percentage change in gross domestic product (World Bank 2012)	4.09	4.89
Population Growth	Annual percentage in total domestic population (World Bank 2012)	2.19	1.09

**Table 2.** Model Summary & Comparison

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>	<b>Model 5</b>	<b>Model 6</b>
Log Likelihood	-761.16	-972.67	-969.49	-796.49	-1007.73	-1004.82
Likelihood Ratio Test ( $\chi^2$ )	.	423.02***	416.66***	.	422.48***	416.66***
BIC	2590.73	2076.3	2032.42	2661.38	2246.42	2153.08
Dependent Variable	Law	Law	Law	Practice	Practice	Practice
Mediation	None	Full	Partial	None	Full	Partial

**Note:** Models are generalized SEM with demeaned covariates. n=511. \*\*\* - p <.001; df=2.

**Table 3.** Effect Decomposition of Generalized SEMs

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	<i>Collective Labor Law</i>	<i>Collective Labor Practices</i>
<b>Inward FDI Stock</b>		
Total	.219 (.140)	-.370** (.158)
Indirect	-.0002 (.0051)	.009 (.011)
Direct	.219+ (.141)	-.379*** (.151)
<b>Manufacturing Exports</b>		
Total	-.094** (.041)	-.038+ (.021)
Indirect	.0000 (.0040)	-.006*** (.002)
Direct	-.094*** (.031)	-.032* (.014)

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**Note:** Estimate derived from models in Figures 4 & 5. + - p<.10; \* - p<.05; \*\* - p<.01; \*\*\* - p<.001.

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**Table 4.** Standardized Effects of Control Variables on Mediating and Dependent Variables

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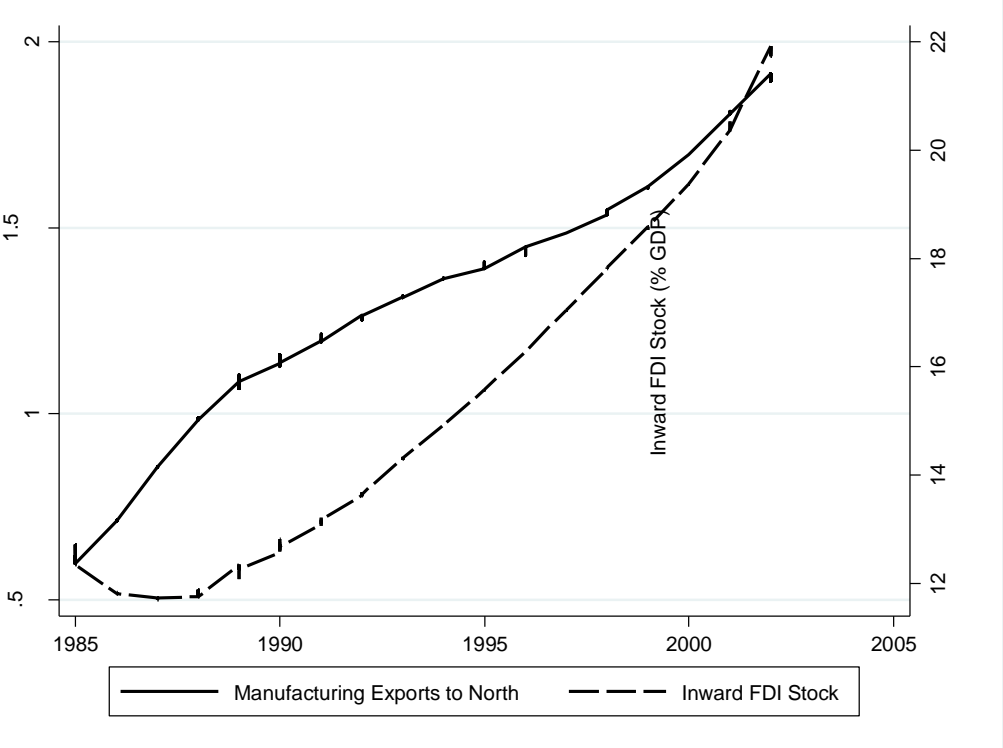
	<b>Skill Composition</b>	<b>Collective Labor Law</b>	<b>Collective Labor Practice</b>
Democratization	-.019	.057	.006
	-.049	-.041	-.046
Strength of Leftist Party	-.016	.162***	.162***
	-.062	-.051	-.057
Gross Capital Formation	.007	-.089+	-.037
	-.055	-.055	-.062
Secondary Education Enrollment	.015	-.031	-.118
	-.083	-.066	-.074
GNI per Capita	.132*	.003	.095
	-.075	-.067	-.075
GDP Annual Growth	.039	-.001	.092
	-.064	-.051	-.057
Population Growth	.135*	.087*	.072
	-.062	-.041	-.046

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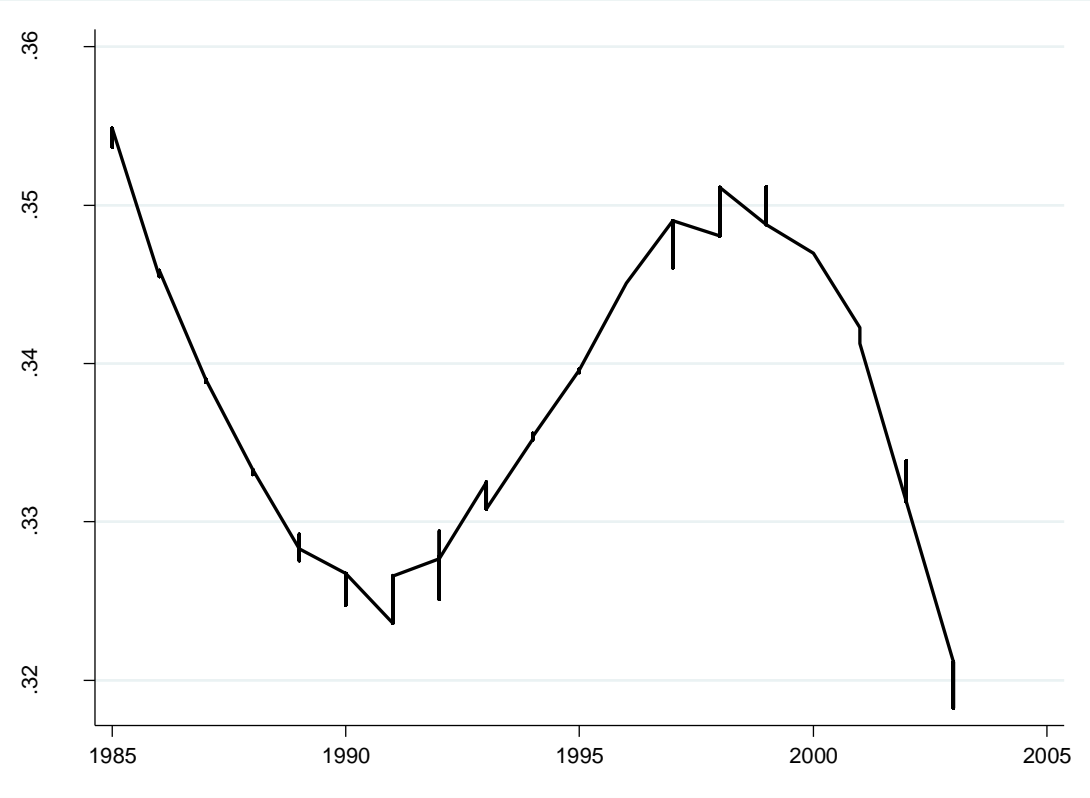
**Note:** n=511. Estimates based on models in Figure 4 & 5. All models include country fixed-effects. All coefficients are standardized. + - p<.05 (one-tail); \* - p < .05 (two-tail); \*\* - p<.01 (two-tail); \*\*\* - p<.001 (two-tail).

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**Figure 1.** Locally-Weighted Trends of Global Production Integration in 55 LIC & LMIC Countries, 1985-2002

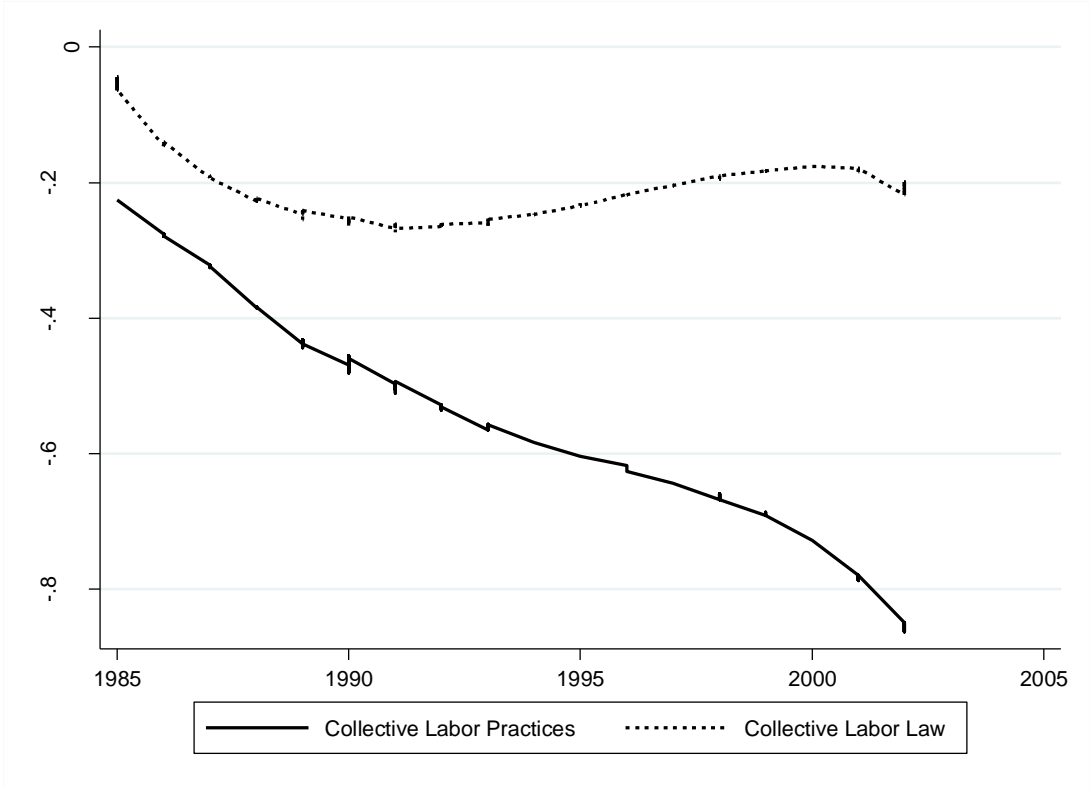


**Figure 2.** Locally-Weighted Trend of Industrial Skill Composition in 55 LIC & LMIC, 1985-2002

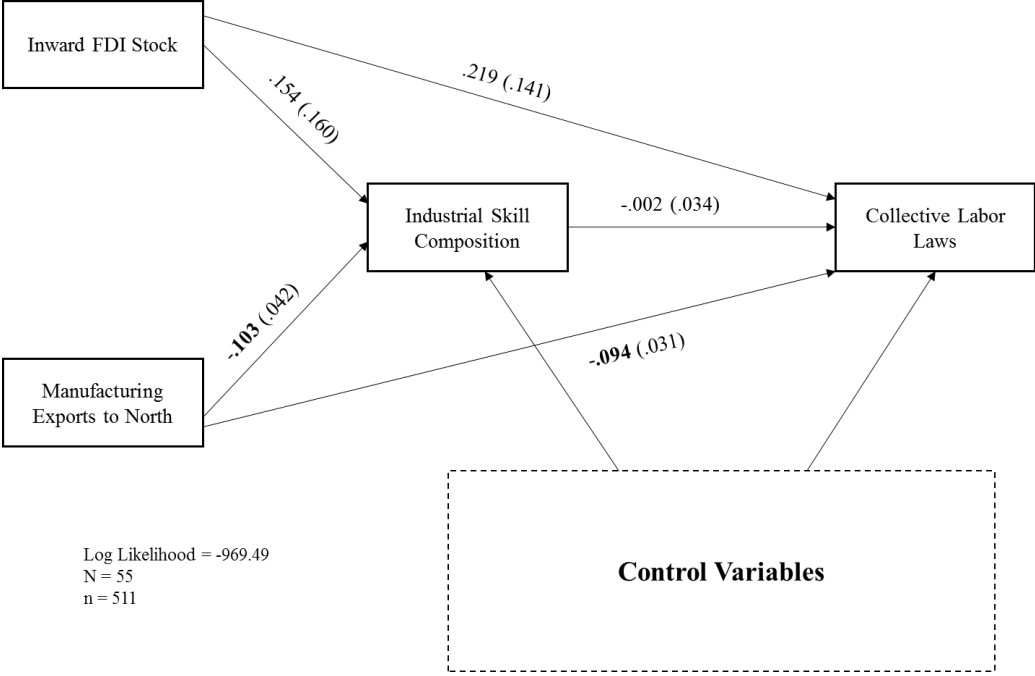




**Figure 3.** Locally-Weighted Trends in Collective Labor Laws & Practices in 55 Less-Developed Countries, 1985-2002



**Figure 4.** Generalized SEM of Collective Labor Laws in 55 Less-Developed Countries



**Figure 5.** Generalized SEM of Collective Labor Practices in 55 Less-Developed Countries

