The Impact of Structural Reforms on Poverty and Income Inequality in Latin America

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**Abstract:** This study investigates empirically the relationship between structural reforms and poverty and inequality in Latin America in the period 1985-2010. The results suggest that structural reforms, in general, have a significant positive effect on poverty. This is mainly caused by financial reforms and privatizations which increase the extent and depth of poverty. Structural reforms, in general, do not have any significant effect on income inequality. This is because different reform areas have different and offsetting distributional effects; financial and labor reforms increase inequality, while tax reforms and privatizations decrease inequality. Focusing on high poverty and high inequality countries only, structural reforms have no significant effect on poverty, but have an effect on the distribution of income. Here, tax reforms in particular seem to decrease inequality. Focusing on low poverty and low inequality countries, structural reforms and, in particular, trade reforms, make the poor poorer. Privatizations in these countries distribute income more equally.

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**1. Introduction**

In last 30 years there was a significant shift in the structural policies of Latin American and Caribbean countries. From the mid-1980s, the development model based on protection of domestic markets and state intervention was replaced by a set of policies which had the general aim of improving efficiency, facilitating the working of markets and reducing the distorting effects of state intervention on economic activities. These structural reforms involved liberalization of international trade and finance, rebalancing of the tax-code, privatization of state industries and deregulation of the labor market. In most countries, these reforms have been effective in lowering inflation, attracting foreign direct investment, generating export and increasing confidence in the macroeconomic authorities. Nonetheless, economic growth remained low and unstable, just like domestic savings and investments (Ocampo, 2004). Now the question rises; what are the socioeconomic outcomes of the reforms? More specific: What impact did the structural reforms have on poverty and income inequality (henceforth ‘inequality’) in Latin America?

This study examines empirically the relationship between structural reforms and poverty and inequality in Latin America in the period 1985-2010. It employs a database covering 13 Latin American countries and uses a fixed-effects model to estimate the impact of structural reforms on poverty and inequality. Poverty and inequality are two related but distinct concepts which affect each other directly and indirectly. We focus at both simultaneously to have a more informed view of the structural reforms. In doing so, this study does not only examine the general effects of the structural reforms, but also focuses on the effects of the different reform areas individually. Furthermore, it examines whether there is a difference in the effects of structural reforms in countries that have both high poverty and high inequality rates and in countries that have both low poverty and low inequality rates.

The results suggest that structural reforms, in general, and financial reforms and privatizations, in particular, have increased both the extent and depth of poverty in Latin America in the period 1985-2010. The other reform areas had no effect on poverty. Structural reforms, in general, did not affect inequality. This is because different reform areas had different and offsetting distributional effects; financial and labor reforms increased inequality, while tax reforms and privatizations decreased inequality. Trade reforms had no significant effect on inequality in this period. Structural reforms had no effect on poverty in Latin American countries with high poverty and inequality rates, but did decrease inequality in these countries, especially due to reforms in tax policy. In low poverty and low inequality countries structural reforms, in general, and trade reforms, in particular, increased the depth of poverty. With respect to inequality, structural reforms distributed income more equally among the population. This is mainly due to the fact that privatizations decreased the share of income held by the rich and increased the share of income held by the rest of the population.

The rest of the paper is structured as follows. The next section gives a brief overview of the structural reform process in Latin America. Section 3 outlines theoretical arguments on how structural reforms affect poverty and inequality and discusses previous empirical evidence. Section 4 presents the data and provides evidence on the evolution of the measures of poverty and inequality and of the reforms in Latin America. Section 5 discusses the empirical strategy. Section 6 presents the empirical results. Section 7 concludes.

**2. The Structural Reform Process in Latin America**

After the Second World War, Import Substitution Industrialization (ISI) came to emerge in Latin American countries. ISI is an inward-oriented trade and economy policy that advocates replacing foreign import with domestic production. The policy is based on the principle that a country should attempt to reduce its foreign dependency through the local production of industrialized products. Latin American countries implemented ISI with the intention of improving development and self-sufficiency through the creation of an internal market. With ISI, the state leads the economic development through nationalization, subsidization of industries, increased taxation and highly protectionist trade policies. The policy was most successful in countries with a large domestic market, where large populations and income levels allowed for the consumption of locally produced products. From 1950 to 1980, countries like Argentina, Brazil, Mexico, Chile, Uruguay and Venezuela had the most success with ISI (Forteza and Tommasi, 2006).

However, after some time, ISI began the show signs of exhaustion. Next to the fact that the economic performance of Latin American countries was not good enough compared with South-East Asian countries, which had adopted complete opposite policies, the policy failed to deal with the debt crisis of 1982. Moreover, many countries were in structural debt due to ISI-related policies. Therefore, the political support for ISI was gradually eroding in the region and countries came to accept that ISI was no longer sustainable (Forteza and Tommasi, 2006, and Morley, 2001).

In the 1980s and 1990s, inspired by the Washington Consensus, many Latin American countries abandoned the old ISI policy and adopted structural reforms in several policy areas. The goal of these reforms was to reduce the role of the government in directing the allocation of resources and production in the economy, open up the national economy to foreign competition and limit the distorting effect of the tax system on private decision-making. Structural reforms involved liberalization of international trade and finance, rebalancing of the tax-code, privatization of state enterprises and deregulation of the labor market. The following section discusses each reform individually.

Trade Reforms

The main goal of trade reforms was to switch the production of products away from inefficient import substitutes to the production of products in which countries had a comparative advantage. Reforms in trade policies were mostly focused on international trade and the foreign exchange market. From the mid 1980’s every country began to liberalize their trade regimes, with large reductions in average import tariff rates and tariff dispersion (see figure 1). Region-wide average levels of import tariffs dropped from 47.3 percent in 1985 to 12.5 percent in 1995. By 1995 no country in the region was using its tariffs system to protect domestic industry or to promote particular sector, except for the Brazilian automobile industry (Morley, 2001). The average tariff in the region fell to 9.5 percent in 2009. At the same time, tariff dispersion decreased from 22.0 percent in 1985 to 7.9 percent in 2009. Non-tariff barriers such as licenses and import quotas were similarly reduced. In the pre-reform period, more than 37.6 percent of imports were affected by non-tariff restrictions. This percentage fell to 6.3 percent in the mid-1990s (Lora, 2012).

Figure 1: Import tariff rate and tariff dispersion in the period 1985-2010

Source: Lora, 2012

Financial Reforms

Financial reforms were mainly adopted in the late 1980s and 1990s and can be divided in domestic and international financial reforms.

The main objectives of domestic financial liberalization were to give more freedom of operation to financial intermediaries and strengthen mechanisms for regulation and supervision. The reforms were intended to reduce reserve requirements, remove controls over interest rates and dismantle forced investments (Lora, 2012). In the pre-reform period, many countries had government ceilings on interest rates. A large part of credit was allocated by government decisions rather than by the market. In order to maintain the financial soundness of the banking system, central banks imposed high reserve requirements. This resulted in the so called ‘financial repression’; a system in which savings and financial intermediation were discouraged. Here, not only was investment likely to be smaller than it would have been in a reformed system, but is was also likely to be misallocated because of credit controls (Morley, 2001). In the late 1980s and 1990s three reforms were widely implemented to liberalize the domestic financial market: reduction of the reserve requirements, eliminating controls on interest rates, and dismantling forced investments and directed credit mechanisms. Between 1990 and 2000 15 countries cut the reserve requirements. As a result, the average rate of reserves as a percentage of deposits fell to a minimum of 16.2 percent since 1985. Since 2000, reserve ratios have been increasing again, but not to the levels that prevailed in the pre-reform period. The average reserve requirement ratio in the region was 23.5 percent in 2010. In 1995 all countries had dismantled general controls on interest rates. In the ten years following to 2004, only Costa Rica imposed ceilings on interest rates. Thereafter, Ecuador and Venezuela also reintroduced some general control on interest rates (Lora, 2012).

The main objective of international financial liberalization was to open up the internal financial market to external capital. In the pre-reform period, almost all countries in the region maintained high control over external capital transactions, both for their citizens and for foreigners wishing to invest. Many countries limited the sectors that were open to foreign investment and placed ceilings on the repatriation of interest and dividends. In addition, domestic banks were limited in their ability to borrow abroad and in most countries capital outflows required authorization of the central bank (Morley, 2001). In the late 1980s, only handful of countries, including Argentina, Costa Rica and Guatemala, started to open up the capital account. In the 1990s many more countries adopted this reform. However, most of these were smaller economies such as the Dominican Republic and El Salvador. The bigger economies, for instance Brazil, Chile and Mexico, all maintained significant controls over foreign capital transactions (Morley, 2001).

Tax Reforms

Tax reforms in Latin America until the late 1990s were deep and mainly focused on neutrality, higher revenue, and legal and administrative simplification. Two major changes have been widely adopted. The first was the value added tax (VAT). Reformers argued that while all taxes have distorting effect on private decisions, these are less serious with an across-the-board VAT than with either tariffs or high marginal income tax rates. In addition, tax evasion should be less pervasive with the VAT than with a tax system based on income. In the 1980s and 1990s, 23 Latin American countries adopted VAT systems on consumption. The basic VAT rates did not change much since the mid-1990s. The coverage or efficiency increased in most countries. The second element of the tax reforms was the reduction of the marginal tax rates on personal and corporate income. Both reduced the progressivity of the income tax. In the pre-reform period, extreme marginal tax rates applied on personal income. For instance, in 1985 personal income tax was 73 percent in Dominican Republic and 60 percent in Brazil and El Salvador (see figure 2). In the following decade, every country reduced its top marginal tax rate, with only minor changes since then. Overall, the average marginal rate on personal income fell from about 46 percent in 1985 to around 28 percent in 2009. Uruguay went even further and eliminated personal income tax altogether in the 1980s and 1990s. Tax rates on corporate income were also cut in the 1990s, with minor changes in the 2000s. In no country the rate exceeds 35 percent in 2009 (Lora, 2012).

Figure 2: Personal income tax in Latin American countries

Source: Lora, 2012

Privatizations

The transfer of public companies to the private sector was one of the most active areas of reform in the mid-1980s and late 1990s. State enterprises were an important component of the ISI policy. The companies depended heavily on tariff protection, directed allocation and ownership of key elements of the production structure, particularly basic industries such as mining and petroleum enterprises. Many of the state-owned enterprises performed badly. Also, because they depended critically on governmental funding, most companies were chronically short of capital. Furthermore, the quantity and quality of public services failed to keep up with the public demand or expectations. Increased demand for accountability and objective standards of resource allocation led governments to turn these companies into private enterprises, thus subjecting them to the discipline of private capital and product markets (Morley, 2001)

Between 1986 and 1999 almost 400 sales and transfers to the private sector were executed in Latin America. This accounted for more than half the value of privatization transactions in developing countries. Approximately 57 percent of the privatizations were in the infrastructure sectors and around 11 percent came from the sale of banks and related entities. Considering only the infrastructure sector, Bolivia and Chile have been the most important privatizers in relation to the size of their economies (see figure 3). From 1985 to 1999, the cumulative value of private sector investment commitments in the infrastructure sectors was equal to 71 percent of GDP in Bolivia and to 51 percent of GDP in Chile. Costa Rica, Uruguay and Paraguay have privatized the least. The telecommunications and energy sectors have attracted the most resources in almost all countries (see figure 4). On average, 42.6 percent of the privatizations took place in the telecommunication sector, 34.8 percent in the energy sector, 16.6 in the water and sewerage and 5.9 in the transportation sector.

Not all countries undertook privatizations. For some countries, like the Dominican Republic, El Salvador and Guatemala, state enterprises were never a significant component in the economy. Other countries, such as Ecuador and Venezuela resisted privatizing important oil or mining enterprises, as well as other government companies (Morley, 2001).

Figure 3: Privatizations minus nationalizations as a share of GDP (cumulative)

Source: Lora, 2012

Figure 4: Share of privatizations in the infrastructure sector in the period 1985-2010

Source: Lora, 2012

Labor Reforms

In contrast to the four previous reform areas, changes in the labor area have been fairly limited. According to Lora (2012) only five countries undertook major changes: Argentina, Colombia, Guatemala, Peru and Venezuela. The main objective of labor market reforms was to increase flexibility and reduce distortions on the labor market.

By flexibility, reformers mean making labor more responsive to changes in demand and production technology. All countries in Latin America have regulations stipulating how much a firm has to pay a permanent employee whom they want to fire. For instance, after one year Bolivia, Ecuador and Mexico require a payment of at least 3 months of salary. After ten years, the majority of countries requires at least 6 months. These sort of complementary regulations limit the ability to hire temporary labor. Only four countries have introduced partial liberalization.

The second component of the labor reforms was to reduce the fixed charges or taxes that are based on worker salaries and levied on firms. Especially those charges in which the benefits bear little relation to the contribution, such as social security contributions, family allowances, and disability, death, sickness and maternity benefits. These contributions are not linked to benefits and so are essentially taxes on labor. This makes production more capital intensive than it should be, given that labor is an abundant factor in de region (Morley, 2001). In general, these wage surcharges are high and were not significantly reduced in the 1985-2010 period.

The depth and speed of the reforms varied across countries. Aggressive reformers like Bolivia and Chile carried out reforms in short period of time and were ambitious in several areas, particularly in privatizations. Cautious reformers such as Brazil, Costa Rica, Colombia and Mexico were slower and less determined to reform.

**3. Literature Review**

**3.1 The Impact of Structural Reforms**

What effects might the structural reforms have on poverty and inequality? When one analyses the effects of the structural reforms as a whole, one has to analyze the effects of all reforms together. The main objective of the structural reforms is to improve efficiency, facilitate the working of markets and reduce the distorting effects of state intervention on economic activities. According to Morley (2001) structural reforms have to remove any sort of insulation from the market’s determination of allocation of resources. Trade reforms remove tariff protection from domestic production, while privatizations and financial reforms reduce the influence of the government over the allocation of resources. Labor reforms increase the flexibility of labor. Altogether, structural reforms increase efficiency, income and growth.

Growth, on its turn, has an impact on poverty and inequality. According to Dollar and Kraay (2000) growth is an important determinant for poverty reduction as growth tends to lift the income of the poor proportionately to overall growth. Following this reasoning, structural reforms decrease poverty through their overall effects on growth. At the same time, growth affects inequality. In a classic article, Kuznets (1955) studies the relationship between growth and the distribution of income. He finds that as a country developed, inequality first rises and later falls. According to him, there is an inverted U-shaped curve relationship between growth and inequality. Kuznets’ reasoning for this relation is based on the idea that the growth process is specific rather than universal. Growth starts somewhere specific, in a certain sector, region or city. From there, its effects spread through a variety of linkages to the rest of the economy. In the first stages, inequality rises. Later, as the effect of growth spreads in the population, inequality declines (Morley, 2001).

Different structural reforms each have different effects on poverty and inequality. Focusing on the impact of trade reforms, one has to take the Hecksler-Ohlin and Stolper-Samuelson theorems into account. According to the Hecksler-Ohlin theorem, a country will export the good that intensively uses its relatively abundant factor of production and it will import the commodity that intensively uses its relatively scarce factor of production. Generally, developing countries are relatively abundant in low-skilled labor, while developed countries are relatively abundant in high-skilled labor. As a result, developing countries will export the low-skill-intensive products and import the high-skill-intensive products (Brakman et al., 2006). Trade barriers, such as tariffs, are imposed on imports. Trade reforms reduce tariffs and this lowers the relative price of the imported goods. The Stolper-Samuelson theorem links prices to wages. It states that a decrease in the price of a final good reduces the reward for the factor used intensively in the production of that good and increases the reward for the other factor (Brakman et al., 2006). This means that the price reduction in the import sector will reduce the wages of the high-skilled workers (used intensively in the import sector) and increase wages of the low-skilled workers (used intensively in the export sector). So, in developing countries, the most abundant factor, low-skilled workers, benefits from trade. In this way trade liberalization reduces poverty and inequality (Goldberg and Pavcnik, 2004).

Reforms in the financial policy can be divided in domestic and international financial reforms. Domestic financial reforms reduce reserve requirements, remove controls over interest and dismantle forced investments (Lora, 2012). All these reforms increase domestic private savings and investment, which improve financing for infrastructure projects, businesses and consumers. This stimulates economic growth and thus reduces poverty and inequality (Morley, 2001). International financial reforms open up the national financial market to external capital. This integrates the local and international capital markets more closely and brings the local interests and profits closer to rates in the rest of the world. This can have two kinds of effects. If foreign investors have been prevented from entering a country because of controls on capital and profit repatriation, the international financial reforms should stimulate an inflow of foreign capital. Most often, foreign capital is directed to the high-skilled sectors in the host country. This causes a relative expansion of the high-skill-intensive sector and improves the relative position of skilled labor. Generally, high-skilled workers have a stronger bargaining position than low-skilled workers because they have skills that are relatively scarce in the economy. Therefore, they have a better negotiating position to negotiate higher wages. An expansion of the high-skill-intensive sector should improve the relative position of the high-skilled workers even more (Te Velde, 2003). This widens the gap between high-skilled and low-skilled workers and raises wage inequality. An inflow of foreign capital therefore increases inequality. Opening up the capital account also means the removal of restrictions on capital outflows. This has the opposite effect of this described for foreign capital inflows.

Tax reforms involve the introduction of the VAT and the reduction of marginal tax rates on personal and corporate income. The VAT shifts taxation away from income and toward consumption. The adaption of the VAT raises prices, which lowers real income. Since the poor consume a greater part of their income on consumption, this increases poverty and inequality (Morley, 2001). The reduction of marginal tax rates on personal and corporate income also increase inequality since the tax burden of the rich is reduced.

Privatization involves the sale of state enterprises. The impact of privatization on poverty and inequality depends on two factors. The first is that privatization affects labor. State enterprises were often protected from competition and subsidized by the government and consequently employed too many people, paid high wages and were governed by rigid labor contracts. As a result, labor productivity was low and labor costs were excessively high (Kikeri, 1998). The main reason for this is that governments were more interested in creating jobs than providing good service at the lowest possible costs (Morley, 2001). This changed when the state enterprises were sold. Workforces were downsized to improve efficiency and this eventually translates into greater output if these workers can find new jobs. However, in the short-term, the downsizing of workforces leads to more unemployment, poverty and inequality (Bucciferro, 2010). The second impact of privatizations depends on what happens to the price of the services state enterprises sold. According to Morley (2001) state enterprises usually subsidize their consumers by selling below the cost. The transfer of state enterprises to the private sector eliminates the subsidy. Depending on whom their customers were privatization increases or decreases inequality. If the customers belong to the bottom inequality increases. But, if the customers belong to the top, the contrary is true.

Labor reforms increase flexibility and reduce distortions on the labor market. Rigid labor market regulations prevent the labor market from operating efficiently. This leads to losses in employment and productivity and reduces opportunities for workers to find jobs. Next to that, rigid labor market regulations reduce the reallocation of jobs across firms (Kaplan, 2009). Labor reforms increase the efficiency of the labor market, thereby increasing overall employment and the reallocation of jobs. An increase of overall employment decreases poverty and inequality. Furthermore, an increase in the reallocation of jobs increases productivity, which leads to economic growth and eventually reduces poverty and inequality

**3.2 Empirical Evidence**

Empirical evidence regarding the effects of structural reforms on poverty and inequality is relatively scarce. The bulk of papers on structural reforms evaluate their impact on economic growth, but these will not be discussed here. The relation between structural reforms and poverty and inequality has received much less attention.

Edwards (1997) evaluates the impact of economic reforms on a global scale. He studies the link between trade policy and income distribution between the 1970s and 1980s and addresses two questions: Is there any evidence that open developing economies have a more unequal distribution of income than more protectionist ones? And, is there evidence that countries having liberalized international trade have experienced an increase in inequality? To answer these questions he uses data of the World Bank on income distribution and six alternative measures of trade orientation. He constructs a reformer/non-reformer dummy and defines a country as ‘reformer’ if there has been a relaxation in the degree of trade restrictiveness. Edwards (1997) employs a simple Ordinary Least-Squares (OLS) regression of the change in the measures of inequality on the trade policy indicators, reformer/non-reformer dummy and control variables. Based on his final sample of 44 countries, he finds that there is in no case a negative relationship between the six trade policy indicators and the Gini coefficient. Furthermore, his results suggest that there are no differences in the distribution of incomes for ‘reformers’ and ‘non-reformers’. Therefore, Edwards (1997) states that; ’for developing countries, there is no evidence linking openness or trade liberalization to increases in inequality’.

Morley (2000) also evaluates the impact of economic reforms on inequality, but focusses on Latin America. In particular, he examines the relationship between economic reforms and inequality. In order to do so, he employs a data set for 16 Latin American countries for the period 1960-1997. To explore the effects of the structural reforms, he uses the structural reform index (SRI) of the inter-American Development Bank (IDB), which is the simple average of reform indexes in five areas; trade, finance, tax, privatization and capital account. He uses the Gini coefficient as a measure of income inequality. Morley (2000) regresses the Gini coefficient on the indexes of economic reform and other control variables such as; inflation, land distribution, and education. He finds that structural reforms, on average, appear to increase inequality. However, the effect is small and not very significant. He notes that the reason for this small and insignificant effect seems to be that reforms in different areas have different and offsetting effects on inequality. Some reforms have a significant negative effect, while others have a significant positive effect. Trade and tax reforms have a positive significant effect on inequality, while capital account reforms have a significant negative effect. For the other two reforms, privatizations and financial reforms, he notes that his data is not good enough to give a clear answer.

Székely (2003) also studies the impact of economic reforms on inequality in Latin America. However, he also focuses on the impact of the reforms on poverty. Székely (2003) employs a database covering 17 Latin American countries over the period 1977-2000. Like Morley (2000), he also uses the SRI of the IDB and focuses on trade and financial liberalizations. He combines the other three reform indexes. In his estimation, he lags the reform variables for four years to control for a delayed effect on poverty and inequality. Using OLS, he finds that, financial reforms have a significant positive effect on poverty and inequality. The other reforms do not have any significant effect on both. Therefore, Székely (2003) concludes that; ‘increasing reliance on the market has not created new income opportunities for the poor, and that financial liberalization in particular has made the poor worse off, relative to the rich and the middle groups’.

In a more recent study, Bucciferro (2010) also analyzes the impact of structural reforms on poverty and inequality in Latin America. He evaluates the relationship between trade reform, financial reform and privatization and five measures of poverty and inequality in the period 1985-2000. Just like Morley (2000) and Székely (2003), he also uses the SRI of the IDB. His model controls for average income and political institutions. The observations of the reforms are lagged for one year. Bucciferro (2010) finds that structural reforms, in general, have a significant positive effect on poverty and inequality. Moreover, privatizations in particular are positively related to poverty and inequality, and financial reforms are positively related to inequality. Although the estimates of trade reforms are not significant, trade reform appears to be negatively related to poverty and inequality.

These studies provide some suggestive results regarding the relationship between structural reforms and poverty and inequality. Edwards (1997) evaluates the impact of structural reforms on global scale and was unable to find any relationship between trade reforms and inequality in the 1970s and 1980s. The results of Morley (2000), Székely (2003) and Bucciferro (2010) are specific to Latin America. All three use the SRI of the IDB. Both Székely (2003) and Bucciferro (2010) find that financial reforms, in particular, increase inequality. The estimated effects of the other reform areas differ per study and are therefore hard to generalize.

This study will employ the overall SRI and five sub-indices (trade, financial, tax, privatizations and labor) developed by Lora (2012) as the indicators of structural reforms. In this way, this study focuses at the general effects of structural reforms and at the effects of each individual reform area. Not at just two or three of them, like Székely (2003) and Bucciferro (2010), but at all reform areas. Another improvement is that we use a new measure of poverty; the degree of poverty (DoP) ratio. The DoP provides insight in both the extent and depth of poverty. Furthermore, this study does not only evaluate the impact on inequality by looking at changes of the Gini coefficient, but also at changes of income held by deciles and quintiles. In this way it provides a much more accurate and nuanced picture of the distributional effects of structural reforms. Furthermore, this study divides the sample into two groups to examine the effects of structural reforms in high poverty and inequality counties low poverty and inequality countries.

**4. Data Description**

In order to examine the effect of structural reforms on poverty and inequality in Latin America, we construct an annual panel covering 13 Latin American countries (Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Paraguay, Peru and Uruguay) in the period 1985-2010.

**4.1 Dependent Variables**

The measures of poverty and inequality are the dependent variables in this study. Both are derived from the World Development Indicators of the World Bank (2015).

Measures of Poverty

The measures of poverty are the poverty headcount ratio (PHR), the poverty gap ratio (PGR) and the degree of poverty ratio (DoP). The PHR is the share of the total population considered to be poor. It is defined as the share of the total population whose standard of living is below a poverty line ($2 or $1.25 a day at power purchasing parity prices (PPP) at 2005 $US). Basically, the PHR counts all the people below the poverty line, in a given population, and considers them equally poor. The PHR is quite useful in addressing overall changes in poverty. However, the main weakness of the PHR is that it only measures changes of income that cross the poverty line and ignores shifts below the poverty line. Therefore, the PHR does not reflect changes in the income of the poor. The PGR is an improvement over the PHR because it alleviates some of this problem by estimating the aggregate extent of poverty relative to the poverty line. The PGR measures the depth of poverty and represents the transfer of income to the poor that would be necessary to eliminate poverty, assuming the $2 or $1.25 poverty line. The PGR is the simple average of all poverty gaps across the total population. However, the key weakness of the PGR is that it does not say anything about the share of the population that is under the poverty line. Therefore, we construct a third measure of poverty; the degree of poverty ratio (DoP). This variable covers both the extent of people living in poverty as the depth of poverty. It is constructed by simply multiplying the PHR with the PGR of the $2 or $1.25 poverty line. The larger the DoP, the larger the share of the population living on less than $2 or $1.25 a day, and the further away the poor are from the $2 or $1.25 poverty line.

The total number of poverty observations we have is 199. At the beginning of the period (1985), we have observations for only 2 countries, and at the very end of the period (2010) for 9 countries. For all years in between, the number of countries included ranges from 3 to 13. This is because annual data for each of the 13 countries are not available since surveys were not conducted in each year. We therefore have an unbalanced panel where the number of observations ranges from 22 for Brazil to 8 for Guatemala.

The PHRs, PGRs and DoPs move in a very similar pattern (see figure 5 and 6) and we will pay attention to this later. Over the sample period, on average 16.46 percent of the population lived on less than $2 a day, and 8.27 percent lived on less than $1.25 a day. The average PGR ($2) and PGR ($1.25) are 6.86 and 3.62 percent, respectively. The measures of poverty fluctuate a lot in the first 15 years of the period. However, from 1999 onwards, poverty declines. The PHR ($2) decreases with 15.1 percent-points from 23.5 percent in 1999 to 8.4 percent in 2010. The PHR ($1.25) declines from 13.7 to 3.2 percent. The PGR ($2) declines from 11.3 to 2.8 percent, and the PGR ($1.25) falls from 6.9 in 1999 to 1.1 percent 2010. The two DoPs also fluctuate a lot in the 1980s and 1990s. After 2000, both DoPs decline.

Figure 5: Evolution of the PHR ($2), PHR ($1.25), PGR ($2) and PGR ($1.25)

Note: The unweighted (unbalanced panel) average for 13 countries

Source: World Bank, 2015

Figure 6: Evolution of the DoP ($2) and DoP ($1.25) (expressed in percentage)

Note: The unweighted (unbalanced panel) average for 13 countries

Source: World Bank, 2015

Measures of Income Inequality

The measures of inequality are the Gini coefficient, the percentage share of income held by the poorest (D1), second poorest (D2), second richest (D9) and richest 10 percent of the population (D10), and the poorest (Q1), second (Q2), third (Q3), fourth (Q4) and richest 20 percent of the population (Q5).

The Gini coefficient is the standard measure of income inequality and measures to what extent the distribution of income among individuals within an economy deviates from a perfectly equal distribution. The Gini coefficient is based on the Lorenz curve. In the Lorenz curve, the cumulative percentage of income held by shares of society appears on the y axis, whereas the percentage of the population holding the particular income share appears on the x axis. The 45-degree line denotes perfect income equality (e.g. 10% of the population holds 10% of the national income). The Gini coefficient measures the area between the Lorenz curve and the 45-degree line of absolute equality and is expressed as a percentage of the maximum area under the line. A Gini coefficient of zero represents perfect equality, while a Gini coefficient of 100 implies perfect income inequality (World Bank, 2015).

The main reason we use the deciles (D1, D2, D9 and D10) and quintiles (Q1, Q2, Q3, Q4 and Q5) is because they give a much more nuanced and accurate picture of the distribution of income than the Gini coefficient. Particularly on the income shares held by poorest and second poorest 10 percent of the population.

The total number of inequality observations we have is 198 for the Gini coefficient and 199 for the deciles and quintiles. Similar to poverty surveys, inequality surveys were not conducted in each year. Therefore, the number of countries included differs per year. At the beginning of the period, we have observations for only 2 countries, and at the end of the period for 9 countries. For all years in between, the number of countries included ranges from 3 to 13. We have an unbalanced panel where the number of observation ranges from 8 for Guatemala to 22 for Brazil.

From 1985 to 2010, the average Gini-coefficient of the sample is 51.73. In the 1980s and 1990s, the Gini coefficient fluctuates. After that, it shows a declining trend. From 1999 to 2010, the Gini coefficient decreases with 7.4 points from 55.6 to 48.2 and thus inequality declines (see figure 7).

Over the sample period, D1 and D2 move in a very similar pattern (see figure 8) and we will come back to this later. From 1985 to 2000, D1 and D2 fluctuate a lot. D1 fluctuates between 1 and 1.5 percent, while D2 fluctuates between 2 and 2.5 percent. After 2000, the income shares of both deciles rise. From 2000 to 2010, D1 increases from 0.98 to 1.58 percent and D2 rises from 2.18 to 2.78 percent.

Looking at the income distribution of the whole population, from 1985 to 2010, about 56.35 percent of total income was held by the richest quintile of the population (see figure 9). In contrast, the poorest quintile only held 3.56 (!) percent of total income. From 2000 onwards, the difference between D5 and the other deciles declines. This is mainly because of the share of income held by the richest 10 percent decreases. The income held by the rest of the population slightly increase. As a result, income is spread more evenly among the population. This corresponds with the decrease in the Gini coefficient.

Figure 7: Evolution of the Gini coefficient

Note: The unweighted (unbalanced panel) average for 13 countries

Source: World Bank, 2015

Figure 8: Evolution of D1 and D2

Note: The unweighted (unbalanced panel) average for 13 countries

Source: World Bank, 2015

Figure 9: Evolution of Q1, Q2, Q3, Q4 and Q5

Note: The unweighted (unbalanced panel) average for 13 countries

Source: World Bank, 2015

**4.2 Main Independent Variables**

The independent variable we are most interested in is the measure of structural reforms: the Structural Reform Index (SRI). The SRI is developed by Lora (2012) and reflects the evolution of five reform areas; trade policy, financial policy, tax policy, privatizations and labor legislation. The indicators in each are intended to measure the degree of openness and neutrality of economic policies, under the assumption that the central focus of the reforms is to facilitate the working of markets and remove controls on the allocation of productive resources. The SRI measures how favorable policies in trade, financial, tax, privatization and labor areas are for the proper working of markets. The indicator ranges from 0 to 1 for each policy variable. The SRI is the simple average of the indexes of the five areas, which are in turn the simple average of the indexes for the policy variables considered. The trade reform index is the average of two sub-components: average tariffs and tariff dispersion. Financial reform index is the average four sub-indexes: bank reserve ratios, freedom of interest, taxes on financial transactions, and quality of banking supervision. Tax reform index has five sub-components: maximum marginal rate of corporate income tax, maximum marginal rate of personal income tax, productivity of income taxes, basic rate of value added tax, and VAT productivity. The index for privatizations is the total or partial participation of the private sector, either as owner, financier, manager or operator in infrastructure projects in the energy, telecommunications, transport and water sectors. It is constructed from the accumulated value of the privatizations as a percentage of GDP. The labor reform index is the average of five sub-indexes: ease of hiring, ease of firing, flexibility of working hours, social security contributions and other taxes and contributions on payroll, and minimum wages. We multiply the SRI by 100 to ease the interpretation of the estimation results. So, the index ranges from 0 to 100. The closer to 100, the higher the degree of openness and neutrality of economic policies. According to Lora (2012), the SRI can serve as the basis for identifying the effects that different reforms have had across countries and can be used to make comparisons over time, between areas and between countries. However, it is important to note that the SRI does not cover some aspects of economic policies. For instance, it does not consider non-tariff restrictions on imports, temporary freezing of savers’ deposits in the banking system, privatizations and nationalizations in sectors other than infrastructure, and general price controls on products in the basic consumption basket. During the 2000s, Argentina and Venezuela mainly adopted policies in the areas not covered by the SRI. Therefore, Argentina and Venezuela are not included in this study.

Figure 10 summarizes evolution of the region-wide averages for each of the reform indexes. It gives a quick picture of what has been reformed most and when the process occurred. From 1985 to 2010, the SRI increases from 37.8 in 1985 to 64.5 in 2010. The increase in the index implies important changes. The most dynamic period of reforms is between 1985 and 1995, when the SRI gains17.7 points of the total 26.7 points increase. Although changes have been very modest in the 2000s, the SRI does not decrease in any year. The progress of reforms has been very uneven by policy areas. Reforms in the trade policy were very intense between the mid-1980s and the mid-1990s. The trade reform index increased from 50.9 in 1985 to 88.3 in 1994. After that, there were no major changes. Also, on financial reform, there is a significant increase in the index until 2004, with only minor changes later. The financial reform index increased with 41.3 points from 46.9 in 1985 to 88.2 in 2004. Reforms have been much less in the other reform areas. Reforms in tax policy have been limited. The largest increase in the tax reform index is between 1985 and 1994. After that, the index does not change much. With respect to infrastructure, because there is a large difference between countries, the average progress of the region is also limited. However, most privatizations took place in the end of the 1990s. Regarding the labor legislation, practically no use has been made of the potential in many countries for liberalizing labor regimes to facilitate the working of the labor market. The index of the labor legislation does not seem to change at all. The depth and speed of the reforms varies not only across policy areas, but also across countries. Figure 11 shows the development of reforms in each country.

Figure 10: Evolution of SRI and the indexes of the five reform areas

Source: Lora, 2012

Figure 11: The SRI by country

Source: Lora, 2012

**4.3 Control Variables**

The type of governmental regime is represented by the Polity IV measure which is obtained from the Center for Systematic Peace (2014). Polity IV codes authority characteristics of countries in the world. It includes measures for both institutionalized democracy and autocracy. The values of the democracy and autocracy measures range from 0 to 10. Often policies show mixed qualities of authorities. The polity IV measure is derived by subtracting the autocracy value from the democracy value. This procedure provides a 21 range polity measure which ranges from -10 (strongly autocratic) to +10 (strongly democratic). Data on per-capita PPP gross domestic product (GDP) (at 2005 $US) is obtained from Penn World Tables 8.0 (Feenstra et al., 2015). The per-capita PPP GDP (at 2005 $US) is divided by 100 to ease the interpretation of the estimation results. Furthermore, based on this data, we calculated the annual growth rate of the per-capita GDP (at 2005 $US). Data on the average years of total schooling is derived from Barro and Lee (2010). Health is represented by the death rate, which indicates the number of deaths occurring during the year, per 1000 people estimated at midyear. Urban population is the share of the total population living in urban areas. Annual urban population growth (annual %) and death rate data are obtained from the World Development Indicators of the World Bank (2015). Mercosur and Union of South American Nations (USAN) are both free trade agreements. Mercosur is a sub-regional bloc established in 1991 comprising Brazil, Paraguay, Uruguay and Venezuela. Mercosur later integrated into USAN which was established in 2008. USAN comprises Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru and Uruguay. Mercosur and USAN are dummy variables that take the value one (1) in the year the country is a member of the free trade agreement, and zero (0) otherwise. Table 1 reports the summary statistics.

From 1985 to 2010, about 16.46 percent of the total population lived on less than $2 a day. 8.27 percent of the total population lived on less than $1.25 a day. The average per-capita PPP GDP is $60890 per year, which is equal to $166.82 ($60890 / 365 days) per day. The summary statistics show that the poorest 10 percent of the population holds about 1.18 percent of total income. This is equivalent to around $1.97 ($166.82 \* 0.0118) per day. So, the poorest 10 percent of the population has an income of $1.97 per day, which is less than $2. The second decile of the population holds around 2.38 percent of total income. This is equal to about $3.97 ($166.82 \* 0.0238) per day and indicates that only a very small share of the second poorest 10 percent of the population lives on less than $2 a day. It is important to note that changes in PHR ($1.25) and PHR ($2) are thus likely to be reflected in D1. However, the standard deviation of D1 is 0.46. This means that the share of income held by the D1 fluctuates between 0.72 (lower bound) and 1.64 (upper bound) percent. The lower bound is equal to approximately $1.20 ($166.82 \* 0.0072) per day, while the upper bound is equivalent to about $2.74 ($166.82 \* 0.0164) per day. As a result, changes in the measures of poverty might, but do not have to be reflected in D1.

Earlier in this chapter, we noticed that the measures of poverty and inequality move in a very similar pattern. This suggests that there is a high degree of correlation among the measures of poverty and the measures of inequality. Table 2 shows the correlation coefficients of the dependent and main independent variables. Indeed, there is a high degree of correlation among the measures of poverty and the measures of inequality. Except for one, all correlation coefficients of the measures of poverty are 0.88 or higher. The measures of inequality have different correlation coefficients. Some are low, while others are very high. This high degree of correlation can cause problems when these variables are used as explanatory variables and we will discuss this in the following chapter. The correlations between the other variables are moderate or low (see Appendix).

Table 1: Summary statistics. The table reports the number of observations (N), mean, standard deviation (sd), maximum, and minimum per variable

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) |
| VARIABLES | N | Mean | Sd | Min | Max |
| Poverty Headcount Ratio ($2) | 199 | 16.46 | 9.04 | 1.18 | 56.75 |
| Poverty Headcount Ratio ($1.25) | 199 | 8.27 | 5.96 | 0.20 | 38.64 |
| Poverty Gap Ratio ($2) | 199 | 6.86 | 4.70 | 0.26 | 28.97 |
| Poverty Gap Ratio ($1.25) | 199 | 3.62 | 3.18 | 0.05 | 17.76 |
| Degree of Poverty ($2) | 199 | 153.55 | 188.68 | 0.31 | 1644.05 |
| Degree of Poverty ($1.25) | 199 | 47.95 | 79.87 | 0.01 | 670.79 |
| Gini Coefficient | 198 | 51.73 | 5.15 | 34.42 | 63.30 |
| Poorest Decile | 199 | 1.18 | 0.46 | 0.13 | 3.230 |
| Second Decile | 199 | 2.38 | 0.52 | 0.67 | 4.330 |
| Ninth Decile | 199 | 16.05 | 0.59 | 14.52 | 17.92 |
| Richest Decile | 199 | 40.30 | 4.85 | 23.09 | 51.15 |
| Poorest Quintile | 199 | 3.56 | 0.96 | 0.80 | 7.560 |
| Second Quintile | 199 | 7.77 | 1.20 | 4.90 | 11.96 |
| Third Quintile | 199 | 12.41 | 1.40 | 8.91 | 18.03 |
| Fourth Quintile | 199 | 19.92 | 1.40 | 16.83 | 25.18 |
| Richest Quintile | 199 | 56.35 | 4.65 | 39.44 | 67.31 |
| Structural Reform Index | 338 | 55.52 | 10.45 | 28 | 80.20 |
| Trade Reform Index | 333 | 82.20 | 14.85 | 4 | 98 |
| Financial Reform Index | 338 | 74.11 | 16.86 | 29 | 99 |
| Tax Reform Index | 338 | 46.16 | 10.01 | 18 | 87 |
| Privatizations Index | 338 | 16.38 | 22.13 | 0 | 100 |
| Labor Reform Index | 338 | 59.49 | 11.03 | 39 | 78 |
| Polity Measure | 338 | 7.08 | 3.26 | -8 | 10 |
| Per-capita PPP GDP (in $100) | 338 | 60.89 | 25.40 | 18.88 | 133.65 |
| Annual per-capita PPP GDP Growth | 325 | 2.00 | 4.61 | -18.11 | 18.84 |
| Average Years of Schooling | 338 | 6.48 | 1.52 | 2.72 | 9.71 |
| Death Rate | 338 | 6.47 | 1.66 | 3.95 | 12.16 |
| Urban Population Growth | 338 | 2.56 | 0.99 | 0.22 | 4.75 |
| Mercosur | 338 | 0.18 | 0.38 | 0 | 1 |
| Unasur | 338 | 0.07 | 0.26 | 0 | 1 |

Table 2: Correlation matrix of the dependent variables and the SRI

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | Q5 | D9 | D10 | SRI |
| PHR ($2) | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PHR ($1.25) | 009693 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PGR ($2) | 0.9665 | 0.9964 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PGR ($1.25) | 0.8804 | 0.9581 | 0.9716 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DoP ($2) | 0.8949 | 0.9452 | 0.9382 | 0.9316 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |
| DoP ($1.25) | 0.8009 | 0.8923 | 0.8940 | 0.9193 | 0.9718 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |
| Gini | 0.6561 | 0.6562 | 0.6578 | 0.6211 | 0.5531 | 0.5009 | 1.0000 |  |  |  |  |  |  |  |  |  |  |
| D1 | -0.6814 | -0.7559 | -0.7713 | -0.8111 | -0.5893 | -0.5823 | -0.7887 | 1.0000 |  |  |  |  |  |  |  |  |  |
| D2 | -0.756 | -0.7726 | -0.7758 | -0.7644 | -0.6529 | -0.6291 | -0.9412 | 0.8832 | 1.0000 |  |  |  |  |  |  |  |  |
| Q1 | -0.7317 | -0.7780 | -0.7972 | -0.8103 | -0.6419 | 0.-6255 | -0.8959 | 0.9668 | 0.9738 | 1.0000 |  |  |  |  |  |  |  |
| Q2 | -0.6464 | -0.6465 | -0.6443 | -0.6022 | -0.5522 | -0.5019 | -0.9882 | 0.7553 | 0.9494 | 0.8841 | 1.0000 |  |  |  |  |  |  |
| Q3 | -0.5411 | -0.5140 | -0.5124 | -0.4569 | -0.4392 | -0.3735 | -0.9675 | 0.6313 | 0.8384 | 0.7634 | 0.9591 | 1.0000 |  |  |  |  |  |
| Q4 | -0.4179 | -0.3628 | -0.3627 | -0.2964 | -0.3175 | -0.2445 | -0.8734 | 0.4552 | 0.6670 | 0.5845 | 0.8372 | 0.9463 | 1.0000 |  |  |  |  |
| Q5 | 0.6073 | 0.5947 | 0.5956 | 0.5511 | 0.5037 | 0.4459 | 0.9932 | -0.7231 | -0.8995 | -0.8413 | -0.9894 | -0.9891 | -0.9200 | 1.0000 |  |  |  |
| D9 | -0.0563 | 0.0468 | 0.0511 | 0.1378 | 0.0033 | 0.0740 | -0.2333 | -0.1576 | -0.0131 | -0.0836 | 0.1500 | 0.3288 | 0.5824 | -0.2930 | 1.0000 |  |  |
| D10 | 0.877 | 0.5627 | 0.5630 | 0.5097 | 0.4812 | 0.4171 | 0.9788 | -0.6715 | -0.8584 | -0.7938 | -0.9561 | -0.9869 | -0.9526 | 0.9928 | -0.4055 | 1.0000 |  |
| SRI | -0.1038 | 0.0876 | -0.0737 | -0.0293 | -0.1153 | -0.5070 | 0.0649 | -0.0593 | -0.0643 | -0.0638 | -0.0449 | -0.0504 | -0.0862 | 0.0658 | -0.1249 | 0.0786 | 1.0000 |

**5. Estimation Strategy**

This study examines empirically the impact of structural reforms on poverty and inequality in Latin America in the period 1985-2010. The analysis is based on the following regression model:

All variables are indexed with an for the country ( = 1, …, N) and a for the year ( = 1, …, T). The dependent variable is one of the measures of poverty (*PHR ($2), PHR ($1.25), PGR (2), PGR ($1.25), DoP ($2)* or *DoP ($1.25)*) or one of the measures of inequality (*Gini, D1, D2, D9, D10, Q1, Q2, Q3, Q4* or *Q5*). The variable is a K-dimensional vector of independent variables. Among these independent variables is the main variable of interest: the structural reform index (*SRI*). This variable will be included in the model in order to examine the general effects of the structural reforms on poverty and inequality. The SRI reflects the evolution of five reform areas. In order to examine the effects of each individual reform area on poverty and inequality, *SRI* is replaced by the indexes of the five reform areas: trade reform index (*Trade*), financial reform index (*Finance*), tax reform index (*Tax*), privatizations index (*Privatizations*) and labor reform index (*Labor*). In both cases the control variables are the Polity IV measure (*Polity*), per-capita PPP GDP (at 2005 $US in $100) (*GDP*), annual growth rate of per-capita PPP GDP (*GDPgrowth*), average years of schooling (*School*), death rate (*Death*), annual urban population growth (*UrbanPopgrowth*), the dummy variable Mercosur (*Mercosur*) and the dummy variable Unasur (*Unasur*). The observations of the *SRI* and the other five reform areas are lagged for two years to allow for a delayed effect on poverty and inequality. We use this two-year lag because this yields the best result (see Appendix). The observations of *GDPgrowth* are lagged for one year. is the error term which varies over countries and time and captures all unobservable factors that affect the dependent variable.

In case one of the measures of poverty is the dependent variable, we add the measures of inequality to the model to control for inequality. Also, when one of the measures of inequality is the dependent variable, we include the measures of poverty to control for poverty. However, as we noticed in the previous chapter, there is a high degree of correlation among the measures of poverty and measures of inequality. This may lead to problems when these variables are used as independent variables in the equation. In general, the term multicollinearity is used when independent variables are strongly correlated with each other. If two (or more) variables are highly correlated, it may be difficult for the model to identify the separate effect of the multicollinear variables. When this happens, it is much more likely to make large errors in estimating the estimates than when the variables are not correlated. As a result, the estimated coefficients come from distributions with larger variances and, therefore, larger standard errors. In turn, these larger standard errors lead to lower t-scores. Also, because of the larger variance, the estimates can have an unexpected sign or magnitude. In general, multicollinearity results in unreliable regression estimates (Verbeek, 2012).

We use the variance inflator factor (VIF) to detect the severity of multicollinearity in our model. The VIF may be calculated for each explanatory variable by doing a linear regression of that explanatory variable on all the other explanatory variables, and then obtaining the from that regression. The VIF is just and estimates the factor by which the variance of the coefficient is inflated compared with the situation when there is no correlation between the explanatory variable and any of the other explanatory variables. For instance, a VIF of 1.50 indicates that the variance of a particular coefficient is 50 percent larger than it would be if that variable was completely uncorrelated with all the other explanatory variables. Most textbooks suggest a rule of thumb that a VIF of 10 or more is ‘too high’ and multicollinearity is severe (Verbeek, 2012). We follow this rule of thumb.

Table 3 reports the VIFs of the independent variables when the measures of poverty or inequality are used as the dependent variable. The VIFs of the measures of poverty and inequality are clearly larger than 10. This indicates there is severe multicollinearity in our model and leads to unreliable regression estimates.

There is no standard solution to minimize the consequences of severe multicollinearity. The most common solutions are; to do nothing, remove one (or more) of the highly correlated variable(s) from the model, or increase the size of the sample. We choose to remove one (or more) of multicollinear variables from the model. Focusing on poverty only, the measures of poverty basically measure the same thing: poverty. We could say that the measures of poverty are redundant; only one of them is needed to represent the effect on the dependent variable that all of them currently represent (Studenmund, 2011). The same holds for the measures of inequality.

Table 3: VIFs of the independent variables when one of the measures of poverty is the dependent variable and the measures of inequality serve as independent variables (A), and vice versa (B).

|  |  |  |
| --- | --- | --- |
|  | (A) | (B) |
| Variable | VIF | VIF |
| SRI | 3.59 | 3.55 |
| Polity | 1.99 | 1.92 |
| GDP | 2.57 | 3.51 |
| GDPgrowth | 1.50 | 1.50 |
| School | 3.01 | 3.33 |
| Death | 3.23 | 3.16 |
| UrbanPopgrowth | 3.37 | 3.52 |
| Mercosur | 1.86 | 1.85 |
| Unasur | 3.13 | 3.06 |
| PHR ($2) |  | 1084.77 |
| PHR ($1.25) |  | 957.12 |
| PGR ($2) |  | 8836.02 |
| PGR ($1.25) |  | 1399.85 |
| DoP ($2) |  | 168.31 |
| DoP ($1.25) |  | 121.59 |
| Gini | 11397.11 |  |
| D1 | 215.43 |  |
| D2 | 354.25 |  |
| D9 | 45.31 |  |
| D10 | 2842.66 |  |
| Q1 | (Omitted)\* |  |
| Q2 | 893.48 |  |
| Q3 | 898.94 |  |
| Q4 | (Omitted)\* |  |
| Q5 | (Omitted)\* |  |

Note: \* = Stata omitted the variable because of collinearity

So, in case one of the measures of poverty is the dependent variable, we remove the four deciles and five quintiles from the equation, and only include the Gini coefficient (*Gini*) to control for inequality. In case one of the measures of inequality is the dependent variable, we remove *PHR ($2),* *PHR ($1.25)*, *PGR ($2)*, *PGR ($1.25)* and *DoP ($1.25)* from the equation and only include *DoP ($2)* to control for poverty. We choose these two variables because they are the most comprehensive with respect to poverty or inequality, respectively. After that there is no severe multicollinearity in the model (see Appendix).

Panel data can be estimated using a fixed effects (FE) or a random effects (RE) model. The FE model explores the relationship between the explanatory and dependent variables within a country. Each country has its own individual characteristics that may or may not influence the explanatory variables in the model. The FE model assumes that something within the country may impact or bias the independent or dependent variables in the model and that we need to control for this. So, the country’s error term and the variables are correlated. The FE model removes the effect of those time-invariant characteristics and one can assess the net effect of the explanatory variables on the dependent variable. Furthermore, the time-invariant characteristics are unique to the country and should not be correlated with other countries’ characteristics. Each country is different and therefore the country’s error term and the constant (which captures individual characteristics) should not be correlated with the others. Unlike the FE model, the RE model assumes that the variation across countries is random and uncorrelated with the explanatory variables in the model. It assumes that the country’s error term is not correlated with the independent variables. This allows the time-invariant variables to play a role as explanatory variables.

We perform a Hausman test to determine which model (FE or Re) is more relevant and significant in the panel data. The test compares the two models under the null hypothesis that the error terms are uncorrelated with any variables in the model. If the null hypothesis is rejected, the RE model is inconsistent, and the FE model is preferred. If the null hypothesis cannot be rejected, the RE model is preferred because it is a more efficient estimator. The Hausman test indicates that the error terms are not correlated with any variables in the model. Therefore, the null hypothesis is rejected and the FE model is the preferred model to use.

Because some countries have many more observations than others, especially with respect to the poverty and inequality data, the panel is unbalanced. However, since we use the FE model, we adjust for unobserved fixed country effects and this should not affect the estimated values of the coefficients.

Next, we perform a Wald test in order to see if time fixed effects are needed in the FE model. The Wald test is a joint test to see if the dummies for all years are equal to 0. If they are, no time fixed effects are needed and it is not necessary to control for overall time trends. However, the Wald test indicates that the dummies for all years are not equal to 0. Therefore, time fixed effects will be included to control for overall time trends.

Finally, another Wald test is performed to test for heteroskedasticity in the residuals of the FE model. The Wald test tests the hypothesis that the residuals in the FE model have the same variance (homoscedasticity). The alternative hypothesis is that the residuals do not have the same variance and vary across countries (heteroskedasticity). The Wald test rejects the null hypothesis and concludes there is heteroskedasticity in the residuals in the FE model. We use robust standard errors to control for heteroskedasticity.

The 13 Latin American countries in our sample differ with respect to poverty and inequality. Some countries are far below the sample’s average, while others are far above the average of the sample. As we noted earlier, the levels of inequality and poverty are important determinants in the reduction of poverty, and eventually in the reduction of inequality. In order to evaluate the effects of structural reforms in these different countries, we divide the sample into two groups of five countries each. The first group consists of countries that have (on average) the highest rates of both poverty and inequality in the sample. These countries are Guatemala, Bolivia, Brazil, Colombia and Ecuador. The second group comprises countries that have (on average) the lowest rates of both poverty and inequality in the sample. These countries are Uruguay, Chile, Costa Rica, Mexico and the Dominican Republic. The same strategy will be applied to these two groups in order to examine the effects of structural reforms on poverty and inequality.

**6. Estimation Results**

This section presents the estimation results of the aforementioned regression model. First, we will discuss the results using the complete sample. Thereafter, the results for the two groups will be discussed. In general we first focus on the general effects of the structural reforms and then look at the effects of each individual reform area.

**6.1 Results for the Complete Sample**

Table 4 presents the results for the relationship between structural reforms and poverty. Structural reforms, in general, have a significant positive effect on both the extent and depth of poverty. For instance, the estimation result in the column 1 show that for a one unit increase (on a scale from 0 to 100) in the structural reform index, the share of the population living on less than $2 a day increases with 0.273 percent-points, ceteris paribus. Column 3 shows that for a one unit increase in *SRI,* the transfer of income to the poor that would be necessary to eliminate poverty, assuming the $2 poverty line, increases with 0.172 percent-points, ceteris paribus. These results indicate that if a country would fully liberalize its policies, the share of the total population living on less than $2 a day would increase with 27.3 percent-points, ceteris paribus. Also, the transfer of income to the poor that would be necessary to eliminate poverty, assuming the $2 poverty line, would increase with 17.2 percent-points, holding all other variables constant. Thus, structural reforms, in general, worsen poverty. Inequality, as measured by the Gini coefficient, has a very significant positive effect on poverty. This suggests that the higher the level of inequality, the higher the extent and depth of poverty.

Table 5 presents the results for the relationship between each individual reform area and poverty. The general positive effect of structural reforms on poverty is mainly caused by financial reforms and privatizations, which both have a significant positive effect on the extent and depth of poverty. Across the board, the positive effect of privatizations is slightly larger than the positive effect of financial reforms. The other reform areas do not seem to have any significant effect on poverty. Next to inequality, the death rate now also has a significant positive effect on poverty.

Table 4: Estimation results of the FE model using the complete sample with the measures of poverty as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) |
|  |  |  |  |  |  |  |
| SRI | 0.273\*\* | 0.201\* | 0.172\*\* | 0.135\* | 7.604\* | 3.549\* |
|  | (0.109) | (0.0926) | (0.0762) | (0.0723) | (4.170) | (1.923) |
| Polity | 0.110 | 0.0489 | 0.0380 | 0.00600 | 1.274 | 0.105 |
|  | (0.193) | (0.144) | (0.102) | (0.0743) | (5.520) | (2.437) |
| GDP | -0.118 | -0.00768 | -0.00812 | 0.0219 | 0.741 | 1.012 |
|  | (0.0817) | (0.0538) | (0.0407) | (0.0287) | (1.953) | (0.821) |
| GDPgrowth | 0.0158 | -0.00418 | 0.00286 | 0.00215 | -0.0877 | 0.0693 |
|  | (0.107) | (0.0630) | (0.0464) | (0.0258) | (2.293) | (0.779) |
| School | -1.194 | -0.798 | -0.555 | -0.276 | -28.20 | -6.719 |
|  | (1.375) | (0.900) | (0.723) | (0.624) | (34.29) | (17.12) |
| Death | 2.410 | 1.688 | 1.284 | 0.743 | 152.7\* | 68.45\* |
|  | (1.732) | (1.646) | (1.158) | (0.898) | (74.19) | (32.53) |
| UrbanPopgrowth | -0.489 | -0.951 | -0.733 | -0.716 | -61.02 | -31.90\* |
|  | (0.971) | (0.727) | (0.554) | (0.424) | (37.34) | (17.10) |
| Mercosur | 2.462 | 0.193 | 0.0651 | -0.632 | -45.72 | -30.50 |
|  | (2.246) | (1.512) | (1.230) | (1.118) | (64.88) | (31.73) |
| Unasur | -0.493 | 0.601 | 0.392 | 0.529 | 4.022 | 8.914 |
|  | (1.757) | (0.975) | (0.791) | (0.649) | (35.93) | (16.12) |
| Gini | 0.880\*\*\* | 0.734\*\*\* | 0.572\*\*\* | 0.422\*\*\* | 21.94\*\*\* | 9.913\*\* |
|  | (0.126) | (0.119) | (0.107) | (0.104) | (5.511) | (3.327) |
| Constant | -34.69\*\* | -35.64\*\*\* | -28.45\*\*\* | -23.41\*\*\* | -1,814\*\*\* | -904.1\*\*\* |
|  | (12.08) | (10.69) | (8.308) | (7.036) | (470.9) | (235.2) |
|  |  |  |  |  |  |  |
| Observations | 193 | 193 | 193 | 193 | 193 | 193 |
| R-squared | 0.730 | 0.701 | 0.697 | 0.620 | 0.600 | 0.544 |
| Number of Countries | 13 | 13 | 13 | 13 | 13 | 13 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 5: Estimation results of the FE model using the whole sample with the measures of poverty as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) |
|  |  |  |  |  |  |  |
| Trade | 0.0636 | 0.0315 | 0.0462 | 0.0446 | 2.153 | 1.156 |
|  | (0.0868) | (0.0693) | (0.0551) | (0.0433) | (2.657) | (1.198) |
| Financial | 0.117\*\*\* | 0.0634\*\* | 0.0554\*\* | 0.0351\* | 1.726\*\* | 0.680\* |
|  | (0.0375) | (0.0252) | (0.0207) | (0.0163) | (0.748) | (0.369) |
| Tax | -0.0722 | -0.0745 | -0.0647 | -0.0598\* | -2.866 | -1.518 |
|  | (0.0623) | (0.0543) | (0.0410) | (0.0330) | (1.996) | (1.042) |
| Privatizations | 0.120\*\*\* | 0.0999\*\*\* | 0.0713\*\* | 0.0465\*\* | 4.020\*\*\* | 1.600\*\* |
|  | (0.0374) | (0.0305) | (0.0235) | (0.0192) | (1.271) | (0.595) |
| Labor | -0.0818 | -0.179 | -0.145 | -0.164 | -6.235 | -2.987 |
|  | (0.146) | (0.142) | (0.117) | (0.109) | (7.046) | (3.336) |
| Polity | 0.282 | 0.246 | 0.227 | 0.202\* | 10.33 | 4.676 |
|  | (0.226) | (0.167) | (0.133) | (0.0988) | (7.527) | (3.291) |
| GDP | -0.163\*\* | -0.0487 | -0.0370 | 0.00214 | -0.968 | 0.336 |
|  | (0.0631) | (0.0386) | (0.0306) | (0.0240) | (1.173) | (0.592) |
| GDPgrowth | 0.0784 | 0.0182 | 0.0126 | -0.00960 | 0.607 | -0.0687 |
|  | (0.0944) | (0.0607) | (0.0436) | (0.0255) | (2.493) | (0.894) |
| School | -1.914 | -1.415 | -1.152\* | -0.840 | -53.33 | -18.97 |
|  | (1.191) | (0.796) | (0.636) | (0.522) | (34.35) | (16.32) |
| Death | 4.066\*\* | 2.872\* | 2.118\* | 1.192 | 201.8\*\*\* | 85.31\*\* |
|  | (1.548) | (1.321) | (0.988) | (0.779) | (64.85) | (28.91) |
| UrbanPopgrowth | 0.350 | -0.585 | -0.546 | -0.802 | -48.74 | -31.35 |
|  | (1.322) | (0.886) | (0.715) | (0.513) | (40.12) | (19.10) |
| Mercosur | 2.615 | 0.823 | 0.140 | -0.777 | -32.33 | -21.55 |
|  | (2.197) | (1.744) | (1.509) | (1.469) | (76.00) | (39.24) |
| Unasur | -0.274 | 1.092 | 0.854 | 1.082\* | 21.97 | 19.73 |
|  | (1.802) | (1.031) | (0.814) | (0.588) | (39.86) | (16.41) |
| Gini | 0.855\*\*\* | 0.733\*\*\* | 0.562\*\*\* | 0.416\*\*\* | 21.82\*\*\* | 9.751\*\*\* |
|  | (0.105) | (0.0960) | (0.0893) | (0.0888) | (4.814) | (2.976) |
| Constant | -33.37 | -23.87 | -17.38 | -8.672 | -1,414\* | -641.3\* |
|  | (18.73) | (15.59) | (12.33) | (10.09) | (714.5) | (316.1) |
|  |  |  |  |  |  |  |
| Observations | 192 | 192 | 192 | 192 | 192 | 192 |
| R-squared | 0.771 | 0.751 | 0.744 | 0.677 | 0.660 | 0.598 |
| Number of Countries | 13 | 13 | 13 | 13 | 13 | 13 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6 presents the results for relationship between structural reforms and inequality. The first row shows that structural reforms, in general, have no significant effect on inequality, as measured by the Gini coefficient and the deciles and quintiles. Poverty, as measured by the DoP ($2) has a very significant effect on inequality. This suggests that the higher the extent and depth of poverty, the higher the level of inequality. This is in line with the positive relationship we found earlier in table 4. This shows there is a positive relationship between poverty and inequality, and vice versa. An increase in the average level income seems to make the distribution of income more equal. An increase in the death rate seems to increase the share of income held by D1 and D2. So, although the death rate increases both the extent and depth of poverty (see table5), it increases the share of income held by the poorest 10 percent. Apparently, this increase in poverty is not reflected in changes of the share of income held by the poorest 10 percent of the population.

Table 7 present the results for the relationship between each individual reform area and inequality. The results show that reform areas have different and offsetting effects on inequality. Looking at the distributional effects of each reform area, financial and labor reforms both decrease the share of income held by the poor in society, especially the income held by the poorest 10 percent. Therefore, they both have a significant positive effect on inequality, as measured by the Gini coefficient. On the contrary, tax reforms and privatizations increase the share of income held by the poor in society. Privatizations also seem to decrease the share of income held by the rich. As a result, both reforms decrease inequality. These different and offsetting effects of the different reforms areas explain why structural reforms, in general, have no significant effect on inequality at all.

Table 6: Estimation results of the FE model using the whole sample with the measures of inequality as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | D9 | D10 | Q5 |
|  |  |  |  |  |  |  |  |  |  |  |
| SRI | -0.0341 | -0.00960 | 0.00304 | -0.00656 | 0.0171 | 0.0228 | 0.00909 | -0.0106 | -0.0318 | -0.0424 |
|  | (0.0817) | (0.00909) | (0.0114) | (0.0186) | (0.0252) | (0.0241) | (0.0202) | (0.0204) | (0.0665) | (0.0711) |
| Polity | 0.0748 | -0.0180 | -0.0162 | -0.0342 | -0.0144 | 0.0198 | 0.0246 | -0.00349 | 0.00768 | 0.00418 |
|  | (0.141) | (0.0135) | (0.0145) | (0.0275) | (0.0375) | (0.0410) | (0.0347) | (0.0249) | (0.125) | (0.130) |
| GDP | -0.0785\* | 0.00226 | 0.00536 | 0.00761 | 0.0187 | 0.0215 | 0.0270\*\* | 0.00841 | -0.0832\* | -0.0747\* |
|  | (0.0437) | (0.00364) | (0.00480) | (0.00813) | (0.0111) | (0.0124) | (0.0117) | (0.00602) | (0.0406) | (0.0395) |
| GDPgrowth | 0.00747 | 8.63e-05 | -4.77e-05 | 3.87e-05 | -0.000915 | 0.000156 | -0.00529 | -0.00680 | 0.0128 | 0.00601 |
|  | (0.0458) | (0.00496) | (0.00486) | (0.00946) | (0.0104) | (0.0127) | (0.0132) | (0.00724) | (0.0434) | (0.0409) |
| School | -1.448 | 0.132 | 0.134 | 0.266 | 0.297 | 0.326 | 0.202 | -0.140 | -0.951 | -1.091 |
|  | (1.229) | (0.117) | (0.134) | (0.237) | (0.311) | (0.333) | (0.251) | (0.138) | (0.910) | (0.982) |
| Death | -0.838 | 0.320\*\*\* | 0.228\*\* | 0.549\*\*\* | 0.195 | -0.0395 | -0.289 | -0.219 | -0.197 | -0.416 |
|  | (0.959) | (0.0949) | (0.0986) | (0.176) | (0.250) | (0.284) | (0.270) | (0.193) | (0.876) | (0.860) |
| UrbanPopgrowth | 0.612 | -0.00897 | -0.0735 | -0.0825 | -0.195 | -0.179 | -0.167 | 0.0345 | 0.589 | 0.623 |
|  | (0.544) | (0.0792) | (0.0750) | (0.147) | (0.153) | (0.161) | (0.228) | (0.255) | (0.542) | (0.473) |
| Mercosur | 0.0124 | -0.113 | -0.195 | -0.308 | -0.104 | 0.491 | 0.718 | 0.285 | -1.083 | -0.797 |
|  | (2.196) | (0.214) | (0.204) | (0.388) | (0.514) | (0.600) | (0.617) | (0.283) | (2.113) | (2.017) |
| Unasur | -0.815 | -0.197\* | -0.0438 | -0.241 | 0.230 | 0.563\* | 0.763\*\*\* | 0.211 | -1.527\* | -1.316 |
|  | (1.035) | (0.102) | (0.114) | (0.208) | (0.279) | (0.310) | (0.227) | (0.152) | (0.852) | (0.921) |
| DoP ($2) | 0.0125\*\*\* | -0.00132\*\*\* | -0.00160\*\*\* | -0.00292\*\*\* | -0.00290\*\*\* | -0.00249\*\*\* | -0.00173\*\*\* | 1.75e-05 | 0.0100\*\*\* | 0.0100\*\*\* |
|  | (0.00298) | (0.000348) | (0.000393) | (0.000712) | (0.000709) | (0.000606) | (0.000558) | (0.000447) | (0.00238) | (0.00236) |
| Constant | 63.98\*\*\* | -1.110 | 0.383 | -0.726 | 4.849\*\* | 10.61\*\*\* | 20.80\*\*\* | 18.50\*\*\* | 45.97\*\*\* | 64.47\*\*\* |
|  | (7.227) | (1.009) | (0.875) | (1.763) | (2.015) | (2.147) | (1.849) | (1.711) | (6.280) | (6.543) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 193 | 194 | 194 | 194 | 194 | 194 | 194 | 194 | 194 | 194 |
| R-squared | 0.555 | 0.566 | 0.600 | 0.598 | 0.532 | 0.481 | 0.385 | 0.142 | 0.496 | 0.526 |
| Number of Countries | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: Estimation results of the FE model using the whole sample with the measures of inequality as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | D9 | D10 | Q5 |
|  |  |  |  |  |  |  |  |  |  |  |
| Trade | 0.0478 | -0.00864\*\* | -0.00204 | -0.0107 | -0.00332 | -0.00755 | -0.0121 | -0.00696 | 0.0406 | 0.0336 |
|  | (0.0410) | (0.00358) | (0.00428) | (0.00664) | (0.00989) | (0.0107) | (0.0126) | (0.00872) | (0.0394) | (0.0343) |
| Financial | 0.0346\* | -0.00464\*\*\* | -0.00523\*\* | -0.00987\*\*\* | -0.00745\* | -0.00437 | -0.00522 | -0.00110 | 0.0280 | 0.0269 |
|  | (0.0166) | (0.00138) | (0.00186) | (0.00293) | (0.00412) | (0.00528) | (0.00752) | (0.00584) | (0.0200) | (0.0163) |
| Tax | -0.0746\* | 0.0102\*\* | 0.00765\* | 0.0178\*\* | 0.0112 | 0.00886 | 0.00570 | -0.000187 | -0.0434 | -0.0436 |
|  | (0.0411) | (0.00378) | (0.00383) | (0.00699) | (0.00833) | (0.0106) | (0.0147) | (0.00829) | (0.0399) | (0.0348) |
| Privatizations | -0.0548\*\* | 0.00323 | 0.00698\*\* | 0.0102\* | 0.0150\*\* | 0.0156\* | 0.00880 | -0.00558 | -0.0440\* | -0.0496\*\* |
|  | (0.0227) | (0.00257) | (0.00290) | (0.00509) | (0.00629) | (0.00758) | (0.00756) | (0.00633) | (0.0219) | (0.0208) |
| Labor | 0.388\*\* | -0.0240\*\* | -0.0411\*\* | -0.0651\*\* | -0.111\*\* | -0.109\*\* | -0.0679 | 0.0257 | 0.327\* | 0.352\*\* |
|  | (0.158) | (0.0108) | (0.0157) | (0.0245) | (0.0385) | (0.0452) | (0.0570) | (0.0307) | (0.172) | (0.152) |
| Polity | -0.0679 | -0.0183 | 0.00488 | -0.0135 | 0.0452 | 0.0711\*\* | 0.0458 | -0.0300 | -0.119 | -0.149 |
|  | (0.116) | (0.0116) | (0.0133) | (0.0227) | (0.0290) | (0.0307) | (0.0269) | (0.0271) | (0.0851) | (0.0864) |
| GDP | -0.0453 | -0.000571 | 0.00104 | 0.000466 | 0.00966 | 0.0129 | 0.0219\* | 0.0113 | -0.0563 | -0.0450 |
|  | (0.0357) | (0.00342) | (0.00386) | (0.00686) | (0.00947) | (0.0110) | (0.0111) | (0.00753) | (0.0348) | (0.0326) |
| GDPgrowth | -0.0247 | 0.00742 | 0.00397 | 0.0114 | 0.00296 | 0.00208 | -0.00616 | -0.00918 | -0.00110 | -0.0103 |
|  | (0.0566) | (0.00491) | (0.00615) | (0.0109) | (0.0136) | (0.0148) | (0.0140) | (0.00727) | (0.0520) | (0.0509) |
| School | -1.075 | 0.119 | 0.0841 | 0.203 | 0.156 | 0.205 | 0.164 | -0.0655 | -0.662 | -0.728 |
|  | (1.166) | (0.102) | (0.126) | (0.217) | (0.286) | (0.289) | (0.213) | (0.155) | (0.772) | (0.845) |
| Death | -1.586 | 0.417\*\*\* | 0.341\*\*\* | 0.758\*\*\* | 0.391 | 0.120 | -0.242 | -0.329 | -0.697 | -1.027 |
|  | (0.985) | (0.0936) | (0.105) | (0.179) | (0.248) | (0.276) | (0.286) | (0.245) | (0.911) | (0.853) |
| UrbanPopgrowth | 0.454 | 0.0542 | -0.0525 | 0.00168 | -0.205 | -0.202 | -0.195 | 0.0274 | 0.574 | 0.601 |
|  | (0.604) | (0.0743) | (0.0826) | (0.150) | (0.175) | (0.163) | (0.241) | (0.281) | (0.579) | (0.493) |
| Mercosur | 2.069 | -0.289 | -0.478\* | -0.767\* | -0.738 | 0.0594 | 0.641 | 0.579 | 0.225 | 0.805 |
|  | (2.233) | (0.236) | (0.225) | (0.389) | (0.549) | (0.576) | (0.638) | (0.338) | (2.233) | (2.007) |
| Unasur | -1.163 | -0.217\* | -0.0112 | -0.228 | 0.377 | 0.721\*\* | 0.863\*\*\* | 0.172 | -1.905\* | -1.733\* |
|  | (1.049) | (0.106) | (0.114) | (0.215) | (0.281) | (0.317) | (0.263) | (0.164) | (0.914) | (0.957) |
| DoP ($2) | 0.0127\*\*\* | -0.00131\*\*\* | -0.00166\*\*\* | -0.00297\*\*\* | -0.00307\*\*\* | -0.00265\*\*\* | -0.00175\*\* | 0.000179 | 0.0103\*\*\* | 0.0104\*\*\* |
|  | (0.00327) | (0.000349) | (0.000412) | (0.000736) | (0.000776) | (0.000683) | (0.000632) | (0.000518) | (0.00265) | (0.00262) |
| Constant | 40.12\*\* | -0.473 | 2.684 | 2.212 | 12.25\*\*\* | 18.37\*\*\* | 26.07\*\*\* | 17.13\*\*\* | 23.97 | 41.10\*\*\* |
|  | (14.78) | (1.521) | (1.812) | (3.165) | (3.854) | (3.761) | (4.284) | (3.059) | (13.84) | (12.99) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 192 | 193 | 193 | 193 | 193 | 193 | 193 | 193 | 193 | 193 |
| R-squared | 0.616 | 0.628 | 0.662 | 0.658 | 0.608 | 0.547 | 0.417 | 0.165 | 0.547 | 0.588 |
| Number of Countries | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 | 13 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Combining the results, we notice that financial reforms increase both the extent and depth of poverty, reduce the share of income held by the poor and increase inequality. Clearly, financial reforms are bad news for the poor. Privatizations also increase poverty. However, this increase in poverty is not reflected in the share of income held by the poorest 10 percent of the population. Actually, privatizations decrease inequality by shifting income from the rich to the poor. Although tax and labor reforms do not have a significant effect on poverty, both have a significant effect on inequality. Tax reforms decrease inequality by raising the share of income held by the poor. Labor reforms have the opposite effect and increase inequality by shifting income from the poor to the rich. Trade reforms do not seem to have a significant effect on both poverty and inequality.

**6.2 Results for High Poverty and High Inequality Countries**

This section presents the results for the first group that consists of countries which have both high poverty and high inequality. This group comprises Guatemala, Bolivia, Brazil, Colombia and Ecuador.

Tables 8 show that structural reforms have no significant effect on poverty. This is because none of the reforms areas has a significant effect on poverty in countries were poverty and inequality is high (see table 9). An increase in the average level of income seems to decrease poverty. Again, inequality has a significant positive effect on poverty.

The results in table 10 show that structural reforms, in general, increase D2 and Q1. Despite that, structural reforms do not have any significance effect on the Gini coefficient. The estimation results in table 11 show that only tax reforms have a significant negative effect on inequality, as measured by the Gini coefficient. This is because tax reforms increase the share of income held by the poor of society. In addition, tax reform decrease the share of income held by the richest 10 percent of the population. Therefore, tax reforms distribute income more equally among the population. The other reforms have no significant distributional effects.

It is interesting to see that in countries with both high poverty and high inequality only tax reforms have a significant effect on the distribution of income. Privatizations, which had a significant negative effect on inequality in the previous section where we used the complete sample, here seem to have no distributional effects at all.

Table 8: Estimation results of the FE model for the first group with the measures of poverty as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) |
|  |  |  |  |  |  |  |
| SRI | 0.249 | 0.146 | 0.156 | 0.127 | 10.99 | 4.724 |
|  | (0.304) | (0.269) | (0.219) | (0.188) | (11.00) | (5.602) |
| Polity | -1.349 | -0.661 | -0.304 | 0.124 | -2.663 | 15.23 |
|  | (0.963) | (0.874) | (0.690) | (0.577) | (45.84) | (23.70) |
| GDP | -0.597\*\*\* | -0.386\*\*\* | -0.266\*\* | -0.132\* | -12.21\*\* | -3.330 |
|  | (0.103) | (0.0799) | (0.0659) | (0.0571) | (3.586) | (1.699) |
| GDPgrowth | 0.0899 | 0.00253 | -0.0299 | -0.0795 | -1.273 | -2.215 |
|  | (0.161) | (0.123) | (0.101) | (0.0828) | (6.141) | (2.884) |
| School | -1.954 | -1.932 | -1.936 | -1.845 | -164.5 | -104.1 |
|  | (3.372) | (2.470) | (1.843) | (1.256) | (142.0) | (64.19) |
| Death | 1.689 | 1.088 | 1.784 | 1.884 | 213.1 | 129.4\* |
|  | (3.179) | (2.368) | (1.801) | (1.266) | (123.5) | (54.87) |
| UrbanPopgrowth | 1.407 | -1.651 | -1.357 | -2.205 | -148.5\* | -105.1\* |
|  | (1.093) | (1.571) | (1.552) | (1.835) | (53.89) | (40.02) |
| Mercosur | 12.10\* | 10.42\*\* | 6.661\* | 3.789 | 380.2 | 177.7 |
|  | (4.569) | (3.326) | (2.955) | (2.627) | (181.5) | (99.74) |
| Gini | 1.336\*\* | 1.216\*\* | 0.923\*\* | 0.694\*\* | 45.41\*\* | 22.84\*\* |
|  | (0.305) | (0.289) | (0.243) | (0.210) | (13.40) | (7.516) |
| Constant | -24.69 | -25.61 | -28.51 | -28.51 | -2,168 | -1,341 |
|  | (28.14) | (28.83) | (23.83) | (21.12) | (1,268) | (677.8) |
|  |  |  |  |  |  |  |
| Observations | 72 | 72 | 72 | 72 | 72 | 72 |
| R-squared | 0.891 | 0.868 | 0.856 | 0.810 | 0.834 | 0.811 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 9: Estimation results of the FE model for the first group with the measures of poverty as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) |
|  |  |  |  |  |  |  |
| Trade | 0.156 | 0.143 | 0.113 | 0.0928 | 8.686 | 4.013 |
|  | (0.363) | (0.280) | (0.228) | (0.175) | (14.14) | (6.435) |
| Financial | 0.00582 | 0.00313 | 0.0161 | 0.0224 | 0.553 | 0.679 |
|  | (0.0335) | (0.0250) | (0.0195) | (0.0254) | (0.742) | (0.738) |
| Tax | 0.169 | -0.00544 | -0.00108 | -0.0596 | 3.795 | -0.157 |
|  | (0.339) | (0.315) | (0.258) | (0.214) | (13.71) | (6.849) |
| Privatizations | 0.0122 | -0.00480 | -0.00342 | -0.00853 | 0.907 | 0.0570 |
|  | (0.0928) | (0.0781) | (0.0627) | (0.0509) | (3.520) | (1.847) |
| Labor | -0.391 | -0.385 | -0.349 | -0.336 | -9.098 | -4.167 |
|  | (0.597) | (0.510) | (0.378) | (0.330) | (20.94) | (8.986) |
| Polity | -1.394 | -0.672 | -0.324 | 0.112 | -3.391 | 14.74 |
|  | (0.837) | (0.853) | (0.680) | (0.612) | (42.04) | (23.05) |
| GDP | -0.654\*\* | -0.373\*\* | -0.251\* | -0.0919 | -13.56\* | -3.196 |
|  | (0.145) | (0.130) | (0.104) | (0.0873) | (5.774) | (2.930) |
| GDPgrowth | 0.0440 | -0.0147 | -0.0460 | -0.0851 | -2.529 | -2.602 |
|  | (0.202) | (0.160) | (0.132) | (0.105) | (8.297) | (3.903) |
| School | -1.738 | -1.672 | -1.745 | -1.675 | -152.3 | -98.61 |
|  | (3.205) | (2.472) | (1.831) | (1.396) | (137.7) | (63.09) |
| Death | -0.115 | -0.600 | 0.320 | 0.573 | 135.7 | 88.58 |
|  | (3.612) | (2.978) | (2.287) | (1.712) | (139.8) | (65.62) |
| UrbanPopgrowth | 0.807 | -2.103 | -1.848 | -2.675\* | -160.6\* | -113.0\*\* |
|  | (1.395) | (1.374) | (1.084) | (1.164) | (65.05) | (28.74) |
| Mercosur | 4.600 | 3.601 | 0.915 | -1.232 | 117.1 | 66.15 |
|  | (3.778) | (4.612) | (4.254) | (4.519) | (222.1) | (156.5) |
| Gini | 1.481\*\* | 1.240\*\* | 0.941\*\* | 0.666\* | 49.23\* | 23.37\* |
|  | (0.454) | (0.380) | (0.322) | (0.262) | (18.28) | (9.292) |
| Constant | 10.21 | 13.02 | 7.171 | 7.607 | -1,110 | -739.3 |
|  | (33.37) | (28.21) | (24.50) | (26.53) | (909.2) | (588.0) |
|  |  |  |  |  |  |  |
| Observations | 72 | 72 | 72 | 72 | 72 | 72 |
| R-squared | 0.896 | 0.873 | 0.863 | 0.822 | 0.840 | 0.817 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 10: Estimation results of the FE model for the first group with the measures of inequality as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | D9 | D10 | Q5 |
|  |  |  |  |  |  |  |  |  |  |  |
| SRI | -0.124 | 0.00697 | 0.0294\*\* | 0.0363\* | 0.0537 | 0.0256 | -0.0333 | -0.0714 | -0.0109 | -0.0823 |
|  | (0.182) | (0.00840) | (0.00990) | (0.0166) | (0.0384) | (0.0578) | (0.0738) | (0.0401) | (0.213) | (0.177) |
| Polity | -0.878 | 0.0858 | 0.0611 | 0.147 | 0.182 | 0.285 | 0.171 | 0.00528 | -0.790 | -0.784 |
|  | (0.781) | (0.0787) | (0.124) | (0.198) | (0.234) | (0.189) | (0.0835) | (0.131) | (0.510) | (0.622) |
| GDP | 0.153\* | -0.00541 | -0.0197 | -0.0251 | -0.0461\* | -0.0465\* | -0.0236 | 0.0246 | 0.117 | 0.141\* |
|  | (0.0650) | (0.00641) | (0.0106) | (0.0159) | (0.0168) | (0.0193) | (0.0282) | (0.0140) | (0.0703) | (0.0593) |
| GDPgrowth | 0.0288 | 0.00656 | -0.00245 | 0.00411 | -0.00875 | -0.0118 | -0.0104 | -0.0132 | 0.0400 | 0.0268 |
|  | (0.0809) | (0.00560) | (0.00608) | (0.00988) | (0.0204) | (0.0258) | (0.0267) | (0.0178) | (0.0891) | (0.0754) |
| School | 3.685\* | -0.351\* | -0.434 | -0.786\* | -0.915 | -0.903 | -0.371 | 0.186 | 2.789 | 2.975 |
|  | (1.705) | (0.153) | (0.226) | (0.364) | (0.487) | (0.455) | (0.266) | (0.221) | (1.368) | (1.424) |
| Death | -3.549\* | 0.498\*\* | 0.606\*\* | 1.104\*\* | 0.985\* | 0.612 | -0.280 | -0.696\*\* | -1.725 | -2.421 |
|  | (1.603) | (0.114) | (0.181) | (0.264) | (0.451) | (0.451) | (0.322) | (0.187) | (1.386) | (1.423) |
| UrbanPopgrowth | 1.526 | -0.00305 | -0.212 | -0.215 | -0.544 | -0.658 | -0.0676 | 0.422 | 1.063 | 1.485 |
|  | (1.552) | (0.185) | (0.210) | (0.387) | (0.434) | (0.537) | (0.711) | (0.664) | (1.780) | (1.445) |
| Mercosur | -9.527\*\* | 0.677\*\* | 0.540\* | 1.217\*\* | 1.813\*\* | 3.034\*\*\* | 3.303\*\*\* | 0.765 | -10.13\*\* | -9.366\*\*\* |
|  | (2.254) | (0.210) | (0.215) | (0.398) | (0.485) | (0.599) | (0.648) | (0.435) | (2.268) | (1.985) |
| Unasur | -9.260\* | 1.364\*\* | 1.142 | 2.507\* | 1.843 | 1.515 | 0.682 | 0.663 | -7.211 | -6.547 |
|  | (3.618) | (0.381) | (0.638) | (0.956) | (0.988) | (1.223) | (1.506) | (1.330) | (3.886) | (3.277) |
| DoP ($2) | 0.0100\*\* | -0.000848\* | -0.00151\*\* | -0.00236\*\* | -0.00275\*\* | -0.00206\* | -0.000704 | 0.000946 | 0.00692\* | 0.00787\* |
|  | (0.00353) | (0.000307) | (0.000520) | (0.000809) | (0.000914) | (0.000758) | (0.000702) | (0.000458) | (0.00297) | (0.00287) |
| Constant | 58.45\*\* | -1.408 | 0.151 | -1.257 | 5.682 | 13.77\* | 25.24\*\*\* | 20.15\*\*\* | 36.41 | 56.56\*\* |
|  | (18.88) | (1.146) | (2.082) | (2.879) | (5.083) | (5.111) | (5.258) | (3.958) | (18.25) | (16.84) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| R-squared | 0.850 | 0.827 | 0.828 | 0.839 | 0.829 | 0.813 | 0.720 | 0.491 | 0.807 | 0.841 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 11: Estimation results of the FE model for the first group with the measures of inequality as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | D9 | D10 | Q5 |
|  |  |  |  |  |  |  |  |  |  |  |
| Trade | -0.0692 | 0.00398 | 0.00688 | 0.0109 | 0.00238 | 0.00672 | 0.0291 | 0.0439 | -0.0929 | -0.0491 |
|  | (0.123) | (0.0164) | (0.0152) | (0.0310) | (0.0201) | (0.0310) | (0.0598) | (0.0397) | (0.148) | (0.111) |
| Financial | 0.0241 | -0.00192 | -0.00366 | -0.00559 | -0.00463 | 0.000971 | -0.00844 | -0.0127 | 0.0304 | 0.0177 |
|  | (0.0364) | (0.00390) | (0.00325) | (0.00668) | (0.00716) | (0.00939) | (0.0119) | (0.00703) | (0.0379) | (0.0321) |
| Tax | -0.266\*\* | 0.0253\*\* | 0.0412\*\*\* | 0.0665\*\*\* | 0.0810\*\* | 0.0550 | 0.0152 | -0.0523 | -0.165 | -0.218\* |
|  | (0.0877) | (0.00688) | (0.00653) | (0.0103) | (0.0181) | (0.0376) | (0.0612) | (0.0413) | (0.139) | (0.101) |
| Privatizations | 0.00690 | 0.00268 | 0.00755\* | 0.0102 | 0.00756 | -0.00940 | -0.0299 | -0.0276 | 0.0491 | 0.0215 |
|  | (0.0527) | (0.00230) | (0.00334) | (0.00547) | (0.00932) | (0.0156) | (0.0218) | (0.0141) | (0.0641) | (0.0503) |
| Labor | 0.270 | 0.0390 | -0.0175 | 0.0215 | -0.102 | -0.0953 | -0.116 | -0.0207 | 0.312 | 0.291 |
|  | (0.275) | (0.0395) | (0.0455) | (0.0777) | (0.0710) | (0.104) | (0.142) | (0.100) | (0.356) | (0.278) |
| Polity | -0.577 | 0.0651 | 0.0321 | 0.0972 | 0.113 | 0.207 | 0.0917 | -0.00201 | -0.507 | -0.509 |
|  | (0.470) | (0.0554) | (0.0866) | (0.141) | (0.149) | (0.116) | (0.0503) | (0.107) | (0.243) | (0.345) |
| GDP | 0.236\*\*\* | -0.0158 | -0.0310\*\* | -0.0468\*\* | -0.0656\*\*\* | -0.0624\*\* | -0.0344 | 0.0298 | 0.180\* | 0.209\*\*\* |
|  | (0.0396) | (0.00866) | (0.00911) | (0.0156) | (0.0106) | (0.0162) | (0.0373) | (0.0286) | (0.0712) | (0.0446) |
| GDPgrowth | 0.0822 | 0.00362 | -0.00724 | -0.00362 | -0.0210 | -0.0262 | -0.0257 | -0.0156 | 0.0921 | 0.0765 |
|  | (0.0870) | (0.00423) | (0.00788) | (0.00943) | (0.0249) | (0.0284) | (0.0261) | (0.0217) | (0.0919) | (0.0803) |
| School | 2.803 | -0.287 | -0.328 | -0.616 | -0.716 | -0.731 | -0.171 | 0.256 | 1.978 | 2.234 |
|  | (1.384) | (0.157) | (0.203) | (0.358) | (0.382) | (0.398) | (0.325) | (0.277) | (1.153) | (1.164) |
| Death | -1.636 | 0.459\*\*\* | 0.513\* | 0.972\*\* | 0.699 | 0.0810 | -1.176 | -1.307\*\* | 0.732 | -0.575 |
|  | (2.595) | (0.0975) | (0.213) | (0.292) | (0.571) | (0.716) | (0.850) | (0.402) | (2.773) | (2.394) |
| UrbanPopgrowth | 1.803 | 0.0603 | -0.182 | -0.122 | -0.619 | -0.841 | -0.308 | 0.354 | 1.537 | 1.891 |
|  | (1.323) | (0.149) | (0.147) | (0.280) | (0.362) | (0.483) | (0.553) | (0.520) | (1.498) | (1.264) |
| Mercosur | -2.299 | 0.774\*\* | -0.186 | 0.588 | -0.129 | 1.300 | 1.017 | -0.201 | -2.575 | -2.775 |
|  | (3.401) | (0.249) | (0.280) | (0.304) | (0.858) | (1.211) | (1.249) | (1.224) | (4.241) | (3.187) |
| Unasur | -2.942 | 1.172\* | 0.867 | 2.039\* | 1.508 | 0.241 | -2.868 | -3.190 | 2.270 | -0.920 |
|  | (8.706) | (0.496) | (0.573) | (0.852) | (1.775) | (2.443) | (3.906) | (2.327) | (10.58) | (8.476) |
| Dop ($2) | 0.00832\*\* | -0.000679\*\* | -0.00129\*\* | -0.00197\*\* | -0.00231\*\* | -0.00169\*\* | -0.000454 | 0.000798\* | 0.00562\*\* | 0.00642\*\*\* |
|  | (0.00184) | (0.000203) | (0.000350) | (0.000512) | (0.000604) | (0.000451) | (0.000405) | (0.000344) | (0.00132) | (0.00139) |
| Constant | 28.69 | -4.265 | 1.679 | -2.585 | 14.49 | 24.11\*\* | 38.90\*\* | 24.91\*\* | 0.178 | 25.09 |
|  | (30.91) | (2.893) | (4.783) | (7.283) | (7.543) | (8.394) | (11.64) | (7.999) | (33.66) | (27.67) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 |
| R-squared | 0.889 | 0.871 | 0.883 | 0.888 | 0.878 | 0.847 | 0.760 | 0.549 | 0.844 | 0.879 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**6.3 Results for Low Poverty and Low Inequality Countries**

This section presents the results for the second group. This group consists of countries which have both low poverty and low inequality. These are Uruguay, Chile, Costa Rica, Mexico and the Dominican Republic.

The results in table 12 suggest that structural reforms, in general, particularly increase the depth of poverty. This positive effect is mainly caused by trade reforms. The other reforms do not have any significant effect on poverty (see table 13). The other results in table 13 suggest that urban population growth and being a member of the free-trade-agreement Mercosur both increase the extent and depth of poverty.

Looking at the distributional effects, structural reforms, in general, decrease inequality by shifting income from the rich to the middle class (see table 14). This negative effect is mainly caused by privatizations which shift income from the rich to the rest of the population (see table 15). The distributional effects of the other reforms are not clear. An increase in the average years of schooling seems to reduce inequality. Urban population growth, which increases poverty, increases inequality in countries were the levels of both poverty and inequality are low.

In contrast to the previous section, privatizations have a significant negative effect on inequality. For tax reforms, which had a significant negative effect on inequality in the two previous sections, the distributional effects are much less significant.

Table 12: Estimation results of the FE model for the second group with the measures of poverty as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) |
|  |  |  |  |  |  |  |
| SRI | 0.285 | 0.151 | 0.140\* | 0.0905\*\*\* | 2.708 | 1.290\*\*\* |
|  | (0.233) | (0.0923) | (0.0607) | (0.0136) | (2.528) | (0.195) |
| Polity | 0.180 | 0.270\*\* | 0.159 | 0.0945 | 6.701\* | 1.634\* |
|  | (0.606) | (0.0768) | (0.0903) | (0.0525) | (2.825) | (0.642) |
| GDP | -0.124 | -0.0391 | -0.0350 | -0.00808 | -0.732 | -0.0715 |
|  | (0.114) | (0.0591) | (0.0434) | (0.0187) | (1.336) | (0.231) |
| GDPgrowth | -0.0494 | -0.0373 | -0.0150 | 0.00649 | -1.682 | -0.177 |
|  | (0.160) | (0.0846) | (0.0619) | (0.0296) | (1.611) | (0.224) |
| School | 2.490 | 0.302 | 0.640 | 0.233 | 1.860 | -0.965 |
|  | (4.205) | (2.030) | (1.463) | (0.775) | (42.79) | (7.216) |
| Death | 0.329 | -0.685 | -1.124 | -1.966 | -8.698 | -25.50\*\* |
|  | (7.203) | (2.944) | (2.439) | (1.078) | (58.01) | (8.455) |
| UrbanPopgrowth | 0.291 | 0.395 | 0.385 | 0.446\*\* | -0.157 | 2.350 |
|  | (1.295) | (0.665) | (0.456) | (0.123) | (15.26) | (1.130) |
| Mercosur | 11.07\* | 6.438\*\* | 5.373\*\* | 3.430\*\*\* | 135.0\*\* | 45.02\*\*\* |
|  | (4.794) | (1.888) | (1.347) | (0.593) | (46.28) | (2.731) |
| Unasur | 3.523 | 2.150\* | 1.541\* | 0.643\* | 39.43 | 5.505 |
|  | (1.909) | (0.903) | (0.681) | (0.295) | (21.99) | (3.159) |
| Gini | 0.517\* | 0.251 | 0.226\* | 0.128\*\* | 3.733 | 0.958\*\* |
|  | (0.231) | (0.124) | (0.0840) | (0.0283) | (2.820) | (0.294) |
| Constant | -32.84 | -7.451 | -6.732 | 3.055 | -95.30 | 88.50 |
|  | (74.27) | (35.41) | (26.81) | (10.70) | (733.4) | (85.31) |
|  |  |  |  |  |  |  |
| Observations | 76 | 76 | 76 | 76 | 76 | 76 |
| R-squared | 0.761 | 0.818 | 0.843 | 0.876 | 0.769 | 0.918 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 13: Estimation results of the FE model for the second group with the measures of poverty as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) |
|  |  |  |  |  |  |  |
| Trade | 0.268\*\*\* | 0.0835\* | 0.0680\*\* | 0.00816 | 2.122\*\* | 0.439 |
|  | (0.0397) | (0.0333) | (0.0220) | (0.0265) | (0.488) | (0.283) |
| Financial | 0.102 | 0.00420 | 0.0144 | -0.00996 | 0.547 | 0.0730 |
|  | (0.0494) | (0.0203) | (0.0188) | (0.0119) | (0.437) | (0.107) |
| Tax | -0.0523 | 0.0169 | 0.00802 | 0.0231 | -0.165 | 0.200 |
|  | (0.127) | (0.0572) | (0.0444) | (0.0218) | (0.987) | (0.162) |
| Privatizations | 0.135 | 0.0791 | 0.0640 | 0.0316 | 1.665 | 0.327 |
|  | (0.0769) | (0.0506) | (0.0379) | (0.0219) | (0.846) | (0.230) |
| Labor | -0.405 | 0.0275 | -0.0389 | 0.0319 | -1.940 | -0.135 |
|  | (0.368) | (0.379) | (0.262) | (0.184) | (5.528) | (1.884) |
| Polity | 0.632 | 0.342\* | 0.252 | 0.0990 | 9.536\*\* | 2.225 |
|  | (0.542) | (0.133) | (0.132) | (0.0982) | (2.296) | (1.283) |
| GDP | -0.233 | -0.0689 | -0.0623 | -0.00770 | -1.743 | -0.108 |
|  | (0.117) | (0.0526) | (0.0405) | (0.0161) | (1.133) | (0.206) |
| GDPgrowth | 0.0912 | 0.0355 | 0.0279 | 0.00555 | 0.0672 | -0.160 |
|  | (0.112) | (0.0494) | (0.0371) | (0.0137) | (1.017) | (0.165) |
| School | 2.637 | 0.658 | 0.854 | 0.328 | 9.085 | -1.581 |
|  | (2.467) | (2.035) | (1.385) | (0.978) | (32.50) | (9.848) |
| Death | 4.257 | -0.313 | -0.433 | -2.217 | 19.54 | -25.58\*\* |
|  | (6.827) | (2.684) | (2.304) | (1.103) | (42.52) | (7.529) |
| UrbanPopgrowth | 1.360\*\* | 1.188\*\*\* | 0.908\*\*\* | 0.652\*\*\* | 16.45\*\* | 3.556\*\* |
|  | (0.429) | (0.177) | (0.103) | (0.126) | (5.362) | (1.219) |
| Mercosur | 5.526\*\* | 4.602\* | 4.098\*\* | 3.623\*\* | 82.81\*\* | 42.61\*\*\* |
|  | (1.858) | (1.802) | (1.241) | (1.029) | (22.66) | (6.536) |
| Unasur | 3.266 | 1.648\* | 1.305\* | 0.549\* | 31.31\*\* | 5.330\* |
|  | (1.592) | (0.674) | (0.510) | (0.248) | (11.25) | (2.186) |
| Gini | 0.617\*\*\* | 0.332\*\* | 0.289\*\*\* | 0.165\* | 5.439\*\* | 1.154\*\* |
|  | (0.119) | (0.0868) | (0.0562) | (0.0664) | (1.386) | (0.295) |
| Constant | -41.39 | -16.53 | -11.39 | 3.180 | -285.4 | 110.7 |
|  | (70.11) | (47.44) | (34.81) | (21.65) | (702.1) | (191.9) |
|  |  |  |  |  |  |  |
| Observations | 75 | 75 | 75 | 75 | 75 | 75 |
| R-squared | 0.861 | 0.863 | 0.879 | 0.896 | 0.852 | 0.920 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 14: Estimation results of the FE model for the second group with the measures of inequality as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | D9 | D10 | Q5 |
|  |  |  |  |  |  |  |  |  |  |  |
| SRI | -0.197\*\* | -0.00742 | 0.00904 | 0.00162 | 0.0461\* | 0.0789\*\*\* | 0.0836\*\* | 0.0235 | -0.234\*\*\* | -0.210\*\*\* |
|  | (0.0537) | (0.00984) | (0.0101) | (0.0179) | (0.0195) | (0.0134) | (0.0185) | (0.0226) | (0.0337) | (0.0400) |
| Polity | -0.150 | 0.00392 | 0.0374 | 0.0414 | 0.0818 | 0.0415 | -0.0750 | -0.0991 | 0.00940 | -0.0897 |
|  | (0.324) | (0.0366) | (0.0428) | (0.0731) | (0.0872) | (0.0845) | (0.0872) | (0.0619) | (0.265) | (0.269) |
| GDP | -0.0553 | 0.00130 | 0.00480 | 0.00610 | 0.0175 | 0.0169 | 0.0133 | -0.00641 | -0.0474 | -0.0538 |
|  | (0.0482) | (0.00239) | (0.00461) | (0.00635) | (0.0128) | (0.0153) | (0.0162) | (0.00894) | (0.0482) | (0.0473) |
| GDPgrowth | -0.00728 | -0.00116 | 0.000704 | -0.000454 | 0.00123 | 0.00426 | 0.00391 | 0.00701 | -0.0159 | -0.00894 |
|  | (0.0313) | (0.00401) | (0.00408) | (0.00406) | (0.0114) | (0.0110) | (0.00964) | (0.0102) | (0.0303) | (0.0295) |
| School | -3.869\*\* | 0.264 | 0.309\* | 0.572\*\* | 0.822 | 1.094\* | 1.060\*\* | 0.260 | -3.808\*\* | -3.548\*\* |
|  | (1.259) | (0.134) | (0.143) | (0.167) | (0.430) | (0.436) | (0.259) | (0.296) | (1.108) | (1.189) |
| Death | -0.565 | 0.493 | 0.383 | 0.876 | 0.168 | -0.614 | -1.285 | -0.172 | 1.027 | 0.855 |
|  | (2.206) | (0.249) | (0.327) | (0.556) | (0.652) | (0.535) | (0.672) | (0.446) | (1.685) | (1.698) |
| UrbanPopgrowth | 1.944\*\* | -0.186\* | -0.153 | -0.339 | -0.389 | -0.559\*\* | -0.547\*\*\* | 0.00261 | 1.832\*\* | 1.835\*\* |
|  | (0.692) | (0.0695) | (0.107) | (0.173) | (0.216) | (0.138) | (0.106) | (0.162) | (0.438) | (0.517) |
| Mercosur | -1.635 | -0.507\*\*\* | 0.0389 | -0.468 | 0.506 | 0.991 | 1.052 | 0.664 | -2.745 | -2.080 |
|  | (1.957) | (0.0406) | (0.239) | (0.230) | (0.600) | (0.617) | (0.604) | (0.504) | (1.938) | (1.861) |
| Unasur | -1.433 | 0.0162 | 0.131 | 0.147 | 0.381\* | 0.457\* | 0.458\* | -0.0101 | -1.433 | -1.444\* |
|  | (0.802) | (0.127) | (0.0687) | (0.192) | (0.162) | (0.181) | (0.185) | (0.227) | (0.765) | (0.634) |
| DoP ($2) | 0.00840 | 0.000838 | -0.00152\*\* | -0.000684 | -0.00345\*\* | -0.00280 | -6.41e-05 | 0.000801 | 0.00619 | 0.00699 |
|  | (0.00479) | (0.00134) | (0.000464) | (0.00169) | (0.00117) | (0.00194) | (0.00317) | (0.00182) | (0.00672) | (0.00531) |
| Constant | 81.29\*\*\* | -2.764 | -1.654 | -4.418 | 1.028 | 7.837 | 19.09\*\* | 14.71\*\* | 61.75\*\* | 76.46\*\*\* |
|  | (16.95) | (1.740) | (2.214) | (3.354) | (5.327) | (4.972) | (4.290) | (3.554) | (13.92) | (14.45) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 | 76 |
| R-squared | 0.766 | 0.670 | 0.740 | 0.701 | 0.799 | 0.819 | 0.720 | 0.571 | 0.755 | 0.788 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 15: Estimation results of the FE model for the second group with the measures of inequality as dependent variables. The model includes country and time fixed effects.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| VARIABLES | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | D9 | D10 | Q5 |
|  |  |  |  |  |  |  |  |  |  |  |
| Trade | 0.0347 | 0.00692 | -0.00537 | 0.00155 | -0.0146 | -0.0138 | -0.00618 | 0.00793 | 0.0251 | 0.0330 |
|  | (0.0290) | (0.00873) | (0.00409) | (0.0118) | (0.00984) | (0.0135) | (0.0249) | (0.0222) | (0.0542) | (0.0369) |
| Financial | -0.0320 | 0.00445 | -0.000883 | 0.00357 | -0.000793 | 0.00892 | 0.0177 | 0.0190\* | -0.0484 | -0.0294 |
|  | (0.0328) | (0.00298) | (0.00320) | (0.00566) | (0.00764) | (0.00919) | (0.0114) | (0.00838) | (0.0347) | (0.0291) |
| Tax | -0.00538 | -0.00900\*\* | -0.00503 | -0.0140 | -0.00331 | 0.00983 | 0.0277 | 0.0218\* | -0.0420 | -0.0202 |
|  | (0.0844) | (0.00282) | (0.00772) | (0.0102) | (0.0209) | (0.0216) | (0.0245) | (0.00971) | (0.0857) | (0.0765) |
| Privatizations | -0.135\*\*\* | 0.00756\* | 0.0139\*\*\* | 0.0215\*\* | 0.0354\*\*\* | 0.0413\*\* | 0.0231 | -0.00960 | -0.112\*\* | -0.121\*\* |
|  | (0.0241) | (0.00324) | (0.00197) | (0.00492) | (0.00506) | (0.00982) | (0.0156) | (0.00828) | (0.0348) | (0.0276) |
| Labor | -0.127 | -0.0204 | 0.0126 | -0.00779 | 0.0625 | 0.0716 | -0.00632 | -0.0825 | -0.0375 | -0.120 |
|  | (0.301) | (0.0434) | (0.0174) | (0.0488) | (0.0733) | (0.113) | (0.197) | (0.107) | (0.442) | (0.348) |
| Polity | -0.204 | 0.0476 | 0.0548 | 0.102 | 0.0962 | 0.0280 | -0.129 | -0.141 | 0.0425 | -0.0981 |
|  | (0.279) | (0.0419) | (0.0415) | (0.0767) | (0.0743) | (0.0681) | (0.0654) | (0.0712) | (0.217) | (0.233) |
| GDP | 0.0179 | -0.0111 | -0.00424 | -0.0153 | 0.00192 | 0.00202 | 0.00863 | -0.00248 | 0.00523 | 0.00275 |
|  | (0.0492) | (0.00729) | (0.00439) | (0.0113) | (0.00935) | (0.0130) | (0.0192) | (0.0137) | (0.0505) | (0.0448) |
| GDPgrowth | -0.0169 | 0.00128 | 3.76e-05 | 0.00131 | -0.000656 | 0.00646 | 0.00953 | 0.0136 | -0.0303 | -0.0167 |
|  | (0.0365) | (0.00412) | (0.00236) | (0.00584) | (0.00837) | (0.0117) | (0.0170) | (0.0107) | (0.0468) | (0.0369) |
| School | -4.220\*\* | 0.241 | 0.337 | 0.578 | 0.924\* | 1.234\*\* | 1.137\* | 0.228 | -4.100\*\* | -3.872\*\* |
|  | (1.316) | (0.203) | (0.165) | (0.345) | (0.344) | (0.395) | (0.434) | (0.410) | (1.299) | (1.156) |
| Death | -2.179 | 0.791\*\* | 0.600\*\* | 1.392\*\* | 0.511 | -0.333 | -1.219\*\* | -0.224 | -0.126 | -0.350 |
|  | (1.544) | (0.231) | (0.208) | (0.431) | (0.392) | (0.249) | (0.329) | (0.271) | (1.106) | (1.001) |
| UrbanPopgrowth | 0.468 | -0.0509 | 0.0281 | -0.0228 | 0.00408 | -0.164 | -0.416 | -0.190 | 0.788 | 0.598 |
|  | (1.123) | (0.0755) | (0.103) | (0.172) | (0.302) | (0.273) | (0.255) | (0.102) | (1.001) | (0.964) |
| Mercosur | -3.531\* | -0.338 | 0.269 | -0.0696 | 1.022\* | 1.511\* | 1.162 | 0.372 | -3.997 | -3.625 |
|  | (1.625) | (0.263) | (0.133) | (0.306) | (0.457) | (0.630) | (0.947) | (0.583) | (2.241) | (1.777) |
| Unasur | -1.222 | 0.0957 | 0.103 | 0.199 | 0.248 | 0.317 | 0.432 | 0.138 | -1.335 | -1.197 |
|  | (1.307) | (0.151) | (0.114) | (0.262) | (0.278) | (0.275) | (0.310) | (0.243) | (1.227) | (1.098) |
| DOP ($2) | 0.0214\*\* | -0.00252 | -0.00291\*\*\* | -0.00543\*\* | -0.00522\*\*\* | -0.00482 | -0.000563 | 0.000636 | 0.0154 | 0.0160 |
|  | (0.00631) | (0.00142) | (0.000334) | (0.00159) | (0.000958) | (0.00286) | (0.00552) | (0.00467) | (0.0121) | (0.00782) |
| Constant | 88.98\*\*\* | -2.995 | -2.474 | -5.469 | -1.709 | 4.814 | 20.24 | 18.36\* | 63.76 | 82.12\*\* |
|  | (19.08) | (3.306) | (1.601) | (4.178) | (4.731) | (7.934) | (14.48) | (8.045) | (30.07) | (22.14) |
|  |  |  |  |  |  |  |  |  |  |  |
| Observations | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 | 75 |
| R-squared | 0.821 | 0.800 | 0.835 | 0.813 | 0.864 | 0.856 | 0.729 | 0.670 | 0.785 | 0.830 |
| Number of Countries | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**7. Conclusion**

This study examines empirically the relationship between structural reforms and poverty and inequality for 13 Latin American countries in the period 1985-2010. Thereby, it does not only examine the general effects of the structural reforms, but also evaluates the effects of each individual reform area on poverty and inequality. In addition, it includes a new measure of poverty. Also, it does not only evaluate the impact on inequality by looking at changes in the Gini coefficient, but also at changes in income held by deciles and quintiles. Furthermore, it makes a distinction between high poverty and high inequality countries, and low poverty and low inequality countries.

In sum, the estimation results show that the implementation of structural reforms in Latin America, in general, and financial reforms and privatizations, in particular, have increased both the extent and depth of poverty. The other reform areas had no effect on poverty. With respect to inequality, the different reform areas had different and offsetting effects; financial and labor reforms increased inequality, while tax reforms and privatizations decreased inequality. Trade reforms did not have a significant effect on inequality. As a result, structural reforms, in general, had no significant effect on inequality in Latin America in the period 1985-2010.

In high poverty and high inequality countries structural reforms, in general, do not have had significant effect on poverty since none of the reform areas had a significant effect. Regarding inequality, structural reforms, in general, and tax reforms, in particular, increased the share of income held by poor and decreased the share of income held by the rich in society.

In low poverty and low inequality countries structural reforms, in general, and trade reforms, in particular, increased the depth of poverty. With respect to inequality, structural reforms, in general, distributed income more equally among the population. This is mainly due to the fact that privatizations decreased the share of income held by the rich and increased the share of income held by the rest of the population.

The results show that different reforms have different effects on poverty and inequality. Their impact depends largely on the type of country in which they are implemented. In general, the result suggests that structural reforms have worsened poverty. However, the results also suggest that tax reforms and privatizations have reduced inequality in high poverty and high inequality, and low poverty and low inequality countries, respectively. By implementing reforms in tax policy and privatizing state enterprises, governments of these sorts of countries could reduce inequality, and eventually further decrease poverty and inequality. However, further research is necessary to study the precise channels through which these two reforms impact the distribution of income. This could give better insight into what type of tax reforms and privatizations precisely need to be implemented in order to reduce income inequality.

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**Appendix**

1. Correlation matrix

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | Q5 | D9 | D10 | SRI |
| PHR ($2) | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PHR ($1.25) | 009693 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PGR ($2) | 0.9665 | 0.9964 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PGR ($1.25) | 0.8804 | 0.9581 | 0.9716 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DoP ($2) | 0.8949 | 0.9452 | 0.9382 | 0.9316 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |
| DoP ($1.25) | 0.8009 | 0.8923 | 0.8940 | 0.9193 | 0.9718 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |
| Gini | 0.6561 | 0.6562 | 0.6578 | 0.6211 | 0.5531 | 0.5009 | 1.0000 |  |  |  |  |  |  |  |  |  |  |
| D1 | -0.6814 | -0.7559 | -0.7713 | -0.8111 | -0.5893 | -0.5823 | -0.7887 | 1.0000 |  |  |  |  |  |  |  |  |  |
| D2 | -0.756 | -0.7726 | -0.7758 | -0.7644 | -0.6529 | -0.6291 | -0.9412 | 0.8832 | 1.0000 |  |  |  |  |  |  |  |  |
| Q1 | -0.7317 | -0.7780 | -0.7972 | -0.8103 | -0.6419 | 0.-6255 | -0.8959 | 0.9668 | 0.9738 | 1.0000 |  |  |  |  |  |  |  |
| Q2 | -0.6464 | -0.6465 | -0.6443 | -0.6022 | -0.5522 | -0.5019 | -0.9882 | 0.7553 | 0.9494 | 0.8841 | 1.0000 |  |  |  |  |  |  |
| Q3 | -0.5411 | -0.5140 | -0.5124 | -0.4569 | -0.4392 | -0.3735 | -0.9675 | 0.6313 | 0.8384 | 0.7634 | 0.9591 | 1.0000 |  |  |  |  |  |
| Q4 | -0.4179 | -0.3628 | -0.3627 | -0.2964 | -0.3175 | -0.2445 | -0.8734 | 0.4552 | 0.6670 | 0.5845 | 0.8372 | 0.9463 | 1.0000 |  |  |  |  |
| Q5 | 0.6073 | 0.5947 | 0.5956 | 0.5511 | 0.5037 | 0.4459 | 0.9932 | -0.7231 | -0.8995 | -0.8413 | -0.9894 | -0.9891 | -0.9200 | 1.0000 |  |  |  |
| D9 | -0.0563 | 0.0468 | 0.0511 | 0.1378 | 0.0033 | 0.0740 | -0.2333 | -0.1576 | -0.0131 | -0.0836 | 0.1500 | 0.3288 | 0.5824 | -0.2930 | 1.0000 |  |  |
| D10 | 0.877 | 0.5627 | 0.5630 | 0.5097 | 0.4812 | 0.4171 | 0.9788 | -0.6715 | -0.8584 | -0.7938 | -0.9561 | -0.9869 | -0.9526 | 0.9928 | -0.4055 | 1.0000 |  |
| SRI | -0.1038 | 0.0876 | -0.0737 | -0.0293 | -0.1153 | -0.5070 | 0.0649 | -0.0593 | -0.0643 | -0.0638 | -0.0449 | -0.0504 | -0.0862 | 0.0658 | -0.1249 | 0.0786 | 1.0000 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PHR ($2) | PHR ($1.25) | PGR ($2) | PGR ($1.25) | DoP ($2) | DoP ($1.25) | Gini | D1 | D2 | Q1 | Q2 | Q3 | Q4 | Q5 | D9 | D10 | SRI |
| Trade | -0.1995 | -0.1813 | -0.1590 | -0.0952 | -0.1895 | -0.1260 | -0.1416 | 0.0488 | 0.1358 | 0.0977 | 0.1757 | 0.1661 | 0.1148 | -0.1497 | -0.0455 | -0.1374 | 0.7375 |
| Financial | -0.1286 | -0.349 | -0.1232 | -0.1003 | -0.1300 | -0.0864 | -0.0502 | 0.0828 | 0.0076 | 0.0443 | 0.0362 | 0.0645 | 0.0463 | -0.0517 | -0.0350 | -0.0450 | 0.7744 |
| Tax | -0.2993 | -0.2820 | -0.2797 | -0.2420 | -0.2697 | -0.2131 | -0.2043 | 0.1753 | 0.2031 | 0.1958 | 0.2211 | 0.2093 | 0.1509 | -0.2058 | -0.1050 | -0.1836 | 0.5226 |
| Privatizations | 0.0705 | 0.1002 | 0.1085 | 0.1438 | 0.0790 | 0.1305 | 0.1587 | -0.1396 | -0.1876 | -0.1700 | -0.1519 | -0.1292 | -0.1272 | 0.1516 | -0.0861 | 0.1557 | 0.8109 |
| Labor | 0.1271 | 0.1055 | 0.0993 | 0.0660 | 0.0292 | -0.0262 | 0.3664 | -0.2876 | -0.2344 | -0.2673 | -0.3304 | -0.4146 | -0.4234 | 0.9316 | -0.1315 | 0.3909 | -0.0422 |
| Polity | -0.3375 | -0.2551 | -0.2474 | -0.1576 | -0.2400 | -0.1705 | -0.1978 | 0.0250 | 0.1386 | 0.0877 | 0.1895 | 0.2275 | 0.2644 | -0.2141 | 0.2731 | -0.2390 | 0.1437 |
| GDP | -0.6920 | -0.6571 | -0.6547 | -0.5863 | -0.5435 | -0.4766 | -0.3381 | 0.4498 | 0.4245 | 0.4497 | 0.3250 | 0.2366 | 0.1448 | -0.2926 | -0.0263 | -0.2764 | -0.0564 |
| GDPgrowth | -0.0939 | -0.1118 | -0.1151 | -0.1280 | -0.1285 | -0.1248 | -0.0071 | 0.0675 | 0.0378 | 0.0533 | -0.0018 | -0.0318 | -0.0276 | 0.0069 | 0.0206 | 0.0040 | 0.0623 |
| School | -0.5915 | -0.5649 | -0.5498 | -0.4698 | -0.5117 | -0.4144 | -0.3706 | 0.3378 | 0.3976 | 0.4001 | 0.3747 | 0.238 | 0.2338 | -0.3474 | -0.0541 | -0.3254 | 0.5761 |
| Death | 0.0737 | 0.1223 | 0.1129 | 0.1300 | 0.2387 | 0.2708 | -0.0341 | 0.0951 | -0.0564 | 0.0154 | -0.0301 | 0.0444 | 0.1138 | -0.0427 | 0.2074 | -0.0668 | -0.0873 |
| Urbangrowth | 0.3152 | 0.3105 | 0.3126 | 0.2928 | 0.2254 | 0.1933 | 0.0961 | -0.2707 | -0.1229 | -0.1984 | -0.0626 | -0.0440 | 0.0001 | 0.0711 | 0.0853 | 0.0573 | -0.2751 |
| Mercosur | -0.2457 | -0.2142 | -0.2289 | -0.2138 | -0.1845 | -0.1713 | 0.0151 | 0.0681 | -0.0252 | 0.0193 | -0.0633 | -0.280 | 0.0014 | 0.0202 | 0.1240 | 0.0037 | -0.0423 |
| Unasur | -0.2142 | -0.1851 | -0.1906 | -0.1612 | -0.1708 | -0.1394 | -0.1023 | 0.0798 | 0.0995 | 0.0930 | 0.1048 | 0.1088 | 0.0850 | -0.1045 | -0.0381 | -0.0951 | 0.03005 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Trade | Financial | Tax | Privatizations | Labor | Polity | GDP | GDPgrowth | School | Death | Urbangrowth | Mercosur | Unasur |
| Trade | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |  |
| Financial | 0.5600 | 1.0000 |  |  |  |  |  |  |  |  |  |  |  |
| Tax | 0.5102 | 0.2882 | 1.0000 |  |  |  |  |  |  |  |  |  |  |
| Privatizations | 0.3623 | 0.5871 | 0.1567 | 1.0000 |  |  |  |  |  |  |  |  |  |
| Labor | -0.1985 | -0.3993 | -0.1162 | -0.1386 | 1.0000 |  |  |  |  |  |  |  |  |
| Polity | 0.0808 | 0.1387 | 0.1657 | 0.0544 | 0.0279 | 1.0000 |  |  |  |  |  |  |  |
| GDP | 0.0360 | 0.1272 | -0.1151 | -0.1024 | -0.1428 | 0.2469 | 1.0000 |  |  |  |  |  |  |
| GDPgrowth | 0.0139 | 0.0617 | -0.0610 | 0.0439 | 0.1108 | 0.0210 | 0.0961 | 1.0000 |  |  |  |  |  |
| School | 0.5032 | 0.5168 | 0.3837 | 0.4042 | -0.1642 | 0.2469 | 0.4050 | 0.0765 | 1.0000 |  |  |  |  |
| Death | -0.1054 | 0.1264 | -0.0069 | 0.0602 | -0.5112 | 0.0749 | -0.1552 | -0.0355 | -0.1464 | 1.0000 |  |  |  |
| Urbangrowth | -0.1853 | -0.5481 | -0.0693 | -0.2513 | 0.4515 | 0.0078 | -0.3628 | -0.0231 | -0.3785 | -0.4367 | 1.0000 |  |  |
| Mercosur | 0.0954 | 0.0939 | 0.2246 | -0.1860 | -0.2003 | 0.1999 | 0.1322 | -0.0215 | -0.0357 | 0.4128 | -0.3897 | 1.0000 |  |
| Unasur | 0.1238 | 0.1907 | 0.2485 | 0.2839 | 0.0027 | 0.0144 | 0.0765 | 0.0540 | 0.2668 | 0.0251 | -0.2585 | 0.1333 | 1.0000 |

2. Estimation results of the FE model with different lags of the observations of the SRI (SRI = no lag, L.SRI= one-year lag, L2. SRI = two-year lag, L3.SRI = three-year lag, L4.SRI = four-year lag and L5.SRI = five-year lag).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) |
| VARIABLES | PHR ($2) | PHR ($2) | PHR ($2) | PHR ($2) | PHR ($2) | PHR ($2) |
|  |  |  |  |  |  |  |
| SRI | 0.0780 |  |  |  |  |  |
|  | (0.167) |  |  |  |  |  |
| L.SRI |  | 0.131 |  |  |  |  |
|  |  | (0.133) |  |  |  |  |
| L2.SRI |  |  | 0.273\*\* |  |  |  |
|  |  |  | (0.109) |  |  |  |
| L3.SRI |  |  |  | 0.158 |  |  |
|  |  |  |  | (0.0990) |  |  |
| L4.SRI |  |  |  |  | 0.105 |  |
|  |  |  |  |  | (0.117) |  |
| L5.SRI |  |  |  |  |  | -0.00710 |
|  |  |  |  |  |  | (0.151) |
| Polity | 0.0890 | 0.0912 | 0.110 | 0.0583 | 0.0463 | 0.0870 |
|  | (0.233) | (0.217) | (0.193) | (0.250) | (0.252) | (0.267) |
| GDP | -0.104 | -0.106 | -0.118 | -0.135 | -0.132 | -0.136 |
|  | (0.0895) | (0.0867) | (0.0817) | (0.0809) | (0.0826) | (0.0824) |
| GDPgrowth | -0.0103 | 0.000590 | 0.0158 | 0.0121 | 0.0135 | 0.0445 |
|  | (0.112) | (0.115) | (0.107) | (0.0928) | (0.0908) | (0.0828) |
| School | -0.414 | -0.581 | -1.194 | -0.571 | -0.336 | -0.109 |
|  | (1.734) | (1.564) | (1.375) | (1.528) | (1.467) | (1.322) |
| Death | 1.162 | 1.453 | 2.410 | 0.538 | 0.0566 | -1.569 |
|  | (1.921) | (1.816) | (1.732) | (1.430) | (1.493) | (1.752) |
| UrbanPopgrowth | -0.596 | -0.654 | -0.489 | 0.539 | 0.811 | 1.994 |
|  | (1.040) | (1.003) | (0.971) | (1.215) | (1.206) | (1.976) |
| Mercosur | 5.441\*\* | 5.153\*\* | 2.462 | 3.773 | 5.138\* | 4.161 |
|  | (2.050) | (2.123) | (2.246) | (2.682) | (2.692) | (4.184) |
| Unasur | -0.244 | -0.265 | -0.493 | -0.761 | -0.846 | -1.334 |
|  | (1.698) | (1.720) | (1.757) | (1.615) | (1.572) | (1.590) |
| Gini | 0.893\*\*\* | 0.888\*\*\* | 0.880\*\*\* | 0.856\*\*\* | 0.841\*\*\* | 0.788\*\*\* |
|  | (0.127) | (0.125) | (0.126) | (0.122) | (0.119) | (0.102) |
| Constant | -21.72 | -24.19\* | -34.69\*\* | -24.79\* | -20.39 | -8.291 |
|  | (14.07) | (12.95) | (12.08) | (11.89) | (12.84) | (20.87) |
|  |  |  |  |  |  |  |
| Observations | 196 | 196 | 193 | 189 | 187 | 180 |
| R-squared | 0.716 | 0.718 | 0.730 | 0.727 | 0.723 | 0.728 |
| Number of Countries | 13 | 13 | 13 | 13 | 13 | 13 |
| Robust SE | Yes | Yes | Yes | Yes | Yes | Yes |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

3. VIFs of the independent variables when one of the measures of poverty is the dependent variable and the Gini coefficient serves as independent variables (A). And one of the measures of inequality is the dependent variable and DoP ($2) is the independent variables (B).

|  |  |  |
| --- | --- | --- |
|  | (A) | (B) |
| Variable | VIF | VIF |
| SRI | 3.30 | 3.10 |
| Polity | 1.70 | 1.71 |
| GDP | 2.21 | 2.32 |
| GDPgrowth | 1.47 | 1.48 |
| School | 2.89 | 2.88 |
| Death | 2.52 | 2.53 |
| UrbanPopgrowth | 3.26 | 3.17 |
| Mercosur | 1.66 | 1.76 |
| Unasur | 2.94 | 2.94 |
| DoP ($2) |  | 2.33 |
| Gini | 1.68 |  |