Endogenous Liberalization and Within-Country Inequality*

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Abstract

We explore empirically the circumstances under which liberalization increases (or decreases) income inequality within countries. We view liberalization as an outcome of a political process in the society regarding an institutional transformation. During this transformation the economy follows the stylized facts suggested by Kuznets about the industrialization and urbanization process. We find that countries are more likely to open up under two circumstances: (i) when relative productivity of migrant ex-rural workers (i.e., of farmers) to those of initial urban workers in industry is high, and (ii) the society's expenditures on the agricultural goods - which proxies the affinity to rural way of life - are not particularly strong. Following liberalization, the income distribution, too, improves if this relative productivity is high and rural affinity is low. Our results also show that open economies, ceteris paribus, have higher inequality than closed economies. In developing countries, except Sub-saharan Africa, higher relative productivity can offset this stand-alone effect just after the switch, if the switch is made with a minimum relative productivity value of 0.60 - 0.90. In Sub-saharan Africa, on the other hand, the stand-alone effect can be offset within 10 - 15 years after the switch. Overall, however, the relative productivity effect cannot surpass the stand-alone effect in the whole sample, implying that the median country has made a "wrong" switch. Our findings support the line of research that emphasizes the importance of country-specific factors in prescribing policies and designing new institutions.

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... it is not whether you globalize that matters, it is how you globalize (Rodrik, 1998).

[Industrialization and urbanization] perforce bring about a decline in the relative position of one group after another - of farmers, of small scale producers, of landowners. ... The continuous disturbance of preexisting relative position of the several economic groups is pregnant with conflict - despite the rises in absolute income or product common to all groups (Kuznets, 1973).

1 Introduction

The belief that liberal and global policies have significantly contributed to the worsening of inequality within countries and in the world has become a conventional wisdom. The following quote from Human Development Report of the United Nations (1999) epitomizes this belief:

Driven by technocrats, the changes [in these countries' trade regimes toward more global policies] were supported by the IMF and the World Bank as part of comprehensive economic reform and liberalization packages. ... The new rules of globalization focus on integrating global markets, neglecting the needs of people that markets cannot meet. The process is concentrating power and marginalizing the poor, both countries and people.

Is it true that inequality within countries (and in the world) worsens as countries integrate more to global markets? Or, could there be cases as well where, as a country integrates to global markets more, all segments in the society improve their well-being in the absolute sense and the poorest segments improve their welfare in the relative sense?

Table A in Appendix A summarizes 91 countries' journey with income inequality over the period 1959 to 2003. The outlook is that while 36 countries have experienced a net rise in inequality over this period, 42 countries experienced a net fall, and 13 countries experienced no change. Sub-dividing the sample into developing, developed and Sub-saharan African country groups reveals that the cases of "net rise" are close in numbers to the cases of "net fall" for each group. The same comparison can also be made for 63 "open" economies (where the years

of openness are given by Sachs and Warner 1995 and Wacziarg and Welch 2003). In this class of countries, 25 cases of "net rise" are accompanied by 30 cases of "net fall" and 8 cases of "no change". Group-wise divisions uncover similar results. These comparisons are by all means rough, where the changes in inequality are not conditioned on any other variable. However, this very situation implies that the gait of inequality requires a deeper analysis. Given that an important portion of the world's population is considered still as closed, and that those countries will face pressures to open,[1] the impact of liberalization on inequality has to be investigated more rigorously.

We believe that without taking into account the countries' internal dynamics, a blanket conclusion on the effects of liberalization on inequality would be at least premature and biased, if not wrong. In reaching a conclusion, countries' human capital stock, social divisions, sectoral characteristics, cultural affinities and other political and economic variables need to be accounted for. In fact, there is a growing interest in the literature on the role of country-specific factors and local knowledge in designing institutions and making reforms (see Rodrik 2000). Thus, our efforts in this paper are twofold. First, by defining liberalization as a regime switch from import substitution (IS) to export promotion (EP), we identify the circumstances under which different segments in a society would/would not support a switch/liberalization. Second, and at least equally importantly, we identify the circumstances under which within-country inequality would decrease (or increase) after a switch.

A prudent analysis of global economic integration and institutional switch should utilize a political economy setting in which the society's decision whether or not to integrate to global economy is investigated in an endogenous framework. The ideal scenario would be that, if such an integration is to take place, various segments in the society reach a unanimous decision. Full popular support and legitimacy of the switch are important, because many developing countries lack the social insurance that could cushion the possible blows of such a switch. Indeed, the backlash of masses in many countries against the distributional and social consequences of global-

[1] In the Sachs-Warner-Wacziarg-Welch context of openness, 35 countries are classified as closed as of 2003 (see Table AI in Appendix A). Total population of these countries in 2000 was three billion, which is nearly half of the world's population. Of this amount, 2.3 billion is constituted by China and India, though there is a disagreement between Sachs-Warner and Wacziarg-Welch on India's openness. The remaining 33 countries make up a population of 700 million.

ization has indicated that "global economic integration needs an infrastructure of popular support and legitimacy in order to survive" (Rodrik 1998). "[E]ven in a dictatorship, distributional issues affecting the majority of the population will influence policy outcomes" (Alesina and Rodrik 1994). In this paper, the society's decision for a switch is modelled endogenously in a political economy setting.

In our deeper framework, the economy's structure rests on Kuznets' (1955, 1973) predictions on economic dualism. Bourguignon and Morrisson 1998 argue that the extent of economic dualism and the nature of the agricultural sector are largely overlooked in explaining the cross-country differences in inequality (see Ahluwalia 1976a, and Anand and Kanbur 1993; see also Temple 2005, Temple and Woessmann 2006, and Graham and Temple 2006 for a renewed interest on economic dualism issues). These characteristics should be particularly relevant for emerging economies that are on the brink of a liberalization/switching process, where such and undertaking initiates a comprehensive transformation of the economy from top to the bottom. For most of those countries, the traditional sector still constitutes a large part of GDP. Its phasing out and the passage to a full-fledged modern economy are an ongoing process not likely to be concluded soon, with significant implications on income distribution. Thus, our analysis involves investigating how a regime switch affects income inequality within a country, as moderated by the role of the traditional sector in the economy, internal migration of labor from rural to urban areas, and the productivity differentials across sectors.

We first provide a simple theoretical framework to show how societal segments make utility comparisons across different regimes, and what factors such decisions and the ensuing effects on income inequality would possibly hinge on. By using common stylized facts across countries and capturing the key forces at work, this framework functions as a demonstrative example about a society's decision-making process for a regime switch and its subsequent impact on inequality. The empirical analysis constitutes the core part of our paper. It makes use of the predictions of the theoretical framework in the specification of the empirical problem, in order to find what the data say about the direction of the changes in the regime change and inequality.

To introduce briefly, the theoretical framework assumes that there are four segments in the society: entrepreneurs, workers, high-type farmers, and low-type farmers. In IS, entrepreneurs

and workers produce a manufacturing good, and the farmers produce an agricultural good. In this regime the society makes the choice of whether or not to switch to EP, where each segment makes their decision by comparing their current utility in the IS regime to their potential utility in the EP regime. Thus, the society is assumed to be rational and forward-looking. Complying with the stylized facts, in EP, the agricultural good is imported and the manufacturing good is exported. This, in turn, induces higher productivity farmers to become new workers in EP. As suggested by Kuznets, these ex-farmers (i.e., the new immigrant workers), however, are assumed to be (at least initially) less productive than the initial workers. Therefore, in the model, β measures the relative productivity differences between rural and urban populations when both types work in the manufacturing sector. Another relevant parameter is α, which is the share of expenditures on agricultural goods in the society; broadly, the countries' affinity to rural way of life.

Consequently, α and β turn out to be two crucial factors on the society's switching decision as well as on the pace of inequality after an IS-EP switch. The theoretical framework suggests that low-type farmers never have incentives to switch, but high-type farmers have higher incentives to switch to EP as α decreases and β increases. Entrepreneurs and initial urban workers always obtain higher utility in EP, thus they support the switch regardless. Thus, if the society requires a unanimous decision and one segment opposes the switch, then clearly the country will remain in IS. The alternative is a majority rule: if the entrepreneurs and workers constitute the majority the country will switch to EP, but if the low-type farmers are the majority the country stays in IS. When these two groups do not have the majority, the high-type farmers will serve as the tie-breakers and their decision will depend on α and β. The same results follow if the median-voter decision rule is used. A very important result is that inequality, too, will depend on α and β; it will decrease following a switch if α is low and β is high in the society, and will increase otherwise.

Using the newest inequality data assembled by the World Institute for Development Economics Research (WIDER - dated June 2005), we next carry out the empirical test in the core part of the paper. Guided by the theoretical set-up, the postulated relationship is tested by utilizing a cross-country data set of 30 developing and 13 Sub-saharan African countries that had a switching experience in the past. The population of these countries at the time of their switch totals up to 1.2 billion (it is 2.2 billion if we include India). The short-term and broader term implications of

the switch are also explored.[2]

The data speak up. We find that while the low-type farmers in developing countries provide a positive support for the switch, which is contrary to the forward-looking assumption, the high-type farmers are always rational: their incentives increase in β and decrease in α. The low-type farmers in Sub-saharan Africa, however, always provide a negative support for the switch – a rational decision in our context. The high-type farmers in this continent are rational in terms of β in long term, but not rational in terms of α. Moreover, urban workers support the switch in both groups of countries, but only in the short term.

The results on inequality are even more interesting. Higher β lowers inequality after the switch in both groups of countries. However, the impact in developing countries is realized mostly in the short term, while it is spread across time in Sub-saharan Africa. At median β and migration rate, β is associated with $4 - 6$ lower Gini points in developing countries. Controlling for region-specific characteristics lowers this effect to 3 –5 points. In addition, higher α may lead to higher inequality in Sub-saharan Africa after the switch, with no effect observed in developing countries. The overall effect is moderated by region-specific characteristics.

Another important result is on the stand-alone inequality effect of the switch. For both developing and Sub-saharan African countries, we find that EP regimes, on average, and when other things are held constant, have higher inequality than the IS regimes in the long term (i.e., 15 - 20 years after the switch). Such an effect is insignificant when the attention is restricted to a short period after the switch. Specifically, the EP regimes have 5 - 7 higher Gini points than the IS regimes when region-specific characteristics are not accounted for. Controlling for these effects, the difference is realized as 3 - 4 points. All these imply that, in developing countries β can offset the stand-alone effect in the short term if the switch is made with a minimum β value of $0.60 - 0.90$, given median migration rate. In Sub-saharan Africa, the stand-alone effect can be offset by the median β in 10 - 15 years after the switch. Overall, however, when the estimates are evaluated in the whole sample, the β effect cannot surpass the stand-alone effect. This implies that the median country has made a "wrong" switch.

[2]Short-term implications refer to the implications around the switching period (i.e., a time period that is five years before the switch and five years after the switch). For longer term the time period is "zoomed out" (i.e., the last 20 years before the switch and the first 20 years after the switch).

It must be noted that α and β are two very crucial variables. α represents the societies' affinity to rural way of life. Also, many countries below a certain development level have surplus labor in agriculture, and the causes of failed reforms or resistance to reforms are closely linked to this aggregate. β, on the other hand, is an indicator of institutional and infrastructural solidarity of a country. Ulubasoglu and Cardak (2006) find that countries with greater resources and those with better channels to allocate such resources have higher β. Such distributional channels seem to be affected by labor and credit market regulations, legal systems, physical infrastructure and other demographic and geographical characteristics of the countries.

The history of studies that investigate the inter-relationships among inequality, development, globalization and openness is long. Some prominent studies include Kuznets 1955, 1973; Ahluwalia 1976a, 1976b; Robinson 1976, Anand and Kanbur 1993; Bourguignon and Morrisson 1990, 1998; Edwards 1997; Spilimbergo, Londono and Szekely 1999; Fischer 2001; Lindert and Williamson 2001; and Manasse and Turrini 2001 (see, also, Goldberg and Pavcnik 2004, and Cornia 2004). A distinct literature also exists on the relationship between inequality and growth, with studies including Alesina and Rodrik 1994, Persson and Tabellini 1994, Barro 2000, Forbes 2000, de la Croix and Doepke 2003, Lundberg and Squire 2003, and Banarjee and Duflo 2003. Our paper differs from extant studies in four main aspects: i) we analyze the switching decision of a society; ii) we investigate the impact of a switch on income inequality; iii) we do these with both short- and long-run perspectives; and iv) we also dissect the implications on Sub-saharan Africa, which has been argued to follow a distinct route in growth and development (Easterly and Levine 1997). Our results point out to differing incentives of different segments in the society regarding a regime switch. Same policies are received and processed differently in different bodies, i.e., economies, with remarkably different outcomes. Importance of unidentified country- and region-specific effects is also established.

In Section 2 we present our theoretical framework. Econometric specification and methodology are described in Section 3. Section 4 explains the construction of certain variables. Section 5 presents the results. Section 6 includes a robustness analysis. In Section 7, we reconcile the differences between the predictions of the theoretical framework and the results of the empirical analysis. Section 8 concludes.

2 Theoretical Framework: A Demonstrative Example

Our theoretical framework is intended to be a demonstrative example to show how a society makes utility comparisons across different regimes. The idea behind such a framework is to provide a background for the empirical analysis.

Consider a society, which has been closed for a while, exhibiting the typical characteristics of such an economy with well-known production and consumption structures. We assume that entrepreneurs, workers, high-type farmers and low-type farmers constitute the segments in the society.[3] $(1 - A) \in (0, 1)$ fraction of agents consists of entrepreneurs and workers; the remaining A fraction of agents consists of farmers.[4] In IS, farmers produce an agricultural good and entrepreneurs and workers produce a manufacturing good. If the country switches to EP, it will start exporting the manufacturing good (see Section 2.2),[5] and will allow importing the agricultural good[6] at international prices which are lower than their domestic counterparts. As a result, ensuing the regime switch, some portion of the agricultural labor will find it in their interest to migrate to the manufacturing sector to become inexperienced workers (to be made precise later) in that sector.

Let us establish the income and utility levels of all agents in each regime.

2.1 Agriculture in IS

A farmer uses his labor, $e_a \in [0, 1]$. The production function he faces, $(e_a)^{\frac{1}{2}}$, exhibits diminishing marginal product of labor (hence, the amount of land used is suppressed, being normalized to one unit). A farmer's total income in IS is

[3]Further disaggregation of the societal segments is possible, but that would change our focus. We discuss the implications of this in Section 2.7.

[4]For convenience, we will assume that there are equal numbers of entrepreneurs and skilled workers (i.e., the entrepreneurs and workers will each constitute $(1 - A)/2$ fraction of the society - this specification also allows for multiple entrepreneurs as well as skilled workers per firm. Without this assumption, Gini comparisons between two regimes become completely unmanageable (as will be seen, the model entails many other crucial parameters).

[5]Manufactured exports as a percentage of total exports in many developing countries increased dramatically over time. In 1965, this ratio was 46% for Taiwan, 52% for S. Korea, 29% for Singapore and 5% for Brazil. In 1990, the ratio has become 93% for Taiwan, 94% for S. Korea, 73% for Singapore and 53% for Brazil (see Table 12.2 in Todaro, 2000).

[6]Developing countries' comparative disadvantage in agricultural goods deteriorated significantly in time. Todaro (2000, Ch. 10) reports that "[i]n 1960, ... agricultural labor productivity in developed countries was more than 13 times that in the less developed countries. By 1995, this productivity gap had widened to more than 50 to 1." (see Table 10.3 in Todaro, 2000).

$$Y_a^{IS} = p_a^d (e_a)^{\frac{1}{2}}$$

where $p_a^d > 0$ is the domestic price of the agricultural good, which embodies all agricultural supports.[7] As it will turn out, due to high agricultural prices, farmers will not be willing to migrate in IS.

A farmer's utility function is

$$u_a(L, a, m) = L_a a_a^{\alpha} m_a^{1-\alpha} \text{ where } L_a = 1 - e_a \text{ and } 0 < \alpha < A.^{8}$$

2.2 Manufacturing in IS

By manufacturing sector, what we have in mind is sectors which often involve light manufactures such as textiles, footwear, furniture and parts used in the production of other manufactures. Most developing countries on the brink of liberalization are characterized by specialization in such goods. These are typically unskilled labor-intensive industries using low level technology. In Appendix B, Table B, we provide simple statistics on the share of value added, employment and exports of light manufactures in manufacturing value added, manufacturing employment and total exports, respectively. Decomposed into regions and five-yearly periods over 1970-1999, and compared to developed economies, all indicators point to the fact that developing and Sub-saharan African countries had significant shares in light manufactures. For instance, these sectors constituted as high as the two-thirds of manufacturing employment in developing countries, while in Sub-saharan Africa, the corresponding share is higher, amounting to four-fifths in the case of exports. By contrast, the light manufactures shares in developed countries hover around 30% of the relevant aggregates. Importantly enough, developing and Sub-saharan African countries have reasonably close shares both in IS and EP.[9] Thus, we take this fact as a basis for formalizing the

[7] The international prices of agricultural goods have been vastly (i.e., about 50% - see Baffes and Meerman, 1997) less than those in the markets of developing countries that protected their domestic markets. In developing countries such price differentials persisted for a long time despite extensive subsidization of agricultural inputs, including fertilizer, irrigation, seeds, electricity, credit and insurance. Even in Turkey, which has already started accession negotiations with the European Union, the subsidies and price supports in agriculture account for 4% of GDP. Given that the agricultural sector accounts for the 12% of GDP, one can see that overall one third of the agricultural prices received by the farmers is due to government support (see p. 82-83 in Dervis et al, 2004).

[8] As will be clear later, when $\alpha > A$, the Gini coefficient becomes negative, which does not have an intuitive explanation. In addition, for all countries in our data set $\alpha < A$ holds. It is because the productivity in agriculture is less than in manufacturing.

[9] As expected, open regimes have somewhat lower shares than closed regimes, but the shares are overall high. Worthy of note, late switchers tend to have higher shares in all indicators, increasing the averages of open regimes towards the end of the period considered.

manufacturing sector.

A manufacturing firm in IS too faces the same production function, $(e_m)^{\frac{1}{2}}$, where $e_m > 0$ denotes a worker's labor (thus, the amount of capital used is suppressed by normalizing to one unit.) A firm's profit π_m per entrepreneur in IS is

$$\pi_m^{IS} = p_m^d.(e_m)^{\frac{1}{2}} - w_m e_m$$

where $p_m > 0$ is the price of the manufacturing sector's product and $w_m > 0$ is the manufacturing wage (recall that in our model there is one skilled worker per entrepreneur). Thus, although the marginal product of each worker is decreasing as in the agricultural sector, there will be constant returns to scale in production (which will be relevant in EP).[10]

We will use the normalization $p_m = 1$, which is also presumed to be equal to the world price of the manufacturing good. Hence, the domestic firm is able to supply its product at the world price.

An entrepreneur's utility function is given by

$$u_e(L, a, m) = L_e a_e^{\alpha} m_e^{1-\alpha}.$$

Assuming, for simplicity, that each firm only uses workers' labor, entrepreneur's leisure, L_e, is equal to one (i.e., an entrepreneur does not provide labor).

Thus, an entrepreneur's income is

$$Y_e^{IS} = \pi_e^{IS}.$$

A (skilled) worker's utility function is

$$u_w(L, a, m) = L_w a_w^{\alpha} m_w^{1-\alpha} \text{ where } L_w = 1 - e_w \text{ where } e_w \in [0, 1].$$[11]

Thus, in the absence of entrepreneurs' labor, the entire manufacturing labor will consist of workers' labor in IS (i.e., e_m will only entail e_w).

A worker's income is

$$Y_w^{IS} = w_m e_w.$$

[10] Many studies (such as Burnside 1996, Harrigan 1999, Martin-Marcos and Suarez-Galvez 2000, Truett and Truett 1997) find robust evidence that a typical manufacturing industry displays constant returns to scale in various developed and developing countries.

[11] Needless to say, one of the well-known features of the Cobb-Douglas utility function is that the shares of an agent's budget spent on different goods will stay the same even when the prices and/or the income will change. Thus, our results will not hing upon any form of the Engel's Law.

2.3 Equilibrium and Income Distribution in IS

In IS, domestic prices must clear the agricultural and manufacturing goods markets as well as the labor market. Proposition 1 in Appendix C, using Walras' law, finds that $Y_e^{IS} = Y_w^{IS} > Y_a^{IS}$. It also reveals that the absolute as well as relative income of a farmer increases in α/A. Note that α is the share of expenditure on agricultural goods, which increases farmers' incomes; therefore α/A denotes the agricultural income per percentage unit of the population, hence the ability of the agricultural population to sustain based on the agricultural consumption in the society. Proposition 2 in that appendix establishes that $u_e^{IS} > u_w^{IS} > u_a^{IS}$.

The structure of the IS regime is straightforward. This allows us to obtain a very simple and intuitive Gini expression of $A - \alpha$ (see Proposition 3 in Appendix C). Thus, inequality decreases in α and increases in the fraction of the agricultural population A. Note that this expression comprises both agricultural and manufacturing sectors. A is the measure of the agricultural population who are poorer than their counterparts in the manufacturing sector. Since agricultural incomes are lower than those of the manufacturing sector (and within the manufacturing sector individuals have the same income), higher A means higher the fraction of the poorer people, and higher inequality. Indeed, there is no inequality if $\alpha = A$ and the inequality approaches its highest possible level (i.e., a Gini coefficient of A) as α tends to 0.

2.4 Agriculture and Manufacturing in EP

As mentioned above, let $p_m^i = 1$ be international manufacturing price. Let $p_a^i > 0$ be the international agricultural price which we assume to be lower than domestic agricultural price. That is, $\frac{p_m^i}{p_m^d} = 1 > \frac{p_a^i}{p_a^d}$. Footnotes 5 and 6 provide significant motivation for this assumption. All producers who will contiune producing in EP will have to produce at international prices due to foreign competition.

A la Kuznets, a central feature of our set-up is that, if the IS-EP switch takes place, the new inexperienced workers (i.e., farmers who migrate to the city) may not be as productive as the initial workers. In particular, for simplicity we assume that in the agricultural sector that are two types of farmers: the low-type (i.e., less educated) and the high-type (i.e., more educated).[12]

[12]Obviously, the distinction between low-type farmers and high-type farmers has more to it. Farmers can differ in their talents, innovativeness, ability to adopt new techniques, etc, which are unmeasurable. As is also well-

The low-type farmers are assumed to have a manufacturing productivity which is ϵ fraction of that of an initial worker, where $0 < \epsilon < p_a^i$. The high-type farmers are assumed to have a manufacturing productivity which is β fraction of that of an initial worker, $p_a^i < \beta < 1$.[13] The high-type farmers constitute $k \in [0, 1]$ fraction of all farmers (and, thus, kA fraction of the society) and thus the low-type farmers constitute the remaining $1 - k$ fraction of farmers (and, thus, $(1 - k)A$ fraction of the society).

The farmers who do not migrate after the switch will continue producing agricultural good at p_a^i, rather than at p_a^d. Thus their income in EP will be lower than their income in IS since $Y_\epsilon^{IS} = p_a^d e_\epsilon = p_a^d(\frac{1}{2})^{\frac{1}{2}} > Y_\epsilon^{EP} = p_a^i e_\epsilon = p_a^i(\frac{1}{2})^{\frac{1}{2}}$.

The relative productivity coefficients ϵ and β of the migrant workers can be easily recognized by the entrepreneurs in the manufacturing sector and thus they will be reflected in these agents' manufacturing wages, if they indeed choose to migrate. That is, suppose a migrant worker with β relative productivity and a worker (who is skilled relative to the migrant worker, but may still be unskilled in generic terms) work the same number of hours, e; then a migrant worker will earn $(e\beta w)$ as a skilled worker will earn (ew). A brief review of Proposition 2 (and its proof) in Appendix C will reveal that due to the Cobb-Douglas form of the utility functions all workers choose to work the same number of hours regardless of their wage. Therefore, the low-type workers' income when they continue to be farmers in EP, $Y_\epsilon^{EP} = p_a^i e_\epsilon = p_a^i(\frac{1}{2})^{\frac{1}{2}}$, will surely exceed the possible urban income of the low-type farmers, $Y_n^{EP} = \epsilon w_m e_n = \epsilon(\frac{1}{2})(\frac{1}{2})^{\frac{1}{2}}$ where n denotes the "new" (i.e., high-type migrant) worker (in Appendix C, by Equation 4.3 in the proof of Proposition 4, $w_m = (\frac{1}{2})^{\frac{1}{2}}$). In addition, when the skilled worker and each high-type migrant worker work e hours for an entrepreneur, the total productivity of all workers in that firm will be $(1 + \frac{2A\beta k}{1-A})$ times of the productivity of the skilled worker.[14] Thus, with the skilled worker and the high-type migrant workers, the profit function of the firm per entrepreneur will be

documented in the migration literature, in reality age plays a major role in migration decision as well. Typically it is the educated children of the farmers who migrate when things do not go right in agriculture. All such differences can be plausibly reduced to education, which we can observe.

[13] The assumption $0 < \epsilon < p_a^i$ makes sure that there will be some people who will not migrate even under the most adverse conditions for agriculture after the switch to EP, and the assumption $p_a^i < \beta < 1$ makes sure that there will be some people who will migrate even when the international agricultural price is not much lower than initial domestic agricultural price after the switch to EP.

[14] $(1 + \frac{2A\beta k}{1-A})$ follows from the fact that there is one skilled worker per entrepreneur and $\frac{ka}{(1-A)/2}$ migrant workers per entrepreneur (the latter follows from the fact that the high-type migrants constitute kA fraction of the society).

$$\pi_m^{EP} = (1 + \tfrac{2A\beta k}{1-A})(e_m)^{\frac{1}{2}} - w_m(1 + \tfrac{2A\beta k}{1-A})e_m.$$

In EP, only the labor market needs to clear. In the product markets, the international prices prevail. Consequently, Proposition 4 in Appendix C finds that $Y_e^{EP} > Y_w^{EP} > Y_n^{EP}(\beta) > Y_a^{EP}(\epsilon)$ and that $Y_n^{EP}(\beta) > Y_a^{EP}(\beta)$ and $Y_n^{EP}(\epsilon) < Y_a^{EP}(\epsilon)$, where ϵ and β in the parentheses denote the type of the agents who were farmers in IS. It also finds that the absolute (as well as relative) income of each migrant worker increases in the relative productivity parameter, β, of the high-type migrant. Thus, the income inequality in urban areas will increase as a result of migration (however, migration will decrease the overall inequality in the society). Kuznets (1955) noted that "when industrialization and urbanization were proceeding apace and the urban population was being swelled, and fairly rapidly by immigrants... from the country's agricultural areas ... the urban population would run the full gamut from low-income positions of recent entrants to the economic peaks of the established top-income groups."

Proposition 5 in Appendix C (not surprisingly) reveals that in EP, $u_e^{EP} > u_w^{EP} > u_n^{EP}(\beta) > u_a^{EP}(\epsilon)$. In addition, it finds that $u_n^{EP}(\beta) > u_a^{EP}(\beta)$ and $u_n^{EP}(\epsilon) < u_a^{EP}(\epsilon)$. That is, the high-type farmers will be better off migrating to the manufacturing sector rather than staying in the agricultural sector (if the switch takes place). For the low-type farmers, however, the opposite will hold because of their low relative urban productivity coefficient. The result below compares each agent's utility in IS and EP.

THEOREM 1: (1) $u_e^{EP} > u_e^{IS}$, $u_w^{EP} > u_w^{IS}$, $u_a^{EP}(\epsilon) < u_a^{IS}(\epsilon)$.

(2) $[u_n^{EP}(\beta) - u_a^{IS}(\beta)]$ *increases in* β *and decreases in* α.

This result follows directly from the proofs of Propositions 2 and 5 in Appendix C. Thus, the IS-EP switch benefits the entrepreneur and the skilled worker regardless of the parameters. The initial worker obtains a higher utility in EP than in IS due to lower good prices.[15] The entrepreneur's income and utility will be higher in EP than in IS (lower good prices too play a major role here). Note that $[u_n^{EP}(\beta) - u_a^{IS}(\beta)]$ represents the high-type farmer's propensity to support the switch and that it increases in β and decreases in α.

[15] As is well known in the Economic History Literature, in England, "[a]t the end of the French Wars in 1815 the Corn Laws were introduced. They stated that no foreign corn could be imported into Britain until domestic corn cost 80s per quarter. The high price caused the cost of food to increase... The Corn Laws ... caused great distress among the working classes in the towns" (The Victorian Web, http://www.victorianweb.org/history/cornlaws1.html). Similarly there are many instances where people have benefited from cheaper manufacturing price too via less protection.

2.5 Political Economy of the Switch and Migration

Whether the high-type farmers support the switch or not, they will be better off migrating to the manufacturing sector *if the switch takes place*, since after the switch they will earn less in agriculture than in the manufacture (as $p_a^i < \beta$). The low-type farmers, on the other hand, will end up being worse off in EP compared to how they fared in IS since $0 < \epsilon < p_a^i$. Consequently, since migrating to the manufacturing sector will make them even worse, and they will choose not to migrate.

Combining the results of Proposition 5 in Appendix C and Theorem 1 above, we have the following result on the choices of different segments on the switch as well as the choices of the two-types of farmers as to whether or not to migrate.

COROLLARY 1: *(1) Regardless of the parameters, the entrepreneurs and workers will support the switch from IS to EP but the low-type farmers will not.*

(2) The high-type farmers will support the switch from IS to EP with a higher propensity as β increases and α decreases.

(3) As a result of the switch from IS to EP, the high-type farmers will choose to migrate but the low-type farmers will choose not to migrate.

A tie-break rule is implicit in Part 2 of the above corollary. The tie-break rules will be necessary below too. Part 1 of the above corollary implies that a unanimous decision by all segments of the society concerning the IS-EP switch is not possible unless $k = 1$: The low-type farmers will oppose this switch regardless. The high-type farmers too may oppose this switch under certain circumstances.

There is a variety of political decision-making processes that can be considered here. The two most prominent such processes used in the literature are the majority vote and median voter setups. It would be desirable that the largest possible majority favors the decision, but it is also conceivable that the segments that stand to gain or lose more from such a switch may influence the political process more. The most extreme version of this influence would be in the form of a coup that can be staged with the support of these segments (an effect that is controlled in our empirical analysis). For instance, the switch to EP took place during the military regime following a coup in 1980 in Turkey. A less extreme version of such an influence can be due to lobbying

activities which these segments can afford. A much milder version of such an influence would be in the form of these segments' voting with higher probability than the segments with much less "at stake" from such a switching decision.[16] In other words, in the latter framework, it is not only the population fractions but also the relative gains and losses of various segments from the voting outcome that matters - whereas when the majority vote or median voter setup is used it is only the population fractions of various segments that matters.

Note that α and β do not affect any of the segments' population fractions. In addition, as α decreases, the gain from switch of each segment to support the switch increases (or the loss from the switch of each segment to support the switch decreases). Likewise, as β increases, the gain from switch of the entrepreneurs and high-type farmers to support the switch increase and those of the remaining two segments remain unaffected (see the corresponding segments' utility functions Propositions 2 and 5 in the Appendix C). Thus, concerning a fairly large class of political decision-making processes, we obtain the following general result considering the effects of α and β on the society's switching decision:

THEOREM 2: *Consider any political decision-making process to be used in our setup such that its outcome only relies on all segments' population fractions and/or their propensities regarding supporting switching and not switching. Then as β increases and α decreases, the society is more likely to switch.*

2.6 Inequality Before and After the Switch

Let $Y^{IS} = (Y_e^{IS}, Y_w^{IS}, Y_a^{IS})$ be the income vector in IS and $Y^{EP} = (Y_e^{EP}, Y_w^{EP}, Y_n^{EP}(\beta), Y_a^{EP}(\epsilon))$ be the income vector in EP. Let $G(Y^{IS})$ denote the Gini coefficient in IS and $G(Y^{EP})$ denote the Gini coefficient in EP. Inequality after the switch will decrease if $G(Y^{EP}) - G(Y^{IS}) < 0$. For the change in Gini, some parameters affect only $G(Y^{IS})$ and some others affect only $G(Y^{EP})$ whereas some parameters affect both. These can be seen in the Appendix C.

THEOREM 3: *Consider a switch from IS and EP. Gini will increase in α and decrease in β, regardless of the other parameters.*

[16] See Anbarci, Escaleras and Register (2005) for the details of such an "at stake theory of voting."

2.7 Closing the Theoretical Framework

One can argue that the main cleavage in terms of society's support for the switch is between the entrepreneurs and workers on one side and the low-type farmers on the other, and that entrepreneurs and workers may not always support the switch. Indeed, the real cleavage should be passing through a plane with infinitely many dimensions, because manufacturing should involve a continuum of entrepreneurs and workers that will gain in EP as well as those that will lose due to severe foreign competition. Likewise, not all agricultural goods need to be imported upon opening. One can surely consider a much disaggregated model where all such sectors are explicitly incorporated and use a vast array of manufacturing and agricultural goods rather than composite goods, but such a detailed model will not be able to highlight the role and interactions of α and β. As noted, α and β are important indicators of economy's structure in many respects. Moreover, the fact that manufacturing exports by developing countries are booming (see Footnote 5) and that agricultural productivity (hence and exports) in developing countries is constantly regressing (see Footnote 6) provide the hints that *overall* entrepreneurs and skilled workers in manufacturing would be major beneficiaries of EP, while *most* farmers would tend to lose in this regime.

Another issue is α's being a preference parameter in the Cobb-Douglas utility function. As such, it also represents the share of income spent on agricultural goods. Our comparative statics that involve changing α, hence preferences, are in fact in line with Kuznets' arguments: "during the rise of modern industry and ... concomitant industrialization and urbanization, ... consumers ... have required goods and services that were not essential in the countryside. ... television sets can be seen as a substitute for village feasts in the way of recreation, and railroads and automobiles as a substitute for horses in the way of transportation. Even if the structure of wants ... such as nourishment, clothing, shelter, recreation, transportation, and the like, had not changed ... the same wants could have been satisfied in one period by products from the agriculture sector and in another by products from the industry sector. (1966, p. 102)"[17]

Finally, several factors unaccounted for in the theoretical set-up, such as land distribution, political and macroeconomic factors in the switch, are addressed in the empirical analysis.

[17]Following the intuition of Kuznets above, when we make α endogenous and use the specification $\alpha = A^2$ (the correlation between α and A^2 is very high indeed - it is 0.77), all of our results remain qualitatively similar for the purposes of the empirical work.

3 Empirical Analysis

At the center of the decision of the society for liberalization and its ensuing impact on inequality are α and β. Consequently, we first test whether the switch takes place given the choice of the segments of the society: for a high-type farmer a high β is likely to facilitate the switch while a high α is likely to hinder it; for a low-type farmer the switch is always undesirable; and for an urban worker the switch is always desirable.[18] Second, we test the migration behavior of both types of farmers once the switch occurs: high-type farmers are likely to migrate out of agriculture with the switch, while low-type farmers are likely to stay in agriculture. Third, we investigate which way inequality in the society changes after the switch: the society is more likely to end up with a lower inequality with higher β and lower α.

It is important to note that the empirics can indicate certain threshold values of β, at which Gini alters its direction after the switch. These values should be important for currently closed countries that are considering or are under pressures to open.

3.1 Econometric Specification

Given the predictions, we construct the following system of equations:

$$ISEP_{it} = \delta_0 + \delta_1 FMV_{it} \times LT_{it} + \delta_2 FMV_{it} \times HT_{it} \times \beta_{it}^{IS} + \delta_3 FMV_{it} \times HT_{it} \times \alpha_{it} + \delta_p \mathbf{X}_p + u_{it} \quad (1)$$

$$MIGRATION_{it} = \gamma_0 + \gamma_1 LT_{it} + \gamma_2 ISEP_{it} \times LT_{it} + \gamma_3 HT_{it} + \gamma_4 ISEP_{it} \times HT_{it} + \gamma_r \mathbf{Y}_r + \nu_{it} \quad (2)$$

$$GINI_{it} = \phi_0 + \phi_1 ISEP_{it} + \phi_2 \alpha_{it} + \phi_3 ISEP_{it} \times \alpha_{it} + \phi_4 ISEP_{it} \times \beta_{it}^{EP} \times MIGRATION_{it} + \phi_s \mathbf{Z}_s + \upsilon_{it} \quad (3)$$

where i is a subscript for countries and t is for time, ISEP is a dummy variable that takes the value 0 under IS and 1 under EP, FMV is a dummy that shows if the MV or the majority

[18] We assume that the entrepreneurs can neither constitute the majority, nor can be the MV in the society, so we do not include them in the empirical analysis.

is the farmers, HT and LT denote the high-type and low-type farmers, respectively, WMV is a dummy to show if the MV or the majority is the workers, α is the share of expenditure on agricultural goods in the economy, β is the relative productivity of the migrant worker to that of the initial worker, MIGRATION is the rate of migration of the labor force out of agriculture, GINI is income Gini of each country, and $\mathbf{X}$, $\mathbf{Y}$ and $\mathbf{Z}$ are the vector of control variables in the respective equations.

The year of institutional switch for ISEP is determined according to Sachs and Warner (1995), whose analysis is re-investigated by Wacziarg and Welch (2003). We will come back to this point in Section 4. FMV takes the value 1 if agricultural labor force is greater than 50% of the total labor force and 0 otherwise. WMV takes 1 if the agricultural labor force is less than 50%. This takes care of both the MV and the majority voting cases. α is proxied by the share of agricultural value added in GDP plus the share agricultural imports in GDP and minus the share of agricultural exports in GDP. We measure β with the ratio of rural to urban years of schooling. The measurement of this variable has several adjustments in several cases (such as the one between β^{IS} and β^{EP}) and we explain these in Section 4 below, along with ISEP and α. Our empirical measure for the low-type farmer (LT) is the share of rural population with no schooling. The high-type farmer (HT) can be measured with either the share of rural population with primary schooling or secondary schooling. We leave it to data to decide who the high-type farmer is. Migration is the rate of decline in the agricultural labor force, adjusted for population, and the construction follows Larson and Mundlak (1997).

In the first equation we model the endogenous choice of the MV or the majority in selecting the regime. The first composite regressor in this equation tests the support of the low-type farmers for the switch, while the next two regressors capture the decision of the high type farmers. Note that this decision depends on α and β. It happens to be the case that mostly and robustly the share of rural population with secondary schooling provides the predicted signs in the regressions. So, investing some belief into the theoretical set-up, we conclude that it is the secondary schooling that draws the line between the low-type and the high-type farmers. Overall, we expect a negative sign for δ_1, a positive sign for δ_2, and a negative sign for δ_3. Because the urban workers favor the switch regardless, WMV enters the regression without any conditioning. We expect a positive sign for δ_4.

In terms of control variables in this equation, we use land Gini to proxy asset distribution in rural areas, as small and big farmers may behave differently. In addition, macroeconomic instabilities and foreign reserve bottlenecks have intensified in the later periods of the closed regimes and in most cases fostered the switch. We expect to capture these effects with the levels and lags of inflation and the change in the share of foreign reserves in GDP. Moreover, the influence exerted by power groups (political elites, military, etc) on regime switching decisions cannot be ignored - thus, this effect is controlled with a political freedom variable. Further, agricultural terms-of-trade vis-à-vis non-agricultural goods, though included in the theoretical set-up, the effect may operate through other channels that we do not take into account. Thus, we use this variable as a control too. Finally, the IS policies are less likely to work with small domestic markets (Krueger, 1978). So we also experiment with log of population.

In the second equation, we test whether the farmers migrate after the switch. We expect γ_2 to be negative and γ_4 to be positive. In terms of control variables, we follow Larson and Mundlak (1997), who argue that countries that are with larger surface area, less civil liberties and lower life expectancy are less likely to experience internal migration. We also use land Gini with the same motivation as in the ISEP equation.

The third equation tests the inequality effects of the switch. The coefficient ϕ_1 would show the pure change in Gini that arises from the policy switch, without depending on any other variable in the model. The next two regressors test the impact of agricultural tastes on inequality. Given that α is interacted with ISEP, the coefficient ϕ_2 would test the effect of α on Gini in the closed period, and ϕ_3 would test the same effect in the open period. The theoretical set-up predicts that α has an equilibrating effect in closed economies. So we expect ϕ_2 to be negative. It also predicts that α does not affect Gini after the switch, so ϕ_3 should be insignificantly estimated.[19] How does α increase inequality after the switch then? Theoretically, it is the gap between α itself and the international agricultural prices that determines the extent of the increase in inequality after the switch. That is, the more agriculture-based a society is before the switch (as shown by higher α), the higher is the inequality after the switch due to switching to a more "distant" regime

[19]We model the level of Gini, not the change in Gini, for several reasons. First, there is a voting case here on a closed or an open regime, and in an integrated setup, we need to utilize both regimes explicitly. Secondly, modeling the change in Gini eliminates the level effect in Gini, for which our theoretical predictions may be relevant. After all, with the level of Gini, too, can we test our predictions.

(i.e., to much lower agricultural prices). International agricultural prices apply uniformly to every "open" economy, so the stand-alone ISEP variable can capture this effect. Thus, if the coefficient ϕ_1 is estimated to be positive, some of this effect should belong to the international agricultural prices. The next composite regressor in the empirical specification tests the effects of relative productivity on inequality. To recognize the fact that relative productivity of the migrant worker to that of the initial worker can impact the 'national' Gini at the extent of the rate of migration out of agriculture, we interact this composite term with migration rate.[20] As per control variables, we first use various dummies to control for the construction of the Gini data (see Section 4.4). Additionally, Schultz (1998) argues that regional dummies can explain important variations in the levels of Gini. Furthermore, Li *et al.* (1998) argue that financial development (as measured by M2/GDP), civil liberties, land Gini and initial education level are relevant political economy and credit constraints factors that can affect inequality. We utilize the first two as controls, while education is already taken into account with the ratio of rural to urban schooling; Ulubasoglu and Cardak (2006) show that this variable is related to the overall education level in the society. We use land Gini in the robustness analysis as it might be correlated with both α and β.

Several versions of these equations are estimated with different composition of the control variables to check the sensitivity of the results.

3.2 Short-term vs Long-term Implications of the Switch

We structure our data set in five-year intervals, such as 1960-64, 1965-69, etc. Thus, if for instance a country opened in the period 1970-1974, the post-switch effects are analyzed for the period 1975-1979 and onwards. Specifically, we investigate the relationships by focusing on 10-year, 20-year, 30-year and 40-year periods around the switch. When the focus is on 10-year, the regressions are run with data points of countries belonging to the last five-year period before the switch and the first five-year period after the switch for each country. Likewise, when the focus is on a 30-year period, we use data points of the last three five-year periods before the switch and the first three

[20]The data on actual migration rate do not distinguish the farmer types (simply, the data on the migration of different segments from rural areas are not available). Nevertheless, the evidence found in the migration equation that the high-type farmer migrates after the switch indicates that the measurement error in the actual migration rate (for capturing the migration of the high-type farmer) would tend to be small in our context.

five-year periods after the switch, and so on.[21] Long-term implications are useful to understand the sustainability of the regimes over time as well as the changes in the income distribution in the long-run. When studying long-run, we also focus on what happens in each particular period (esp., the impact of β on inequality).

3.3 Estimation Methodology

We first estimate the ISEP equation with maximum likelihood probit,[22] and the migration and inequality equations with Ordinary Least Squares (OLS).

Note, however, that the system specified above is a triangular system, which may require a more involved estimation methodology. In a triangular system, the first dependent variable is determined by exogenous factors; the second dependent variable is determined by the first dependent variable and the exogenous factors; and so on. The estimation of this system requires an instrumental variable estimation if there is any contemporaneous correlation among the residuals of the each equation. Otherwise, each equation can be estimated singly with OLS, which would provide consistent coefficient estimates. To check if there are any cross-equation residual correlations, we conduct a Breusch-Pagan (1980) test. As per this test, the OLS residuals of each equation are regressed onto each other first (i.e., the residuals from the first equation are regressed on the residuals from the second and the third equations). Then the number of observations times R-squared from this estimation is used as a Chi-squared statistic with degrees of freedom equal to the number of restrictions (in this case, three). In our case, none of the various system combinations indicate such correlation. Therefore, ML probit and OLS can be used for consistent estimations.[23]

There may be a measurement error problem in the ISEP and migration equations, as the data on the proportion of rural population with no schooling and secondary schooling are available as

[21] All the countries provide data for the 10-year focus. Not all countries have data for the 20-year or 30-year focus, etc. Some imbalance in the panel may occur, because while a country may provide data for only one period before the switch, it may provide for two of the periods after the switch.

[22] ISEP is a latent variable. Sachs and Warner (1995) set five criteria for a country to be considered as open: i) average tariff rates 40% or less, ii) non-tariff barriers covering 40% or less of trade, iii) black market premium on the exchange rate less than 20%, iv) no state monopoly on major exports, and v) not being a socialist system. Thus, the 'true' level of openness $y^* = X\Psi + \nu$ is determined by an index function, $X\Psi$, and a country is considered as open ($y = 1$) if it exceeds an 'arbitrarily' set threshold (i.e., statistical arbitrariness), or closed ($y = 0$) otherwise.

[23] The results of this test are available upon request.

one data point for almost every country. So for the panel estimations, we have no chance but assume that each country has the same data for each period. To address the problem in the ISEP equation, we use Rivers and Vuong's (1998) two-stage conditional maximum likelihood (2CML) method for the estimation. 2CML is a convenient method in that it also provides an exogeneity test en route. In this method, rural no schooling and secondary schooling are first regressed on a set of instruments (see below), and then the residuals from these auxiliary regressions are plugged back to the ISEP equation. If the residuals are estimated significantly in the main equation in the second stage, then there is an endogeneity problem to address. In all of our cases, however, these residuals are estimated to be individually and jointly insignificant. Thus the use of simple probit is justifiable. The same problem is handled in the migration equation by using a Generalized Method of Moments (GMM) estimation. GMM is robust to heteroskedasticity of unknown form that might be in the measurement error. The GMM estimations provide somewhat better results than the OLS results, possibly because the instruments used in addressing the problem provide some variation in the regression. In this sense, we cannot make strict conclusions on the measurement error problem, but in this way a caution is taken at least. As instruments for rural schooling, we use variables suggested by Ulubasoglu and Cardak (2006), who model the determinants of rural educational attainment. They find that asset inequality (measured by land Gini), financial development (measured by M2/GDP), British and French legal systems, ethnic fractionalization, life expectancy, political freedom, colonization and landlocked dummies, and surface area, among others, are significant determinants of cross-country differences in rural schooling. We also add regional dummies to this list as well as the interaction terms of these variables. All these variables can be expected to be unrelated to the error term. A relatively small and consistent number of instruments used for both ISEP and migration equations.

As per Kuznets' predictions that are mentioned in Section 2.7., preferences, i.e., α (which is at the same time the share of agriculture in income), may change in urbanization. To the extent that an IS-EP switch involves an urbanization process, there may be a reverse causation from ISEP to α. Although some countries may switch in the later stages of urbanization, (i.e., possibility of no endogeneity), we address the issue formally and undertake an endogeneity test for α through the 2CML method. Our results suggest that α does not suffer an endogeneity problem, implying

that the causality is from α to ISEP. The details of this test are provided in Section 6.

Another problem may be endogeneity of β in the inequality equation. By utilizing the same set of instruments used for rural schooling above, we conduct a Durbin-Wu-Hausman (DWH) test for β. The results show that the inequality-β relationship does not pose an endogeneity problem, in which case an OLS estimation is safe. The details of this test are also provided in Section 6.

Country-specific effects may also require an attention in a panel context. We feel relatively better off on the problem, because we decompose the sample into relatively homogenous group of countries (see Section 4.1 below). In addition, we account for region-specific effects by using Latin American, South African and East Asian-Pacific dummies as well as examining all the effects separately for Sub-saharan Africa. Countries within each region can be reasonably assumed to have similar characteristics (see Bourguignon and Morrisson 2002).

There is an important point about the ISEP equation. Estimation of this equation in a panel context assumes that there is a voting every period on whether to remain closed or open. This assumption is quite relevant, because the possibility of countries' reverting back to their old regimes is significant (due to various reasons such as public pressure, military to us interference and economic failure). In fact, a number of countries switched back and forth in the 1950s and 1960s (e.g., Costa Rica, Ecuador, Morocco, Turkey) as shown in the Sachs-Warner-Wacziarg-Welch context of openness. While due to the unavailability of the relevant data we cannot include many of the back-and-forth cases in our data set, one country in our sample (Sri Lanka) has indeed two switches. Thus the coefficients from a probit estimation of the ISEP equation would indicate the probabilistic support for the switch.

Note that although we estimate each equation singly, we make the 'same' data points available to each equation (in terms of countries and time periods) so that the results can be compared coherently across equations, without being affected by non-conforming data points.[24]

4 Data

A detailed description of the data and their sources are provided in Appendix D. However some important issues are explained in this section.

[24] A perfect correspondence of the data points is of course impossible, due to the lack of other data.

4.1 Issues about Sample Selection

To carry out the empirical analysis, we need all the data for both closed and open periods (i.e., necessarily around the switch period; the more, the better). In addition, the best testing environment for our theory would be developing economies that had (or have) dualistic nature, and experienced both closed and open periods. Though the sort of dualism and its implications on inequality that exist in our model are not like the Bourguignon and Morrisson (1998) type, the sample of countries that they use can be our starting point for the empirical analysis. Ideally, we would like to use all countries they use; but our samples do not match one-to-one due to our having to have data for both closed and open periods. 27 such developing countries provide the data for us. These developing countries are well-known with their import-substitution and export-promotion experiences, and nearly all of them exhibited a tendency of internal migration after opening.

Additionally, 13 Sub-saharan African countries have the desired data and thus can be used to explore various important implications. Moreover, data were readily available for three developed countries, so we also used them for experimentation.[25] Experimenting without these three countries does not change the results at all.

4.2 Issues about ISEP and Regime Switch

The switching year for each country is of utmost importance. Sachs and Warner classify the trade regimes of nearly every country in the world as closed or open with respect to certain criteria. Wacziarg and Welch further investigate this variable.[26] Further, Rodriguez and Rodrik (2000) closely and excellently examined this variable by partitioning it into its original components. They note that most of the variation in this variable is captured by black market premium, which is an indicator of poor domestic policies in closed regimes. Therefore, they conclude that "the Sachs and Warner indicator serves as a proxy for a wide range of policy and institutional differences".

[25] Industrialization and rural-urban income differential periods in US, UK, France, Germany, Norway are explained in Lindert (2005) and Morrisson (2005). The dualism experienced by today's developed countries were in distant past. In these countries even opening within the context of Sachs - Warner (1995) and Wacziarg - Welch (2003) during 1950s and 1960s did not result in incentives for mass migration due to little or non-existent regional income gaps and thus a change in inequality.

[26] While both studies agree on the openness years for many countries, there is a disagreement on India. Sachs-Warner classify India as open as of 1994, while Wacziarg-Welch consider it still closed as of 2003. We experiment with both cases.

In other words, apart from liberalization of trade this variable is expected to capture a wide range of domestic and other reforms that typically accompany a trade liberalization drive.[27]

4.3 Issues about Inequality Data

We use the latest available data on inequality, which is provided by the WIDER project of the United Nations University (dated June 2005). This is a compilation of various inequality estimates, mainly from i) an updated version of Deininger and Squire (1996), provided by the World Bank, ii) Luxembourg Income Study, and iii) Transmonee of UNICEF/ICDC. The compilation is fully documented and the unit definitions are as precise as possible in line with various earlier criticisms. For this newest compilation, some estimates from earlier compilations have been deleted, some have been replaced with new estimates, and some new estimates have been made available through an apparently comprehensive work. UNU/WIDER also provides quality indicators for each estimate depending on the reliability of the original source. In particular, two Gini values are made available: i) the Gini value reported by the original source, ii) UNU/WIDER's calculation based on income deciles/quintiles. While we use the latter in our estimations, the correlation between both measures in our sample is 0.99.

Using this data set, we create a consistent inequality series (over 5-year intervals) for each country to obtain comparable values over time. Construction of this series is explained in detail in Appendix E. Where Gini values of different constructions need to be used across time periods, we control for these differences through dummies (see Barro 2000, who does the same). These dummies are Consumption/Expenditure, Earnings, Monetary Income, Net Income, Person, and Gini Quality (a value between 1 through 4, where 1 shows the best quality). Econometrically speaking, though, because Gini is a dependent variable, any measurement error will be captured by the error term.

4.4 Issues about α

The share of agriculture in GDP has been used in earlier studies of inequality and development. For instance, Ahluwalia (1976a) finds different correlations between this variable and income

[27]For a few countries the opening year is the last year of a five-year period (e.g., 1989), thus these countries are assumed to have opened in the next period.

shares of percentile groups in a cross-country context. Our contribution in this paper is to look at such a correlation across different regimes.

4.5 Issues about β

β is the relative productivity of migrant workers to that of initial workers in manufacturing. For our purposes the ratio of rural to urban average years of schooling (henceforth, RATIO) serves as a plausible proxy for β. Ulubasoglu and Cardak (2006) provide an unbalanced panel data set for 56 countries on the rural and urban average years of schooling. Because no detailed information (such as the breakdown of age groups, rates of birth and mortality etc. into rural and urban) was available to obtain a time series, most countries have one data point. Luckily, however, most data were available for the countries around their respective opening years.

31 of our 43 countries have their own RATIO data. For the remaining 12 countries we made approximations from altogether 56 countries of Ulubasoglu and Cardak (2006). Our approximations are mostly based on Bourguignon and Morrisson (2002), who approximated the income distribution data of 33 countries for the whole world based on the countries' geographical proximity and similar and/or common histories and cultures. These approximations are provided in Appendix F.[28]

The relative productivity variable in the ISEP equation, which is relevant for the high-type farmer at every period of voting (β^{IS}), is found in the following way: For countries whose data are available for some year at or before opening (37 of 43 countries), we assume that RATIO increases (i.e., rural-urban education gap closes) by 2% every five years (e.g., from 0.50 to 0.52) up to the switching period (i.e., in the closed economy). For the remaining six countries (of which three are developed), RATIO is available for a year after opening, so we assume that RATIO increased by 3% every five years after having opened.[29] Thus we backcast the data accordingly. These values are implied by Ulubasoglu and Cardak's modeling of the RATIO variable.

It is very important to note, however, that in a panel context the evolution of migrant workers' productivity in the manufacturing sector after opening will be different than β^{IS}. The relevant

[28] For most countries, educational attainment data were available for people over 25 years of age, which is consistent with voting and migration decisions.

[29] We also experiment with 3% increase before opening and 4% and 5% increase after opening. The results are mostly similar.

relative productivity variable is β^{EP}. Once we obtain the RATIO value for the period in which the switch occurred (through the procedure above), for panel analysis we proceed with calculating β^{EP}. We construct various β^{EP}s by assuming different rates of increase in the relative productivity of migrant workers after the switch. In doing so, we also acknowledge the fact that in the initial period just after the switch, the productivity increase may be lower than future periods due to the adaptation difficulties that ex-farmers may experience in the city, etc. In particular, in terms of the combination of "the first five-year period just after the switch" and "each of the later five-year periods", we try combinations of 2%-5%, 5%-8%, 6%-10%, 7%-12%, 8%-15%, 10%-20%, 15%-25%, and 20%-30%. In another exercise, we construct another β with sub-saharan African countries having 5%-8% and both developing and developed countries having 7%-12%. In another β construction, we use 2%-5% for the countries with real output per capita up to $1,500 in the switch period, 7%-12% for countries with $1,501-$4,000, and 8%-15% for countries with $4,001 and above.

Using various such combinations is a robustness check on this variable. Also, as guided by the theoretical set-up, β constructions that are estimated to be significant in the regressions would indicate the approximate productivity changes after the switch. It turns out that while the combination 5%-8% used for all countries provides the most significant results, the combinations through 5%-8% to 10%-20% provide statistically significant estimates in the regressions. This would imply that migrant workers in general experience a 5% to 10% productivity increase in the city in the first five years just after the switch and an 8% to 20% increase in each of the later five-year periods.[30]

There is also the issue of the productivity of different migrant stocks that exist in the city. To illustrate, take the case of 15 years after the switch. In the third five-year period after the switch, there would be three different β values in the city (one for those who migrated in the first period after the switch, one for those who migrated in the second period after the switch, etc.). Assume that the ratio of rural to urban schooling at the time of the switch is 0.50. Thus the first

[30] Ulubasoglu and Cardak (2006) find that our proxy for β, i.e., RATIO, is positively related to national years of schooling. This is hardly surprising, because both are expected to be positively related to the level of development. They also find that the relationship is non-linear. Comparatively speaking, RATIO is closer to our theory. It provides values in $[0, 1]$ as needed for the test and enables the subsequent adjustments in productivity fort the post-switch period meaningfully. In addition, the non-linear relationship between RATIO and national years of schooling is hard to address if one wishes to use the latter as a proxy for β.

batch of migrants migrates to the city with a 0.50 productivity, and realizing, say, an 8% increase in the relative productivity by working in the manufacturing in the first period, they finish off the first period with a β value of 0.58. From the second period onwards, they start increasing the relative productivity by, say, 15%, i.e., finish the second period with a β of 0.73, and the third period with 0.88, and so on. Regarding the second batch of migrants who move to the city in the second period after the switch, we first assume that the ratio of rural to urban schooling increases (i.e. rural-urban educational gap closes) by 3% every five years under an open economy. Thus the second batch of migrants move to the city with a relative productivity of 0.53. They finish off their first period in the city (i.e., the second period after the switch) with a beta of 0.61 (where, at the time, the first batch finishes the same period with 0.73). From this period onwards, the second batch starts increasing their β by 15%. Likewise, the third batch migrates with 0.56 initially, and finishes their first period with 0.64 (the third period of the switch), and so on.

5 Empirical Results

Table 0 in Appendix G provides summary statistics using 10-year focus data. Tables 1a through 1d in Appendix G report the results for the ISEP equation, Table 2 presents the results for the migration equation, and Tables 3a through 3c focus on the inequality equation. Our sample includes all countries, where Sub-saharan (SS) African effects are separated with SS Africa dummies. In separating the SS African effects, the variables that are not interacted with SS Africa dummies capture the effects for the developing and the three developed countries, while the terms interacted with the SS Africa dummies capture the differences between the group of developing and developed countries and that of the SS African countries.[31,32] We report the results with the 10-year, 20-year, 30-year and 40-year focuses. The reported results are based the β combination of 5%-8% (see section 4.5.)

[31]The three developed countries are Australia, Japan and New Zealand. Regressions with lagged variables can only include New Zealand (i.e., in the ISEP equation), because the lagged data are missing for Australia and Japan, which opened in the 1960s. Dropping New Zealand and other countries does not change the results. Thus for the ease of explanation, we will refer to the developing and developed countries group as "developing countries" only.

[32]We also run the regression without separating the SS Africa effects. Importantly, this practice provides insignificant results. It implies that all countries should not be treated equally in their role in the data generating process. We also exercise with only developing countries, but these results mimic the first part of the regressions we report (i.e., terms that are not interacted with SS Africa dummies). We do not report these results to save space. They are available upon request.

5.1 ISEP Equation

In Tables 1a through 1d, we observe that there is evidence, when appropriate control variables are used, for a positive support of the low-type farmers to the switch in developing countries in the short-run. This willingness becomes insignificant over time, however. The positive sign in the 10-year focus may imply that the low-type farmers in developing countries are not all that rational (in the sense of our theoretical set-up) in the short-term. This can be explained by strong kinship ties in these countries. The low-type farmers may expect remittances from their high-type relatives who will migrate to urban areas after the switch; the low-type farmers too might migrate later if they expect their more successful high-type relatives to hire them at some service sector jobs in which trust relationships may be more important than education or aptitude. Importantly, however, there is a significant evidence for the SS African low-type farmers providing significantly lower support to the switch, especially in the long-run, pointing out their rationality.

The high-type farmers of the developing countries, on the other hand, behave in exactly the same way that our theoretical set-up predicts. They support the switch when β is high and α is low. While the evidence is valid for all time periods, it is particularly strong for long-run. The support of the SS African high-type farmers, on the other hand, depends on controls. There is evidence for their positive support to the switch on the basis of α (contrary to the model) in longer term, while in the short-term they are not different than other developing countries.[33] While their support on the basis of β does not differ from developing countries in the short term, they provide less support on this basis (contrary to the model) in the longer term. In these counties, farmers either produce grains for their self use or engage in producing of cash crops. Thus, high-type farmers may be tempted to migrate to urban areas not because of the pull of the better manufacturing job opportunities, but because of the push of cheaper grain production.

There is also some evidence for the predicted positive support of the urban workers in the developing countries in the short-run (see Table 1a), but this depends on the control variables, in particular, the contemporanous value of the change in the foreign exchange reserves (FX/GDP).

[33]Only one SS African country (i.e., Ghana) provides data for the 30-year focus, while no SS African country provides data for the 40-year focus. In this case, this result with 30- and 40-year focuses is due to the SS African effects from earlier periods, in addition to some more variation provided by developing countries in the 30- and 40-year periods.

This support is not observed in the later time periods. Recall that in our theoretical set-up the main reason the workers support EP is the lower agricultural prices under EP. In reality, this effect may be small and consequently their support may be small too. Also, in time, increasing competition from migrant low-skilled workers may cause this weak support to erode. The behavior of the SS African urban workers is observed to be similar, although under one specification (where inflation and growth are controlled), the support is significantly more positive than that of the developing countries.

There are various other effects that can affect the regime switch. Control variables, in this sense, are observed to strengthen the significance of our state variables (those suggested by the theoretical set-up). Higher land Gini leads to lower support for the switch, especially in the long-run. Further, this effect is stronger in SS Africa. Rodrik (1996) elaborates on the reasons as to why such countries may not be conducive to any necessary reforms and regime switches. In terms of contemporanous values of the macro variables, lower inflation (in the long-run) and higher FX reserves (stronger in the short-run) are more likely lead to the switch. On the other hand, high inflation of one-period lag and lower FX reserves of two periods lag (stronger in the short-run) fosters the switch. These results imply that, while failures in the past may accelarate the switch, countries generally switch in the period that is macroeconomically more stable. In addition, higher agricultural terms of trade is likely to affect the switch negatively, with the impact being stronger in the long-run. Finally, the effect of larger domestic markets is estimated to be insignificant in our approach.

5.2 Migration Equation

Table 2 reports the results for the migration equation. Next to each general OLS model for a particular time period is the GMM estimation of that model. We consider the GMM estimations as more reliable, because they address the measurement error problem in rural schooling on the right-hand side. The stand-alone terms of rural no-schooling and secondary schooling capture the effects in developing countries before the switch, while the interaction terms between ISEP and rural no-schooling and secondary schooling capture the effects after the switch. GMM estimations show that the low-type farmer in developing countries avoid migration for 5-10 years after the

switch. This behavior is consistent with our theoretical prediction. As per the high-type farmer, they robustly avoid migrating in the closed economy period for all time periods, as shown by the majority of OLS and GMM estimations. This implies that, as long as the actual regime is closed, there is little incentive for an educated farmer to migrate to the city in the long-run. On the other hand, our theoretical prediction that they will migrate regardless if the switch takes place finds empirical support for medium-run (10 - 15 years after the switch). The results for the Sub-saharan African farmers are somewhat mixed, and vary with controls, estimation methodology and time period. For instance, both the low-type and the high-type farmer avoid migration before the switch and this effect is generally stronger than that for developing countries. After the switch, high-type farmers exhibit a stronger migration behavior only within 5 years after the switch (based on GMM estimation), but their behavior is not statistically different than those of developing countries for other time periods (which is already positive for 10-15 years after the switch). Thus, overall the prediction that the high-type farmers would migrate to city if the switch takes place is verified for developing countries for the period of 10-15 years after the switch and somewhat earlier for SS African farmers.[34]

Some control variables also provide insightful signs. We find that countries with higher life expectancy experience higher internal migration. Unexpectedly, greater political freedom results in lower migration. The impact of land Gini on migration depends on the country group, time period and estimation methodology, but wherever it is significant, it indicates that worse land distribution is associated with lower migration, especially in SS Africa.

5.3 Inequality Equation

The results for the inequality equation are full of implications. Let us first discuss the results on developing countries. A very important finding is that EP regimes, on average - and when other factors are controlled -, have higher inequality in the long-run. The coefficient estimate of the stand-alone ISEP variable tends to be positive but weakly significant for the first five-year period after the switch. The significance increases, however, over the second, third and fourth five-year

[34]Recall that although the low-type farmers provide positive support to the switch when voting, this effect is only realized in the short-term (the 10-year focus, i.e., the first five-year period after the switch); in the longer term the support becomes insignificant, which is consistent with avoiding migration in longer term.

periods. This result may be due to the relatively higher wages offered initially to almost all new-workers because of the expansion in the export (manufacturing) sector. In time, the highly skilled may differentiate themselves from the rest and may start earning much more. However, this long-run effect becomes weaker with the inclusion of regional dummies in the regression; this implies that region-specific effects are effective in mitigating (stand-alone) inequality effects of liberalization.

In terms of our state variables, α is estimated to have a significant inequality decreasing effect before the switch. As shown in the first three columns of Tables 3a-3c, throughout all periods, α is estimated to have the expected negative effect on inequality. Again as expected, the interaction term of α with ISEP is estimated to be insignificant, implying that α does not affect inequality after the switch. When coupled with the positive coefficient of ISEP, these results suggest that a country with too high α would experience higher inequality after the switch. When we account for Latin American and South Asian effects, the equilibriating effect of α in the closed economies becomes insignificant, but making the post-switch effect positive (significant in some cases). This, too, increases the inequality.

One of the most important results is related to the impact of β on inequality. In the first five-year period after the switch, β has a robust, negative and significant effect on inequality. To illustrate the impact, let us use the first column in Table 3, 40-year focus, where all the effects are visible. The estimated coefficient is -0.735. At the median migration rate for the first five-year period after the switch (12.37%), a β that is equal to 1 decreases inequality by 9.09 Gini points (-0.735$\times$12.37$\times$1) over the Gini value of the last period of the closed economy. This effect can, on its own surpass, the stand-alone switch effect, which is estimated to be 6.24 higher Gini points. Thus, for this particular specification, a minimum β value of 0.69 would result in decreasing inequality after the switch. As it turns out in all specifications, evaluated at the median migration rates, β values between 0.60 - 0.90 may be taken as minimum thresholds, after which liberalization would result in lower inequality in the first period after the switch, holding other factors constant.[35] Region-specific effects lower, although cannot terminate, the effectiveness of β on inequality in

[35]Note that the stand-alone effect is more significant in the long-run than in the short-run. Thus, this result implies that the β effect can counter-act in the short-run the potentially higher stand-alone effect that is to be observed in the long-run.

the first period.

The βs of other periods capture the marginal impact of β on inequality over the previous period.[36] There is an interesting cyclical behavior observed in the impact of β in the second and third five-year periods after the switch, although this behavior is weakly significant. In the second five-year period after the switch, β is estimated to increase inequality to some extent, where Gini still remains under the pre-switch level. Accounting for regional effects strengthens this inequality-increasing effect. In the third five-year period after the switch, this increase in counter-acted, although weakly, in similar magnitudes, but this counter-action is further weakened by regional effects.

In terms of control variables, both financial development and political freedom have significant inequality decreasing effects without accounting for regional effects. Of interest, the inequality difference between the most dictatorial and the most democratic regimes (i.e., a political freedom score of 0% to 100%) is between 6 - 9 Gini points, other things being equal. Both financial development and political freedom effects, however, become insignificant when Latin America and South Asia effects are controlled for.

It turns out that region-specific effects have important influence on the working of both state and control variables on inequality. Importantly, while these effects decrease the stand-alone inequality effect of the switch, they clearly slow down the inequality decreasing effect of β. Remember that our motivation for the use of regional variables for inequality equations was due to Schultz (1998). We delve into the regional effects, and carry out some exercises with Model 3 of the Gini estimations in Table 3, using 40-year focus. An important variation in regional effects can be explained by religion. In terms of our sample, Latin America is overwhelmingly Catholic, and in South Asia the share of Hindu population is relatively high and the shares of Catholic and Protestants are very small. When we replace regional variables with the population shares of five religions (i.e., Catholic, Protestant, Muslim, Hindu, Confucian), the results in Model 3 remain virtually unchanged. Thus, religion may explain some differences in the attitudes towards the interaction of relative productivity (i.e., education) and α with inequality. However, there is more to regional effects than religion differences, as shown by relatively lower adjusted R-squared of

[36] This is because the dummies ISEP5, ISEP10, ISEP15 and ISEP20 are designed to capture the evolution in relative productivity of each batch of migrants.

regressions when the regional variables are replaced with religion variables (0.54 vs 0.46). Part of this gap, and hence part of the regional effects, seem to be explained by differences in legislative systems as well. Latin American countries all have French legal systems and South Asian countries all have British legal systems. When British and French law variables are used together with religion, adjusted R-squared rises to 0.50, keeping still the previous results intact,[37] see La Porta et al. 1999 and Ulubasoglu and Cardak 2006 for mechanisms at work)

Let us now discuss the results on Sub-saharan Africa. The stand-alone effect of the switch is no different than that in developing countries (i.e., still positive). However, α is estimated to have a robust, significant and inequality-increasing effect on inequality in the closed period. The post-switch effect is also different than developing countries under some circumstances. There is significant and inequality-decreasing effect of α on inequality after the switch, when the region-specific effects are fully controlled for. This implies that higher α may decrease inequality in SS Africa after the switch!

The results on β are even more interesting. The impact of β on inequality in the first five-year period after the switch is no different than developing economies (i.e., the inequality decreasing effect in this period still holds). However, in the second and third five-year periods after the switch, β has even more stronger inequality-decreasing effect than is observed in developing countries.[38] This effect is strongest when the region-specific effects are fully controlled for. To illustrate, let us focus on the third column in Table 3, 40-year focus. The effect in the first five-year period after the switch is no different than developing economies, so at median β (0.44) and median migration rate (4.21%), Gini decreases by 0.85 points (-0.459×4.21×0.44). In the second five-year period, median β is 0.52 and median migration rate is 2.15%; thus Gini further decreases by 2.45 points (-2.19×2.15×0.52). In the third five-year period (which is only observable for Ghana), β is 0.24 and the migration rate is 6.28%. Thus Gini decreases by 5.52 (-3.665×6.28×0.24). Thus the overall conclusion on SS Africa is that the impact of β on inequality is spread across time,

[37] An exception is deteriorating significance of β although it remains in conventional levels. Ulubasoglu and Cardak (2006) find that legal systems have important things to explain in rural-urban educational inequality, so this worsening in significance is expected. However, β is not a straight-forward rural-urban educational inequality variable, because it involves the evolution of migrant workers' productivity.

[38] There are five SS African countries in our data set whose second period effect we can observe, while there is only one SS African country to observe the third period effects (i.e., Ghana). Note that for all countries, we can observe the previous periods' effects.

and this effect offsets the stand-alone effect between 10-15 years, holding other factors constant. This may be due to lack of good instant education and training opportunities in Sub-saharan Africa, where only slow learning-by-doing effects may be present. Another interesting result is that higher political freedom worsens income distribution in SS Africa, other things being equal.

To give a flavor of the changes in Gini due to β, some exploratory country cases are provided in Tables 4a through 5b. In particular, Tables 4a and 4b present the developing country cases for the changes in Gini in 5 and 10 years after the switch, while Tables 5a and 5b do the same for SS Africa countries. It is observed that countries with higher β and migration rate (e.g., Jamaica and Dominican Republic) are more likely to experience better income distribution, while those with lower β and migration rate (e.g., Guatemala and Nepal) experience increasing inequality after the switch. Most African countries (except South Africa) experience higher inequality just after the switch.

Other important implications of our inequality estimations are regarding Gini constructions (bottom part of Table 3). In particular, Gini constructions that are based on expenditure or consumption are on average 14 points lower than income-based constructions. Person-based Ginis (vis-a-vis household-based Ginis) provide higher inequality (around 3.5 to 5 points) when the regional effects are controlled for. This is expected, because household-based Ginis do not take into account within-household inequality. Also, net income-based constructions (as opposed to gross income-based constructions) provide lower inequality outcomes (i.e., around 2 to 4 points). This is also expected because, taxation schemes are generally progressive. Moreover, Ginis based on monetary income (as opposed to overall income) provide lower inequality (around 3.5 to 5.5 points), while earnings based-constructions are not statistically different. Finally, Ginis with lower quality may indicate higher inequality, although this effect is generally insignificant.

6 Further Sensitivity Analysis

We conduct further sensitivity analyses using the 10-year and 40-year focus estimations. The first is on India. The reported results so far include India as a country which experienced openness in the 1995-99 period (as per Sachs and Warner). Following Wacziarg and Welch (2003), we now consider India as a closed economy and remove it from the sample. This does not change any of

the results in the inequality equation. In the ISEP equation, only the significance of the high-type farmers worsens in the 40-year focus, although remaining at reliable levels. Other variables in both 10-year and 40-year focus remain similar, like those in the migration equation.

Next we check whether using different time periods for each country results in any time-wise parametric shift in the models. The circumstances leading to and surrounding the switch may be different in each time period. Such effects can be captured by using time dummies for the 1970s, 80s, 90s and for 2000s in the regressions.[39] The ISEP equation is perhaps the most relevant for such effects, in terms of reflecting the over-time tendency across the world in switching the regimes. As compared to the base period of the 1970s, the effect is insignificant in the 1980s, but significant and increasingly positive in the 1990s and the 2000s. The inclusion of these dummies worsens the significance of the high-type farmers' coefficients, but they still remain at acceptable levels. In the inequality regressions, the dummies are insignificant when the region-specific effects are controlled for. This implies that region-specific effects outweigh time-specific effects. When the regional effects are not accounted for, the dummies of 1990 and 2000 are positive and significant. However, in all cases do our theoretical variables remain significant with the original signs. The same dummies are estimated to be insignificant in the migration equations.

One can also argue that the contemporanous values of the macro variables may be endogenous to the regimes. Note that when we refer to macroeconomic instabilities, we refer to a bundle of complex and interrelated fiscal and monetary factors. While such factors may lead to a change in the regime, the reverse causation from the regime to the macro factors is tied to many parameters. For instance, while a country may experience high inflation in the IS regime due to monetizing its budget deficit, in the EP regime it may experience high inflation due to high economic growth. Also important is the dynamic relationships among the macro variables. Most macro variables, such as inflation, are characterized with inertia as well as having lead and lag associations with others. Thus, we believe that the extent of endogeneity bias, if exists, would be low in our case due to the use of lagged macro variables and other macro controls. Nevertheless, a formal testing procedure is also undertaken using Durbin-Wu-Hausman (DWH) tests and using further lagged variables as instruments (see Davidson and McKinnon 2004, p. 338 for details), and expectedly,

[39]The 1960s are eliminated from the sample due to lagged variables.

such tests do not indicate endogeneity in our estimations.

We also use the land Gini as a control in the inequality equations. As expected, it decreases the significance levels of α and β.In particular, α becomes insignificant before the switch also, while the impact of β on inequality just after the switch remains negative but weakly significant in most specifications. Land Gini itself has a positive and strongly significant estimate for developing countries, but a negative and strongly significant estimate for SS Africa. To save space, we do not present these results.

As mentioned in Section 3.3, we test for the endogeneity of α in the ISEP equation by conducting a DWH test with 40-year focus estimations. If α is endogenous to ISEP, this would be best seen in a long time interval like 40 years. For the auxiliary regression of the DWH test in the first step, we regress α on average years of schooling in 1960, share of arable land in total land area, small island dummy, oil producing dummy, French and British legal system dummies, and time dummies for each decade, where all these variables are also interacted with a SS Africa dummy. These variables are expected to determine the degree of reliance on agricultural production (initial schooling, arable land share, small island dummy), institutional framework to determine non-agricultural investment (i.e., legal system variables, see La Porta et al. 1999), and other variables that may shift the economy's structure away from other countries (oil dummy, small island dummy).[40] The joint effect of all these is expected to shape the agricultural preferences. The second step DWH regressions are reported in Table 6a. We find that nearly all residuals of α obtained from the first step regression, separated for different country groups, are estimated to be insignificant across the models. They are all jointly insignificant as shown by the F-test, which is reported at the bottom of the table. In the presence of this insignificant correction of endogeneity, it is natural that the theoretical variables in this estimation are similar to those Table 1d.

We also check for the endogeneity of β in the inequality equation by conducting a DWH test with 10-year focus estimations. For the first step DWH regression, we regress β on the same set of variables that are used as instruments for rural schooling in the migration equation (see Section

[40]This model is very significant and strong as shown by the F-test and adjusted R-squared equalling to 0.57, indicating the validity of the instruments. As per the exogeneity of the instruments, all of them are time-invariant, hence no problem is expected.

3.3). The residuals from the first-step regression, split for both developing and SS Africa countries, are estimated to be jointly insignificant in the second step, with no significant impact on theoretical variables, indicating that β does not pose an endogeneity problem.[41] This is expected because β in this context is not a straight-forward rural-urban educational inequality variable, which would have made endogeneity more likely (i.e., we have a split between β^{IS} and β^{EP} in this variable). While related to the educational inequality around the switch, the evolution of productivity of migrant workers in manufacturing, which β^{EP} represents, is found to be independent of inequality in the country. A suppressed output of the DWH tests is presented in Table 6b.

7 Revisiting the Theoretical Framework

The theoretical framework was intended only as a demonstrative example. Yet, reconciling the differences between the theoretical predictions and empirical findings is important to enrich our understanding of the dynamics of the regime switch and its impact on inequality. Some explanations for these differences are already provided in discussing the empirical results. Two main differences stand out.

Forward-looking assumption and the IS-EP switch: In terms of the decision-making for a switch and migration, individuals are not always forward-looking in real life. Rather than productivity, people's decisions may be determined by previous experiences of family members, and migration networks in general. It is also assumed in the theoretical framework that every migrant will find a job after a switch. Incomplete information about the prices, markets and job opportunities may blur the individuals' reading of the picture, hence the decisions for a regime change and migration. The theoretical framework does not also take into account the influence of 'soft' power groups, such as industrial lobbyists.

Initial worker's support for liberalization: It is assumed that the job of the initial worker is secure after a switch. However, this may not be the case because, as mentioned in Section 2.7, there is not only one manufacturing sector in the economy, but numerous. Thus, workers may find themselves displaced after a switch depending on which type of manufacturing sector they

[41] Note that we have a split between β^{IS} and β^{EP} in this variable, i.e., β is not a straight-forward rural-urban educational inequality variable, which would have made endogeneity more likely. While related to this inequality around the switch, the evolution of productivity of migrant workers in manufacturing, which β^{EP} represents, would be independent of inequality in the country.

work in. In addition, growing stock of migrants in the urban area may consistently threaten the positions of such workers, as hirings may be undertaken under the influence of migrant networks. Indeed, we find in the empirics that the initial worker supports the switch in the short-run, but not in the long-run, which is in line with the scenario above. Or, simply the productivity levels of initial and migrant workers may not be perceived correctly to make the hiring decisions right, and this may threaten the initial worker. Finally, there is no informal sector in the framework unlike in real life, and this may affect the job perceptions of initial and migrant workers.

In view of the straight-jacket feature of theoretical set-ups, our empirical findings cover a significant ground regarding the predictions of the theoretical framework and the key forces at work in the liberalization-inequality relationship.

8 Concluding Remarks

The belief that globalization increases income inequality is commonly stated. Given that a significant proportion of world's population has been introduced the "liberal blueprint" in the past two decades and that a number of other countries face pressures to liberalize, such claims make necessary profound and disaggregate analyses of the liberalization-inequality relationship. This study carries out such an investigation with theoretical and empirical setups. Of course, the issue involves infinitely many dimensions and a single study can but illuminate certain aspects. Nevertheless, we believe that we treat the issue rigorously by modelling the society's decision-making process on liberalization and its ensuing impact on inequality. We also undertake an empirical test of the theoretical predictions by making use of a newly assembled inequality data set and other interesting variables. Both theoretical and empirical results, which complement each other, are indicative of what past "liberalizers" have experienced in terms of societal decision-making and income inequality, from, of course, the angle that the paper takes. Our findings imply that global policies should not be prescribed uniformly across countries, and the prescriptions should take into account what Rodrik (2000) calls local knowledge, i.e., country-specific factors.

In our theoretical model we disaggregate the society into four segments: entrepreneurs, workers, high-type farmers and low-type farmers. In the import-substitution (IS) regime the society considers whether or not to switch to export-promotion (EP). As elaborated in our analysis, α

and β turn out to be two crucial factors on the society's switching decision as well as on the pace of inequality after an IS-EP switch. The theoretical results suggest that low-type farmers never have incentives to switch. The empirical findings imply that the Sub-saharan African low-type farmer behaves in the manner that the theory predicts, while the non-Sub-saharan African low-type farmer does the opposite. In addition, theoretically high-type farmers have higher incentives to switch to EP as α decreases and β increases. The empirical analysis finds support for this prediction in non-Sub-saharan African developing countries, while the Sub-saharan African high-type farmer behaves in a mixed manner. Continuing with the theory, entrepreneurs and initial urban workers always support the switch. The empirical results show that urban workers provide such a support only in the short-run. We explain why such discrepancies can occur in the theoretical and empirical results, and therefore deepen our understanding of the proposed framework.

Theoretically, inequality too depends on α and β; it decreases following a switch if α is low and β is high and increases otherwise. Empirically, we find that higher β lowers inequality after the switch in all countries, whereas the impact of α differs across country groups. We also find that EP regimes, on average, have worse inequality than the IS regimes in the long term (i.e., 15-20 years after the switch). Such an effect is insignificant when the attention is restricted to a short period after the switch. In developing countries β can offset the stand-alone effect in the short term if the switch is made with a minimum β value of $0.67 - 0.89$, given median migration rate. In Sub-saharan Africa, the stand-alone effect can be offset by the median β in 10-15 years after the switch. Overall, however, when the estimates are evaluated in the whole sample, the β effect cannot surpass the stand-alone effect, which implies that the median country has made a "wrong" switch.

References

[1] Ahluwalia, M. S. (1976a), "Inequality, Poverty and Development", *Journal of Development Economics*, 3, 307-42.

[2] Ahluwalia, M.S. (1976b), "Income Distribution and Development: Some Stylized Facts", *American Economic Review*, 66, 128-35.

[3] Alesina, A. and D. Rodrik (1994), "Distributive Politics and Economic Growth," *Quarterly Journal of Economics*, 109, 465-90.

[4] Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat, R. Wacziarg, (2003), "Fractionalization", *Journal of Economic Growth,* 8, 155-94.

[5] Anand, S., and S.M.R. Kanbur (1993), "The Kuznets Process and the inequality-development Relationship", *Journal of Development Economics*, 40, 25-52.

[6] Anbarci, N., M. Escaleras and C. Register (2005), "Earthquake Fatalities: The Interaction of Nature and Political Economy," *Journal of Public Economics*, 89, 1907-1933.

[7] Baffes, J. and J. Meerman (1997), "From Prices to Incomes: Agricultural Subsidization without Protection," mimeo, the World Bank.

[8] Banerjee, A. and E. Duflo (2003), "Inequality and Growth: What Can the Data Say?" *Journal of Economic Growth,* 8, 267-99.

[9] Barro, R. (2000), "Inequality and Growth in a Panel of Countries", *Journal of Economic Growth*, 5, 5-32.

[10] Behrman, J. R. (1999), "Labor Markets in Developing Countries," (p. 2859-2939) in *Handbook of Labor Economics*, eds. O. Ashenfelter and D. Card, Amsterdam, Elsevier.

[11] Binswanger, H.P. and M.R. Rosenzweig (1986), "Behavioral and Material Determinants of Production Relations in Agriculture," *Journal of Development Studies*, 22, 503-539.

[12] Bollen, K. (1990), "Political Democracy: Conceptual and Measurement Traps", *Studies in Comparative International Development,* 25:7-24.

[13] Bourguignon, F. and C. Morrisson (1990), "Income Distribution, Development and Foreign Trade: A Cross-Sectional Analysis", *European Economic Review*, 34, 1113-32.

[14] Bourguignon, F. and C. Morrisson (1998), "Inequality and Development: The Role of Dualism", *Journal of Development Economics*, 57(2): 233-57.

[15] Bourguignon, F. and C. Morrisson (2002), "Inequality among World Citizens", *American Economic Review*, 92 (4), 727-744.

[16] Breusch, T.S. and A.R. Pagan (1980), "Lagrange Multiplier Test and its Application to Model Specification in Econometrics", *Review of Economic Studies*, 47, 239-53.

[17] Burnside, C. (1996), "Production Function Regression, Returns to Scales and Externalities," *Journal of Monetary Economics*, 37, 177-201.

[18] Cornia, G.A. (2004), *Inequality, Growth, and Poverty in an Era of Liberalization and Globalization*, G.A. Cornia (ed), UNU-WIDER Studies in Development Economics, Oxford and New York, Oxford University Press.

[19] de la Croix, D. and M. Doepke (2003), "Inequality and Growth: Why Differential Fertility Matters," *American Economic Review*, 93, 1091-1113.

[20] Cukierman, A. and Y. Spiegel (2003), "When is the Median Voter Paradigm a Reasonable Guide for Policy Choices in a Representative Democracy," *Economics and Politics*, 15, 247-284.

[21] Davidson, R. and J.G. McKinnon, (2004), *Economic Theory and Methods*, Oxford: Oxford University Press.

[22] Deininger, K. and P. Olinto (2000), "Asset distribution inequality and growth", Policy Research Working Paper 2375 Washington, DC: World Bank.

[23] Deininger, K. and L. Squire (1996), "A New Data Set Measuring Income Inequality", *World Bank Economic Review,* 10(3): 565-91.

[24] Dervis, K., M. Emerson, D. Gros, and S. Ulgen (2004), The European Transformation of Modern Turkey. CEPS, Brussels, Belgium.

[25] Easterly, W. and R. Levine (1997). "Africa's Growth Tragedy: Policies and Ethnic Divisions," *Quarterly Journal of Economics*, 112(4), 1203-50.

[26] Edwards, S. (1997), "Trade Policy, Growth and Income Distribution", *American Economic Review*, 87, 205-10.

[27] Fischer, R.D. "Evolution of Inequality after Trade Liberalization", *Journal of Development Economics*, 66: 555-79.

[28] Forbers, K. (2000), "A Reassessment of the Relationship between Inequality and Growth," *American Economic Review*, 90, 869-87.

[29] Freedom House, www.freedomhouse.org.

[30] Goldberg, P., and N. Pavcnik, 2004. "Trade, Inequality and Poverty: What Do We Know?" Evidence from Recent Trade Liberalization Episodes in Developing Countries," NBER Working Paper, 10593.

[31] Graham, B.S. and J.R. Temple (2006), "Rich Nations, Poor Nations: How Much Can Multiple Equilibria Explain?," *Journal of Economic Growth*, 11, 5-41.

[32] Harrigan, J. (1999), "Estimation of Cross-Country Differences in Industry Production Functions," *Journal of International Economics*, 47, 267-293.

[33] Krueger, A.O. (1978), Liberalization Attempts and Consequences, Ballinger Publishing Company, Cambridge and Massachusetts.

[34] Kuznets, S. (1955), "Economic Growth and Income Inequality," *American Economic Review*, 45, 1-28.

[35] Kuznets, S. (1973), "Modern Economic Growth: Findings and Reflections," *American Economic Review*, 63, 247-258.

[36] La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R Vishny, (1999), "The Quality of Government", *Journal of Law, Economics, and Organization*, 15, 222-279.

[37] Larson, D. and Y. Mundlak (1997), "On the Intersectoral Migration of Agricultural Labor", *Economic Development and Cultural Change*, 45, 295-319.

[38] Li, H., L. Squire and H. Zou (1998), "Explaining International and Intemporal Variations in Income Inequality", *Economic Journal*, 108(446): 26-43.

[39] Lindert, P. (2005), "Three centuries of inequality in Britain and America", *Handbook of Income Distribution*, ed(s). A. Atkinson and F. Bourguignon, North Holland.

[40] Lindert, P. and J. Williamson (2001), "Does Globalization Make the World More Unequal?", NBER Working Papers No. 8228.

[41] Lundberg, M. and L. Squire (2003), "The simultaneous evolution of growth and inequality," *Economic Journal*, 113, 326-44.

[42] Manesse, P. and A. Turrini (2001), "Trade, Wages, and 'Superstars", *Journal of International Economics*, 54, 97-117.

[43] Martin-Marcos, A. and C. Suarez-Galvez (2000), "Tehcnical Efficiency of Spanish Manufacturing Firms," *Applied Economics*, 32, 1249-1258.

[44] Morrisson, C. (2005), "Historical perspectives on income distribution: The case of Europe", *Handbook of Income Distribution*, ed(s). A. Atkinson and F. Bourguignon, North Holland.

[45] Persson, T. and G. Tabellini (1994), "Is Inequality Harmful for Growth?", *American Economic Review*, 84, 600-621.

[46] Ribe, H. (1979), "Income of Migrants Relative to Nonmigrants in Colombia," unpublished dissertation, Yale University (cited in Schultz (1988)).

[47] Rivers, D. And Q. Vuong (1988), "Limited Information Estimators and Exogeneity Testing for Simultaneous Probit Models", *Journal of Econometrics*, 39, 347-366.

[48] Robinson, S. (1976), "A Note on the U Hypothesis Relating Income Inequality and Economic Development", *American Economic Review*, 66, 437-40.

[49] Rodriguez, F. and D. Rodrik (2000), "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence", *NBER Macroeconomics Annual*, 15, 261-325.

[50] Rodrik, D. (1996), "Understanding Economic Policy Reform," *Journal of Economic Literature*, 34, 9-41.

[51] Rodrik, D. (1998), "Globalization, Social Conflict and Economic Growth," *The World Economy*, 21, 143-158.

[52] Rodrik, D. (2000), "Institutions for High-Quality Growth: What They are How to Acquire Them," *Studies in International Comparative Development*, 35, 3-31.

[53] Sachs, J. and A. Warner (1995), "Economic Reform and the Process of Global Integration", *Brookings Papers on Economic Activity*, 0(1): 1-95.

[54] Schultz, T. P. (1988), "Education Investments and Returns," in *Handbook of Development Economics*, 543-630, eds. H. Chenery and T. N. Srinivasan, Amsterdam, North Holland.

[55] Schultz, T. P. (1998), "Inequality in the Distribution of Personal Income in the World: How It Is Changing and Why", *Journal of Population Economics*, 11, 307-44.

[56] Spilimbergo, A., J. Londono and M. Szekely (1999) "Income Distribution, Factor Endowments and Trade Openness", *Journal of Development Economics*, 59, 77-101.

[57] Temple, J.R. (2005), "Growth and Wage Inequality in a Dual Economy," *Bulletin of Economic Research*, 57, 145-169.

[58] Temple, J.R. and L. Woessmann (2006), "Dualism and Cross-Country Growth Regressions," *Journal of Economic Growth*, 11, 187-228.

[59] Timmer, C. P. (1988), "The Agricultural Transformation," in *Handbook of Development Economics*, 275-331, eds. H. Chenery and T. N. Srinivasan, Amsterdam, North Holland.

[60] Todaro, M. (2000), *Economic Development*, Addison-Wesley: Reading, MA.

[61] Truett L.J. and D.B. Truett (1997), "The Korean Metals Industry and Economic Development," *Journal of Asian Economics*, 8, 333-347.

[62] Ulubasoglu, M.A. and B.A. Cardak (2006), "International Comparisons of Rural-Urban Educational Attainment: Data and Determinants", *European Economic Review*, forthcoming.

[63] The Victorian Web, http://www.victorianweb.org/ history/cornlaws1.html.

[64] United Nations, Food and Agricultural Organization, www.fao.org.

[65] United Nations, Human Development Report, 1999.

[66] United Nations, International Trade Statistics Yearbook, Trade by Country (various issues).

[67] United Nations, UNESCO Educational Yearbooks (various issues).

[68] United Nations, UNIDO Industrial Statistics, CD-ROM, 2003.

[69] Wacziarg, R. and K.H. Welch (2003), "Trade Liberalization and Growth: New Evidence", NBER Working Paper No. 10152.

[70] World Bank, World Development Indicators, CD-ROM (1999, 2003).

[71] World Income Inequality Database V 2.0a (2005), United Nations University.

[72] Yap, L. (1976), "Rural-Urban Migration and Urban Underemployment in Brazil," *Journal Development Economics*, 4, 239-264.

APPENDIX

A. INEQUALITY COMPARISONS

Table A. Unconditional Changes in Inequality (number of countries)

	INEQUALITY						OPENNESS	
	1959-2003			Open Period			1959-2003	
Country	Net Rise	Net Fall	No Change	Net Rise	Net Fall	No Change	Open	Still Closed
Developing	19	21	8	13	13	5	61	25
Developed	8	10	3	8	10	3	18	2
SS Africa	9	11	2	4	7	0	18	8
Total	36	42	13	25	30	8	97	35

Notes:

1.UNU/WIDER Gini observations with Quality 1-4 are used. For each country the highest possible quality data bundle has been utilized. Because the analysis is raw, we stick to only one type of, and consistent, Gini construction (see Section 4.3.) for a particular country that provided the longest time span.

2. "Net" refers to the difference in Gini points between the earliest and the latest year available for a country (where data are available for different years). If the difference is greater 1 Gini point, then the conclusion is a "net rise", and vice versa. No change means that this difference is in [-1, 1].

3. Opening years are taken from Wacziarg and Welch (2003).

B. LIGHT MANUFACTURES

Table B. Light Manufactures Shares in the Economy

		Employment Share		Output Share		Exports Share	
		Closed	Open	Closed	Open	Closed	Open
Developing Countries	1970-74	0.65	0.62	0.58	0.58	0.72	0.56
	1975-79	0.64	0.57	0.54	0.47	0.70	0.52
	1980-84	0.61	0.57	0.49	0.43	0.64	0.44
	1985-89	0.63	0.54	0.49	0.42	0.72	0.41
	1990-94	0.65	0.60	0.51	0.48	0.74	0.58
	1995-99	-	0.61	-	0.48	-	0.58
SS Africa	1970-74	0.75	-	0.65	-	0.87	-
	1975-79	0.69	-	0.60	-	0.86	-
	1980-84	0.71	-	0.60	-	0.78	-
	1985-89	0.69	0.73	0.60	0.48	0.79	0.53
	1990-94	0.72	0.57	0.62	0.49	0.79	0.53
	1995-99	-	0.67	-	0.55	-	0.69
Developed Countries	1970-74	0.57	0.34	0.56	0.33	0.88	0.37
	1975-79	0.55	0.33	0.50	0.30	0.80	0.33
	1980-84	0.54	0.36	0.51	0.33	0.77	0.31
	1985-89	-	0.36	-	0.33	-	0.36
	1990-94	-	0.36	-	0.32	-	0.32
	1995-99	-	0.35	-	0.29	-	0.38

Notes:

1. Averages of country observations available (around 90% of the countries in the empirical analysis are covered for these statistics).

2. Employment share in total manufacturing employment, output share in total manufacturing output, exports share in total country exports. Light manufactures sectors include 311 Food products, 313 Beverages, 314 Tobacco, 321 Textiles, 322 Wearing apparel, except footwear, 323 Leather products, 324 Footwear, except rubber or plastic, 331 Wood products, except furniture, 332 Furniture, except metal, 342 Printing and publishing, and 361 Pottery, china, earthenware in the International Standard Industry Classification (ISIC). The data used for employment and output share were obtained from UNIDO Industrial Statistics CD ROM 2003. For exports share, corresponding sectors are matched in the Standard International Trade Classification (SITC). Data were obtained from United Nations, International Trade Statistics Yearbook, Trade by Country collection (various issues).

3. Developed countries include Australia, Japan and New Zealand (which are in our sample), as well as France, Sweden, US and UK, which are not in our sample, but can reflect the overall story in developed countries very well. Only New Zealand experienced a closed regime among these countries in the period considered.

C. THEORETICAL PROOFS

PROPOSITION 1: In IS:
(1) The entrepreneur's income is $Y_e^{IS} = \pi_m^{IS} = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.
A worker's income is $Y_w^{IS} = e_m w_m = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.
(2) A farmer's income is $Y_a^{IS} = \frac{1-A}{A}\frac{\alpha}{1-\alpha}\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.
(3) $Y_e^{IS} = Y_w^{IS} > Y_a^{IS}$.
Proof of Proposition 1: (1) A skilled worker's utility maximization problem can be rewritten as
$u_w = L_w c_w$,where $c_w = a^{\alpha} m^{1-\alpha}$ stands for the composite consumption good,
such that $c_w = w_m(1 - L_w)$.
First order conditions from this problem yield $w_m L_w = c_w$. Plugging c_w into the constraint we get

$$L_w^* = \frac{1}{2}, \Rightarrow e_w^s = \frac{1}{2} \tag{1.1}$$

By assumption, $L_e = 1, e_e^s = 0$.

First-order conditions of π_m^{IS} yield $\frac{1}{2}(e_m)^{-1/2} - w_m = 0$. Thus, demand for labor per entrepreneur is $e_m^d = (1/2w_m)^2$. But $e_w^s = \frac{1}{2}$ (and $e_e^s = 0$). Thus, equating e_m^d and e_w^s, the equilibrium manufacturing wage becomes

$$w_m = (\frac{1}{2})^{\frac{1}{2}} \tag{1.2}$$

Thus, by using (1.1) and (1.2), we get

$$\pi_m^{IS} = (\frac{1}{2})^{\frac{1}{2}} - \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{1.3}$$

Hence, again by using (1.1) and (1.2) we get,

$$e_w w_m = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{1.4}$$

(2) Let π_a^{IS} denote the farmer's profit and w_a denote the farmer's wage. Observe that

$$Y_a^{IS} = \pi_a^{IS} + w_a e_a = p_a^d (e_a)^{\frac{1}{2}} \tag{1.5}$$

where $\pi_a^{IS} = p_a^d (e_a)^{\frac{1}{2}} - w_a e_a$.

A farmer's utility maximization problem can be rewritten as

$u_a = L_a c_a$, where $c_a = a^\alpha m^{1-\alpha}$ stands for the composite consumption good,

such that $c_a = w_a(1 - L_a)$.

First order conditions from this problem yield $w_a L_a = c_a$. Plugging c_a into the constraint we get

$$L_a^* = \frac{1}{2}, \Rightarrow e_a^s = \frac{1}{2} \tag{1.6}$$

Thus,

$$a^s = (\frac{1}{2})^{\frac{1}{2}} \tag{1.7}$$

First order conditions from any agent i's utility maximization problem yield

$$a_i^d = \alpha \frac{Y_i^{IS}}{p_a^d} \tag{1.8}$$

Since there are two sectors, it follows from Walras' law that, if one of the markets is in equilibrium, then so is the other one.

Using (1.5) and (1.8), the farmers' total demand for the agricultural good becomes

$$\frac{A\alpha Y_a^{IS}}{p_a^d} = A\alpha(\frac{1}{2})^{\frac{1}{2}} \tag{1.9}$$

Using (1.4) and (1.8), the workers' total demand for the agricultural good becomes

$$\frac{\frac{1-A}{2}\alpha Y_w^{IS}}{p_a^d} = \frac{\frac{1-A}{2}\alpha\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}}{p_a^d} \tag{1.10}$$

Using, (1.3) and (1.8), the entrepreneurs' demand for the agricultural good becomes

$$\frac{\frac{1-A}{2}\alpha Y_e^{IS}}{p_a^d} = \frac{\frac{1-A}{2}\alpha\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}}{p_a^d} \tag{1.11}$$

Then, by using (1.9), (1.10) and (1.11), total demand for the agricultural good becomes

$$A\alpha(\frac{1}{2})^{\frac{1}{2}} + \frac{(1-A\alpha)\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}}{p_a^d} \tag{1.12}$$

Using (1.6), the total supply of the agricultural good becomes

$$A(\frac{1}{2})^{\frac{1}{2}} \tag{1.13}$$

Then, using (1.12) and (1.13) (i.e., equating the total demand and supply of the agricultural good) yields

$\frac{(1-A)\alpha\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}}{p_a^d} = A(1-\alpha)(\frac{1}{2})^{\frac{1}{2}}$.

By simplifying it, we get

$$p_a^d = \frac{1}{2}\frac{1-A}{A}\frac{\alpha}{1-\alpha} \tag{1.14}$$

Then, by using (1.7) and (1.14)

$$Y_a^{IS} = \frac{1-A}{A}\frac{\alpha}{1-\alpha}\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{1.15}$$

(3) This part follows directly from Parts 1 and 2 of this proposition. This completes the proof of Proposition 1.

PROPOSITION 2: In IS, $u_e^{IS} = 2u_w^{IS}$ and $u_w^{IS}/u_a^{IS} = \frac{A}{1-A}\frac{1-\alpha}{\alpha}$; thus, $u_e^{IS}/u_a^{IS} = 2\frac{A}{1-A}\frac{1-\alpha}{\alpha}$. Thus, $u_e^{IS} > u_w^{IS} > u_a^{IS}$.

Proof of Proposition 2: First order conditions from any agent i's utility maximization problem yield his/her demand for the manufacturing good:

$$m_i^d = \alpha Y_i^{IS} \tag{2.1}$$

Recall from the proof of Proposition 1 that

by (1.8) $a_i^d = \alpha\frac{Y_i^{IS}}{p_a^d}$,

by (1.1), $L_w* = \frac{1}{2}$, and thus $e_w^s = \frac{1}{2}$, by assumption, $L_e = 1, e_e^s = 0$, by (1.5) $L_a* = \frac{1}{2}$, and thus $e_a^s = \frac{1}{2}$,

by (1.3) $Y_e^{IS} = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$, by (1.4) $Y_w^{IS} = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$, by (1.15) $Y_a^{IS} = \frac{1-A}{A}\frac{\alpha}{1-\alpha}\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$,

Thus, a farmer's indirect utility is

$$u_a^{IS} = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha\frac{1-A}{A}\frac{\alpha}{1-\alpha}\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{2.2}$$

Thus, the worker's indirect utility is

$$u_w^{IS} = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{2.3}$$

Thus, the entrepreneur's indirect utility is

$$u_e^{IS} = \alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{2.4}$$

Then, simple comparisons of (2.2), (2.3) and (2.4) conclude our result. This completes the proof of Proposition 2.

PROPOSITION 3: In IS, the Gini coefficient is $G(Y^{IS}) = A - \alpha$.

Proof of Proposition 3: Let Y^{*IS} is the average income in IS. By Proposition 1, $Y_e^{IS} = (\frac{1}{2})^{\frac{1}{2}}$, $Y_w^{IS} = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}, Y_a^{IS} = \frac{1-A}{A}\frac{\alpha}{1-\alpha}\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.Let $E = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$. Thus, $Y^{*IS} = E\frac{1-A}{1-\alpha}$. Let s_i denote segment i's population

share. Thus, $s_e = (1-A)/2 = s_w$ and $s_a = A$. Let $ti = Y_i/Y^{*IS}$. Thus, $t_e = \frac{1-\alpha}{1-A} = t_w$ and $t_a = \frac{\alpha}{A}$. Given these definitions, Gini can be calculated as follows (see equation (5) on p. 888 of Mookherjee and Shorrocks (1982): $G(Y^{IS}) = \frac{1}{2}[\sum_h \sum_k s_h s_k \, |t_h - t_k|]$. Thus, $G(Y^{IS}) = A - \alpha$. This completes the proof of Proposition 3.

PROPOSITION 4: In EP, $p_m^i(1 + \frac{2A\beta k}{1-A})$

(1) $Y_e^{EP} = \pi_m^{EP} = p_m^i(1 + \frac{2A\beta k}{1-A})\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.

(2) $Y_w^{EP} = e_m w_m = p_m^i \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.

(3) $Y_n^{EP}(\beta) = e_m \beta w_m = \beta p_m^i \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.

(4) $Y_a^{EP}(\beta) = e_a \; p_a^i = p_a^i(\frac{1}{2})^{\frac{1}{2}}$.

(5) $Y_a^{EP}(\epsilon) = e_a \; p_a^i = p_a^i(\frac{1}{2})^{\frac{1}{2}}$.

(6) $Y_n^{EP}(\epsilon) = e_m \epsilon w_m = \epsilon p_m^i \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$.

(7) $Y_e^{EP} > Y_w^{EP} > Y_n^{EP}(\beta) > Y_a^{EP}(\epsilon)$; in addition, $Y_n^{EP}(\beta) > Y_a^{EP}(\beta)$ and $Y_n^{EP}(\epsilon) < Y_a^{EP}(\epsilon)$.

Proof of Proposition 4: (1) First-order conditions of π_m^{EP} yield $\frac{1}{2}p_m^i(e_m)^{-1/2} - w_m = 0$. There is one skilled worker per entrepreneur and $\frac{kA}{(1-A)/2}$ unskilled (migrant) workers per entrepreneur. Thus, the total demand for labor is

$$(1 + \frac{2kA\beta}{(1-A)})e_m^d = (1 + \frac{2kA\beta}{(1-A)})(\frac{p_m^i}{2w_m})^2 \tag{4.1}$$

By (1.1) in the proof of Proposition 1,

$$L_w^* = \frac{1}{2}, \Rightarrow e_w^s = \frac{1}{2} \tag{4.2}$$

Thus,

$$w_m = p_m^i(\frac{1}{2})^{\frac{1}{2}} \tag{4.3}$$

Then, using (4.2) and (4.3),

$$Y_e^{EP} = \pi_m^{EP} = p_m^i(1 + \frac{2kA\beta}{(1-A)})(\frac{1}{2})^{\frac{1}{2}} - p_m^i(1 + \frac{2kA\beta}{(1-A)})\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} = p_m^i(1 + \frac{2kA\beta}{(1-A)})\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{4.4}$$

(2) Using (4.2) and (4.3)

$$Y_w^{EP} = e_m w_m = p_m^i \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{4.5}$$

(3) Using (4.2) and (4.3)

$$Y_n^{EP}(\beta) = e_m \beta w_m = \beta p_m^i \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{4.6}$$

(4) As specified in the main text,

$$Y_a^{EP}(\beta) = e_a p_a^i = p_a^i(\frac{1}{2})^{\frac{1}{2}} \tag{4.7}$$

(5) As specified in the main text,

$$Y_a^{EP}(\epsilon) = e_a p_a^i = p_a^i(\frac{1}{2})^{\frac{1}{2}} \tag{4.8}$$

(6) Using (4.2) and (4.3)

$$Y_n^{EP}(\epsilon) = e_m \epsilon w_m = \epsilon p_m^i \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{4.9}$$

(7) The first part follows from (4.4) - (4.7). The second part follows (4.6) - (4.9) and our assumptions that $\epsilon < p_a^i$ and $p_a^i < \beta < 1$. This completes the proof of Proposition 4.

PROPOSITION 5: In EP, $u_e^{EP} > u_w^{EP} > u_n^{EP}(\beta) > u_a^{EP}(\epsilon)$. In addition, $u_n^{EP}(\beta) > u_a^{EP}(\beta)$ and $u_n^{EP}(\epsilon) < u_a^{EP}(\epsilon)$.

Proof of Proposition 5: Mimic the proof of Proposition 2 using Y_i^{EP} to find the indirect utilities of each agent i.

$$u_e^{EP} = \alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha(\frac{1}{p_m^i})^{1-\alpha}(1+\frac{2kA\beta}{(1-A)})p_m^i\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{5.1}$$

$$u_w^{EP} = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha(\frac{1}{p_m^i})^{1-\alpha}p_m^i\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{5.2}$$

$$u_n^{EP}(\beta) = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha(\frac{1}{p_m^i})^{1-\alpha}p_m^i\beta\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{5.3}$$

$$u_a^{EP}(\epsilon) = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha(\frac{1}{p_m^i})^{1-\alpha}p_a^i(\frac{1}{2})^{\frac{1}{2}} \tag{5.4}$$

$$u_a^{EP}(\beta) = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha(\frac{1}{p_m^i})^{1-\alpha}p_a^i(\frac{1}{2})^{\frac{1}{2}} \tag{5.5}$$

$$u_n^{EP}(\epsilon) = \frac{1}{2}\alpha^\alpha(1-\alpha)^{1-\alpha}(\frac{1}{p_a^i})^\alpha(\frac{1}{p_m^i})^{1-\alpha}p_m^i\epsilon\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}} \tag{5.6}$$

Then, by using our assumption that $\frac{p_m^i}{p_m^d} > \frac{p_a^i}{p_a^d}$, simple but tedious comparisons of (5.1) - (5.6) yield our result. This completes the proof of Proposition 5.

Proof of Theorem 3: By Part 7 of Proposition 4, $Y_e^{EP} > Y_w^{EP} > Y_n^{EP}(\beta) > Y_a^{EP}(\epsilon)$. Let Y^{*EP} is the average income in EP. By Proposition 4, $Y_e^{EP} = \pi_m^{EP} = p_m^i(1+\frac{2A\beta k}{1-A})\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$, $Y_w^{EP} = e_m w_m = p_m^i\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$, $Y_n^{EP}(\beta) = e_m\beta w_m = \beta p_m^i\frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$, $Y_a^{EP}(\epsilon) = e_a\ p_a^i = p_a^i(\frac{1}{2})^{\frac{1}{2}}$. Let $E = \frac{1}{2}(\frac{1}{2})^{\frac{1}{2}}$. Thus, $Y^{*EP} = E[(1-A+2kA)p_m^i + 2(1-k)Ap_a^i]$. Let s_i denote segment i's population share. Thus, $s_e = (1-A)/2 = s_w$ and $s_a = A$. Let $ti = Y_i/Y^{*IS}$. Thus, $t_e = \frac{1-\alpha}{1-A} = t_w$ and $t_a = \frac{\alpha}{A}$. Given these definitions, Gini can be calculated as follows (see equation (5) on p. 888 of Mookherjee and Shorrocks (1982): $G(Y^{IS}) = \frac{1}{2}[\sum_h\sum_k s_h s_k\,|t_h - t_k|]$. Let $\Delta = p_m^i - p_a^i$. Lengthy and tedious calculations yield

$$G(Y^{IS}) = \frac{A(1-A)+2kA2-k2A2-kA(1-A)/2-(1-k)A\Delta+(1-k)2A2\Delta}{(1-A+2kA)p_m^i+2(1-k)Ap_a^i} \tag{T3.1}$$

So,

$$\Delta G = G(Y^{EP}) - G(Y^{IS}) = \frac{A(1-A)+2kA2-k2A2-kA(1-A)/2-(1-k)A\Delta+(1-k)2A2\Delta}{(1-A+2kA)p_m^i+2(1-k)Ap_a^i} - A + \alpha \tag{T3.2}$$

The derivatives are long and cumbersome. We will omit the derivations of them. The reader can verify them through Mathematica.

$\partial(G)/\partial\alpha = 1$.

$\partial(G)/\partial\beta = -\frac{(Ak)^2}{(1-A+2kA)p_m^i+2(1-k)Ap} < 0$.

This completes the proof of Theorem 3.

D.DATA DEFINITIONS AND SOURCES

Income Gini: Income Gini index; 0-100 scale; obtained from UNU/WIDER (2005)

IS-EP: dummy variable; obtained from Sachs and Warner (1995) and Wacziarg and Welch (2003).

Migration rate: rate of decline in agricultural labor force, adjusted for population growth in the country; 0%-100% scale; calculated following Larson and Mundlak (1997).

Agricultural labor force: obtained from FAO web site (www.fao.org) and World Development Indicators (WDI) CD-ROOM (1999, 2003).

Rural Schooling: Share of rural population with no schooling, primary schooling and secondary schooling; 0%-100% scale; obtained from UNESCO Educational Yearbooks (various issues).

FX/GDP: Percentage change in the share of foreign exchange reserves, including gold, in GDP; obtained from WDI CD-ROM (2003).

Political Freedom: political rights and civil liberties index; 0-100 scale; political freedom index for the years 1960 and 1965 is obtained from Bollen (1990) in a 0-1 scale, from 1972 onwards, the average of political rights and civil liberties index of Gastil index (www.freedomhouse.org) is used. Both indices are transformed in to the 0-100 scale, where 100 denotes the most democratic regimes.

Population growth rate: obtained from WDI CD-ROM (2003).

Agricultural GDP: obtained from WDI CD-ROM (2003).

Agricultural imports and exports: obtained from FAO Trade Yearbook (various issues).

Agricultural-to-nonagricultural terms-of-trade: Agricultural price deflator divided by non-agricultural price deflator. Calculated from data in WDI CD-ROM (2003).

Rural and urban years of educational attainment: obtained from Ulubasoglu and Cardak (2006).

Inflation: rate of change in GDP deflator; 0%-100% scale; obtained from WDI CD-ROM (2003).

Land Gini: in logs; obtained from Deininger and Olinto (2000) and FAO Web site.

Population: obtained from WDI CD-ROM (2003).

Ethnic Fractionalization: 0-100 scale; obtained from Alesina et al. (2003).

Life Expectancy: obtained from WDI CD-ROM (2003).

Area: Geographical surface area in square kilometers; obtained from WDI CD-ROM (2003).

M2/GDP: in 0%-100% scale; obtained from WDI CD-ROM (2003).

E.INEQUALITY DATA FOR ESTIMATIONS

Using the UNU/WIDER's (2005) compilation of inequality data, we build a consistent inequality series for each country over 5-year intervals. First, population coverage "All" is preferred over the other coverages. Then, a higher quality construction is preferred over the others. Next, for a given quality, gross income is taken as benchmark (gross income is preferred over monetary income, earnings, if multiple constructions exit for a country for a specific year). Household is usually the appropriate unit of analysis for inequality studies (Kuznets, 1973), and thus is stuck to. But if person-based Ginis would provide a consistent series, then they are preferred. Expenditure and consumption are taken as same, while a distinction is made between income, monetary income and earnings (note that a further distinction is made between net and gross). Finally, different constructions are corrected with dummies (expenditure/consumption, net income, monetary income, earnings, person, and Gini quality).

F. APPROXIMATION OF THE β DATA

Countries	Beta data matched	Countries	Beta data matched
Australia	**New Zealand 1981 (*)**	Kenya	Kenya 1969
Bangladesh	Bangladesh 1981	Korea, Rep.	Korea, Rep. 1970
Bolivia	Bolivia 1992	**Madagascar**	**Cameroon 1976**
Brazil	Brazil 1980	Malaysia	Malaysia 1970
Burkina Faso	**Mali 1975**	Mali	Mali 1975
Cameroon	Cameroon 1976	**Mauritania**	**Mali 1976**
Chile	Chile 1970	**Mexico**	**Brazil 1980 (*)**
Colombia	Colombia 1973	**Morocco**	**Tunisia 1984 (*)**
Costa Rica	Costa Rica 1973	Nepal	Nepal 1981
Cote d'Ivoire	**Mali 1975**	New Zealand	New Zealand 1981
Dominican Republic	Dominican Republic, 1970	Panama	Panama 1980
Ecuador	Ecuador 1970	**Peru**	**Ecuador 1970**
Egypt, Arab Rep.	Egypt 1986	Philippines	Phillippines 1995
El Salvador	El Salvador 1971	South Africa	South Africa 1970
Ethiopia	Ethiopia 1994	Sri Lanka	Sri Lanka 1981
Ghana	**Mali 1975**	**Tanzania**	**Kenya 1969 (*)**
Guatemala	Guatemala 1973	Tunisia	Tunisia 1984
Honduras	Honduras 1974	Turkey	Turkey 1993
India	India 1991	**Uganda**	**Kenya 1969**
Indonesia	Indonesia 1980	Venezuela	Venezuela 1990
Jamaica	**Canada 1991**	Zambia	Zambia 1980
Japan	Japan 1970		

Notes:

1. Those in **bolds** are approximated. (*): Approximation by way of Bourguignon and Morrisson (2002).
2. The variety of countries available to us for approximation (57 countries available for 12) is greater than Bourguignon and Morrisson (33 countries for the whole world), so we do not use all of their approximations.
3. Years next to the countries denote the year of availability of the β data.

G. ESTIMATION RESULTS

Table 0. Summary Statistics (10-Year Focus)

	Variable	Mean	Median	Max.	Min.	Std. Dev.	Obs. ‡
Developing Countries	Gini+	46.97	47.00	61.00	30.00	8.36	55
	β	0.51	0.49	0.93	0.13	0.16	56
	α (%)	17.95	16.79	51.50	3.75	10.88	56
	Migr. Rate (%)	12.23	12.28	26.04	0	6.02	56
	RurNoSch. (%)	49.99	45.90	98.70	0.90	25.16	54
	RurSecSch. (%)	6.19	3.50	29.70	0.50	7.78	50
	FMV	0.36	0	1	0	0.48	56
	WMV	0.64	1	1	0	0.48	56
Developed Countries	Gini+	33.71	33.88	41.60	27.80	5.38	6
	β	0.93	0.92	1	0.87	0.06	6
	α (%)	7.87	8.15	14.45	2.18	4.69	6
	Migr. Rate (%)	16.98	18.01	28.22	6.53	8.66	6
	RurNoSch. (%)	1	1	1	1	0	6
	RurSecSch. (%)	26.70	30.10	30.10	19.90	5.27	6
	FMV	0	0	0	0	0	6
	WMV	1	1	1	1	1	6
SS African Countries	Gini+	50.07	48.35	77.30	36.15	11.99	26
	β	0.33	0.39	0.62	0.06	0.16	26
	α (%)	31.65	31.04	54.31	4.37	14.66	26
	Migr. Rate (%)	4.92	3.31	19.92	0	5.96	26
	RurNoSch. (%)	84.14	79.50	97.50	59.90	12.64	26
	RurSecSch. (%)	1.30	0.63	5.60	0.20	1.63	20
	FMV	0,92	1	1	0	0.27	26
	WMV	0.08	0	1	0	0.27	26

Note. + : uncorrected for construction differences. ‡: Sri Lanka is counted twice to the number of countries.

Table 1a. ISEP Equation - All Countries (SS African Effects Separated) - 10 Year Focus

	Dependent Variable: ISEP					
FMV*RurNoSch.	0.004	0.005	0.010	0.021	0.024	0.025
	(0.47)	(0.55)	(0.85)	(1.73)*	(1.68)*	(1.88)*
FMV*α*RurSecSch.	-0.004	-0.005	-0.005	-0.008	-0.008	-0.008
	(1.02)	(1.07)	(1.02)	(1.51)*	(1.61)*	(1.65)*
FMV*β(IS)*RurSecSch.	0.123	0.136	0.157	0.263	0.291	0.293
	(1.02)	(1.08)	(1.09)	(1.70)*	(1.74)*	(1.84)*
WMV	-0.016	0.025	0.509	0.850	0.918	0.955
	(0.03)	(0.04)	(0.68)	(1.51)*	(1.47)*	(1.79)*
Afr.*FMV*RurNoSch.	-0.004	-0.012	-0.021	-0.017	-0.035	-0.045
	(0.74)	(1.35)	(1.86)*	(1.54)*	(2.17)**	(1.90)*
Afr.*FMV*α*RurSecSch.	0.002	0.000	0.006	0.009	0.010	0.010
	(0.26)	(0.05)	(0.65)	(0.97)	(1.01)	(1.11)
Afr.*FMV*β(IS)*RurSecSch.	-0.049	-0.116	-0.506	-0.414	-0.008	-0.231
	(0.16)	(0.39)	(1.17)	(0.55)	(0.01)	(0.21)
Afr.*WMV	0.000	-0.474	-0.616	-0.511	-0.670	-0.729
	(0.000)	(1.17)	(1.67)*	(0.94)	(1.78)*	(1.43)*
Land Gini		0.062	-0.343	0.169	-0.015	-0.094
		(0.18)	(0.77)	(0.39)	(0.03)	(0.21)
Afr.*Land Gini		-0.590	-1.117	-0.864	-2.407	-2.579
		(0.85)	(1.16)	(0.80)	(1.49)*	(1.64)*
Pol. Freedom		-0.003	-0.000	-0.001	0.000	0.002
		(0.71)	(0.05)	(0.28)	(0.06)	(0.45)
Afr.*PolFreedom		0.009	0.013	0.010	0.010	0.011
		(1.17)	(1.50)*	(1.09)	(1.02)	(0.94)
Infl.			-0.001		-0.001	-0.002
			(1.57)*		(0.98)	(1.14)
Infl.(-1)			0.008		0.011	0.013
			(1.90)*		(1.18)	(1.34)
Infl.(-2)			-0.011		-0.012	-0.013
			(1.00)		(0.73)	(0.80)
Afr.*Infl.			-0.017		-0.005	-0.009
			(1.25)		(0.31)	(0.49)
Afr.*Infl.(-1)			0.018		0.009	0.006
			(0.94)		(0.44)	(0.30)
Afr.*Infl.(-2)			0.023		0.030	0.034
			(1.05)		(1.11)	(1.25)
FXRes/GDP				0.744	0.540	0.547
				(2.17)**	(1.56)*	(1.54)*
FXRes/GDP(-1)				0.598	0.621	0.644
				(1.38)	(1.34)	(1.42)*
FXRes/GDP(-2)				-0.948	-1.116	-1.112
				(1.53)*	(1.30)	(1.38)
Afr.*FXRes/GDP				-1.035	-0.733	-0.873
				(2.43)**	(1.61)*	(1.78)*
Afr.*FXRes/GDP(-1)				-0.491	-0.503	-0.568
				(0.99)	(0.93)	(1.07)
Afr.*FXRes/GDP(-2)				1.244	1.438	1.721
				(1.15)	(1.13)	(1.31)
TOT (Ag/Nonag)						-0.208
						(0.71)
Afr.*TOT (Ag/Nonag)						0.955
						(0.76)
Observations	74	74	68	68	66	66
Pseudo R-sq.	0.01	0.03	0.18	0.19	0.29	0.30

Marginal effects reported. Absolute value of the robust z statistics in parentheses. * significant if z statistic is greater than 1.4; ** significant if greater than 2; *** significant if greater than 2.5. β(IS) is the relative productivity between rural population which has experienced no migration, and the urban population.

Table 1b. ISEP Equation - All Countries (SS African Effects Separated) - 20 Year Focus

	Dependent Variable: ISEP					
FMV*RurNoSch.	0.005	0.005	0.009	0.007	0.012	0.013
	(0.68)	(0.76)	(1.35)	(0.73)	(1.77)*	(1.91)*
FMV*α*RurSecSch.	-0.006	-0.006	-0.005	-0.006	-0.006	-0.005
	(1.84)*	(1.87)*	(2.11)**	(1.51)*	(2.09)**	(2.01)**
FMV*β(IS)*RurSecSch.	0.162	0.171	0.164	0.173	0.185	0.180
	(1.92)*	(2.00)**	(2.34)**	(1.62)*	(2.37)**	(2.32)**
WMV	0.093	0.155	0.544	0.339	0.748	0.859
	(0.18)	(0.31)	(1.01)	(0.53)	(1.55)*	(1.89)*
Afr.*FMV*RurNoSch.	-0.005	-0.013	-0.011	-0.009	-0.015	-0.011
	(1.15)	(2.19)**	(2.36)**	(1.23)	(2.07)**	(1.34)
Afr.*FMV*α*RurSecSch.	0.009	0.005	0.010	0.009	0.011	0.009
	(1.20)	(0.68)	(1.72)*	(0.97)	(1.68)*	(1.46)*
Afr.*FMV*β(IS)*RurSecSch.	-0.255	-0.316	-0.474	-0.349	-0.109	0.077
	(0.93)	(1.22)	(1.84)*	(0.50)	(0.21)	(0.14)
Afr.*WMV	-0.048	-0.563	-0.790	-0.540	-0.835	-0.684
	(0.19)	(2.25)**	(1.91)*	(1.39)	(1.71)*	(0.66)
Land Gini		-0.002	-0.375	-0.212	-0.379	-0.444
		(0.01)	(1.68)*	(0.69)	(1.57)*	(1.79)*
Afr.*Land Gini		-0.587	-0.325	-0.361	-0.760	-0.781
		(1.07)	(0.77)	(0.49)	(1.06)	(0.99)
Pol. Freedom		-0.003	0.002	-0.002	0.002	0.004
		(1.23)	(0.70)	(0.53)	(0.77)	(1.49)*
Afr.*PolFreedom		0.013	0.009	0.013	0.007	0.003
		(2.00)**	(1.62)*	(1.64)*	(1.09)	(0.42)
Infl.			-0.001		-0.000	-0.000
			(1.35)		(1.15)	(1.10)
Infl.(-1)			0.004		0.003	0.003
			(1.44)*		(1.44)*	(1.35)
Infl.(-2)			0.002		0.005	0.005
			(2.02)**		(2.28)**	(2.34)**
Afr.*Infl.			-0.009		-0.003	-0.003
			(1.04)		(0.29)	(0.28)
Afr.*Infl.(-1)			0.007		0.002	0.006
			(0.56)		(0.12)	(0.46)
Afr.*Infl.(-2)			0.008		0.018	0.013
			(0.78)		(1.11)	(0.78)
FXRes/GDP				0.629	0.260	0.282
				(2.40)**	(1.38)	(1.49)*
FXRes/GDP(-1)				0.580	0.176	0.189
				(2.37)**	(0.86)	(0.90)
FXRes/GDP(-2)				-0.189	-0.438	-0.414
				(1.12)	(1.97)*	(2.00)**
Afr.*FXRes/GDP				-1.031	-0.559	-0.477
				(2.92)***	(2.00)**	(1.65)*
Afr.*FXRes/GDP(-1)				-0.416	0.064	-0.003
				(1.35)	(0.24)	(0.01)
Afr.*FXRes/GDP(-2)				-0.155	0.042	0.103
				(0.34)	(0.11)	(0.29)
TOT (Ag/Nonag)						-0.220
						(1.79)*
Afr.*TOT (Ag/Nonag)						-0.119
						(0.31)
Observations	125	125	114	116	112	112
Pseudo R-sq.	0.02	0.07	0.21	0.17	0.28	0.31

Marginal effects reported. Absolute value of the robust z statistics in parentheses. * significant if z statistic is greater than 1.4; ** significant if greater than 2; *** significant if greater than 2.5. β(IS) is the relative productivity between rural population which has experienced no migration, and the urban population. This level changes over time as specified in the text.

Table 1c. ISEP Equation - All Countries (SS African Effects Separated) - 30 Year Focus

	Dependent Variable: ISEP					
FMV*RurNoSch.	0.004	0.004	0.005	0.005	0.003	0.004
	(0.59)	(0.64)	(1.46)*	(0.59)	(1.41)*	(1.51)*
FMV*α*RurSecSch.	-0.007	-0.007	-0.004	-0.007	-0.002	-0.003
	(2.16)**	(2.12)**	(2.24)**	(2.03)**	(2.44)**	(2.39)**
FMV*β(IS)*RurSecSch.	0.185	0.187	0.113	0.205	0.070	0.093
	(2.25)**	(2.25)**	(2.47)**	(2.16)**	(2.61)***	(2.59)***
WMV	-0.009	0.066	0.297	0.112	0.184	0.416
	(0.02)	(0.14)	(0.89)	(0.18)	(0.80)	(1.19)
Afr.*FMV*RurNoSch.	-0.005	-0.013	-0.006	-0.009	-0.004	-0.003
	(1.35)	(2.37)**	(2.54)***	(1.48)*	(1.81)*	(0.87)
Afr.*FMV*α*RurSecSch.	0.009	0.006	0.007	0.012	0.005	0.005
	(1.23)	(0.82)	(2.08)**	(1.36)	(2.21)**	(1.86)*
Afr.*FMV*β(IS)*RurSecSch.	-0.250	-0.345	-0.329	-0.753	-0.175	-0.069
	(0.96)	(1.35)	(2.10)**	(1.14)	(1.03)	(0.30)
Afr.*WMV	-0.155	-0.561	-0.781	-0.552	-0.652	0.017
	(0.67)	(2.64)***	(2.04)**	(1.76)*	(1.34)	(0.05)
Land Gini		-0.056	-0.234	-0.258	-0.155	-0.239
		(0.25)	(2.08)**	(1.02)	(2.18)**	(2.47)**
Afr.*Land Gini		-0.513	-0.153	-0.055	-0.061	-0.159
		(0.99)	(0.65)	(0.08)	(0.28)	(0.54)
Pol. Freedom		-0.002	0.001	-0.001	0.001	0.002
		(1.03)	(1.20)	(0.37)	(1.25)	(2.20)**
Afr.*PolFreedom		0.014	0.005	0.015	0.003	0.001
		(2.17)**	(1.62)*	(2.10)**	(1.21)	(0.25)
Infl.			-0.000		-0.000	-0.000
			(1.35)		(1.25)	(1.25)
Infl.(-1)			0.002		0.001	0.002
			(1.41)*		(1.37)	(1.39)
Infl.(-2)			0.003		0.003	0.003
			(1.94)*		(1.97)*	(1.87)*
Afr.*Infl.			-0.005		-0.003	-0.003
			(1.08)		(0.75)	(0.56)
Afr.*Infl.(-1)			0.004		0.000	0.003
			(0.52)		(0.11)	(0.53)
Afr.*Infl.(-2)			0.004		0.004	0.004
			(0.59)		(0.91)	(0.63)
FXRes/GDP				0.335	0.027	0.074
				(1.54)*	(0.45)	(0.92)
FXRes/GDP(-1)				0.222	0.011	0.040
				(1.38)	(0.19)	(0.50)
FXRes/GDP(-2)				-0.029	-0.103	-0.114
				(0.20)	(1.61)*	(1.40)*
Afr.*FXRes/GDP				-0.623	-0.086	-0.093
				(2.02)**	(1.00)	(0.80)
Afr.*FXRes/GDP(-1)				-0.125	0.062	0.030
				(0.47)	(0.75)	(0.28)
Afr.*FXRes/GDP(-2)				-0.239	0.010	0.028
				(0.55)	(0.08)	(0.18)
TOT (Ag/Nonag)						-0.130
						(2.72)***
Afr.*TOT (Ag/Nonag)						-0.126
						(0.75)
Observations	160	160	148	150	145	144
Pseudo R-sq.	0.03	0.07	0.24	0.11	0.27	0.32

Marginal effects reported. Absolute value of the robust z statistics in parentheses. * significant if z statistic is greater than 1.4; ** significant if greater than 2; *** significant if greater than 2.5. β(IS) is the relative productivity between rural population which has experienced no migration, and the urban population. This level changes over time as specified in the text.

Table 1d. ISEP Equation - All Countries (SS African Effects Separated) - 40 Year Focus

	Dependent Variable: ISEP					
FMV*RurNoSch.	0.003	0.004	0.006	0.004	0.005	0.005
	(0.52)	(0.61)	(1.45)*	(0.51)	(1.37)	(1.39)
FMV*α*RurSecSch.	-0.007	-0.007	-0.006	-0.008	-0.004	-0.005
	(2.47)**	(2.46)**	(2.36)**	(2.53)***	(2.70)***	(2.70)***
FMV*β(IS)*RurSecSch.	0.207	0.209	0.167	0.232	0.124	0.134
	(2.54)***	(2.56)***	(2.52)***	(2.61)***	(2.82)***	(2.83)***
WMV	-0.118	-0.020	0.236	-0.064	0.162	0.323
	(0.25)	(0.04)	(0.68)	(0.11)	(0.58)	(0.92)
Afr.*FMV*RurNoSch.	-0.005	-0.012	-0.008	-0.008	-0.006	-0.004
	(1.61)*	(2.21)**	(2.36)**	(1.28)	(1.76)*	(0.87)
Afr.*FMV*α*RurSecSch.	0.011	0.008	0.010	0.014	0.008	0.007
	(1.55)*	(1.16)	(2.37)**	(1.62)*	(2.44)**	(2.02)**
Afr.*FMV*β(IS)*RurSecSch.	-0.374	-0.421	-0.481	-0.812	-0.298	-0.116
	(1.45)*	(1.70)*	(2.74)***	(1.21)	(1.11)	(0.38)
Afr.*WMV	-0.199	-0.532	-0.793	-0.504	-0.709	0.050
	(0.95)	(2.37)**	(1.96)*	(1.43)*	(1.28)	(0.14)
Land Gini		-0.137	-0.321	-0.328	-0.282	-0.338
		(0.67)	(2.45)**	(1.48)*	(2.74)***	(2.83)***
Afr.*Land Gini		-0.344	-0.180	0.118	-0.068	-0.186
		(0.67)	(0.55)	(0.18)	(0.19)	(0.48)
Pol. Freedom		-0.000	0.003	0.002	0.002	0.004
		(0.14)	(2.08)**	(0.77)	(2.13)**	(2.96)***
Afr.*PolFreedom		0.012	0.005	0.012	0.003	0.000
		(2.02)**	(1.47)*	(1.83)*	(1.02)	(0.05)
Infl.			-0.000		-0.000	-0.000
			(1.50)*		(1.52)*	(1.50)*
Infl.(-1)			0.003		0.003	0.003
			(1.54)*		(1.54)*	(1.58)*
Infl.(-2)			0.004		0.003	0.003
			(2.01)**		(2.06)**	(2.07)**
Afr.*Infl.			-0.007		-0.005	-0.003
			(1.06)		(0.76)	(0.53)
Afr.*Infl.(-1)			0.005		-0.000	0.003
			(0.48)		(0.02)	(0.44)
Afr.*Infl.(-2)			0.007		0.010	0.006
			(0.76)		(1.27)	(0.75)
FXRes/GDP				0.130	-0.040	0.030
				(0.64)	(0.42)	(0.31)
FXRes/GDP(-1)				0.192	-0.034	-0.004
				(1.31)	(0.37)	(0.04)
FXRes/GDP(-2)				0.018	-0.125	-0.106
				(0.13)	(1.35)	(1.06)
Afr.*FXRes/GDP				-0.496	-0.071	-0.057
				(1.62)*	(0.52)	(0.38)
Afr.*FXRes/GDP(-1)				-0.084	0.158	0.100
				(0.32)	(1.20)	(0.69)
Afr.*FXRes/GDP(-2)				-0.397	-0.058	-0.015
				(0.91)	(0.31)	(0.08)
TOT (Ag/Nonag)						-0.197
						(3.25)***
Afr.*TOT (Ag/Nonag)						-0.160
						(0.74)
Observations	183	183	166	167	161	159
Pseudo R-sq.	0.04	0.07	0.25	0.11	0.26	0.33

Marginal effects reported. Absolute value of the robust z statistics in parentheses. * significant if z statistic is greater than 1.4; ** significant if greater than 2; *** significant if greater than 2.5. β(IS) is the relative productivity between rural population which has experienced no migration, and the urban population. This level changes over time as specified in the text.

Table 2. Migration Equation - All Countries (SS African Effects Separated)

	Dep. Var.: Migr. Rate -10 Year				Dep. Var.: Migr. Rate -20 Year				Dep. Var.: Migr. Rate -30 Year				Dep. Var.: Migr. Rate -40 Year			
ISEP	3.342	3.592	3.382	7.698	0.616	1.103	1.263	2.171	-3.003	-2.602	-2.420	-6.808	-4.506	-4.628	-4.477	-3.917
	(0.59)	(0.74)	(0.75)	(1.32)	(0.16)	(0.32)	(0.38)	(0.21)	(0.86)	(0.83)	(0.78)	(-066)	(1.40)*	(1.60)*	(1.54)*	(-0.42)
RurNoSch.	-0.057	0.030	0.023	-0.047	-0.065	0.014	0.019	-0.182	-0.081	0.002	0.012	-0.144	-0.087	-0.005	0.003	-0.032
	(0.82)	(0.50)	(0.41)	(-0.68)	(1.31)	(0.31)	(0.43)	(-2.23)**	(2.00)**	(0.06)	(0.33)	(-1.80)*	(2.49)**	(0.17)	(0.09)	(-0.35)
ISEP*RurNoSch.	-0.025	-0.045	-0.046	-0.192	0.029	-0.006	-0.013	-0.335	0.077	0.036	0.025	-0.139	0.106	0.058	0.047	-0.124
	(0.26)	(0.59)	(0.65)	(-2.08)**	(0.44)	(0.10)	(0.24)	(-1.72)*	(1.36)	(0.76)	(0.54)	(-0.74)	(1.96)*	(1.31)	(1.07)	(-0.82)
RurSecSch.	-0.212	-0.164	-0.178	-0.867	-0.245	-0.188	-0.181	-2.071	-0.338	-0.276	-0.265	-1.332	-0.339	-0.309	-0.300	-0.925
	(1.25)	(0.92)	(1.10)	(-2.96)***	(2.02)**	(1.44)*	(1.42)*	(-3.67)***	(3.19)***	(2.46)**	(2.36)**	(-3.79)***	(3.64)***	(2.97)***	(2.87)***	(-2.66)***
ISEP*RurSecSch.	-0.107	-0.131	-0.128	0.068	-0.030	-0.080	-0.099	1.264	0.148	0.081	0.058	0.827	0.219	0.153	0.132	0.524
	(0.46)	(0.57)	(0.61)	(0.19)	(0.19)	(0.51)	(0.65)	(2.06)**	(1.03)	(0.59)	(0.42)	(1.68)*	(1.59)*	(1.18)	(1.01)	(1.00)
SS Afr.*ISEP	37.439	-63.863	-54.433	-32.732	48.002	2.142	2.366	23.732	48.615	-1.883	-12.475	134.199	50.114	-3.156	-12.619	86.628
	(1.55)*	(2.82)***	(2.45)**	(-0.85)	(3.53)***	(0.08)	(0.09)	(0.18)	(3.64)***	(0.08)	(0.54)	(0.82)	(3.77)***	(0.13)	(0.66)	(0.64)
Afr.*RurNoSch.	-0.071	-0.485	-0.343	-0.302	-0.054	-0.275	-0.337	-0.191	-0.059	-0.325	-0.487	-0.149	-0.047	-0.312	-0.479	-1.212
	(1.70)*	(4.64)***	(3.56)***	(-1.74)*	(1.63)*	(1.80)*	(2.49)**	(-0.39)	(2.06)**	(2.20)**	(3.47)***	(-0.31)	(1.87)*	(2.33)**	(4.37)***	(-2.41)**
Afr.*ISEP*RurNoSch.	-0.383	0.673	0.583	0.454	-0.540	-0.050	-0.041	0.035	-0.551	-0.014	0.115	-1.145	-0.587	-0.005	0.113	-0.698
	(1.43)*	(2.59)***	(2.29)**	(1.10)	(3.44)***	(0.18)	(0.15)	(0.03)	(3.65)***	(0.05)	(0.47)	(-0.71)	(3.90)***	(0.02)	(0.54)	(-0.51)
Afr*RurSecSch.	-0.559	-3.244	-1.905	-1.341	-0.355	-1.834	-2.217	-2.028	0.230	-1.679	-3.163	-0.814	-0.310	-1.923	-3.435	-5.233
	(0.95)	(4.38)***	(2.89)***	(-1.00)	(0.45)	(2.00)**	(2.37)**	(-0.29)	(0.19)	(1.55)*	(3.01)***	(-0.11)	(0.42)	(2.29)**	(4.77)***	(-1.32)
Afr*ISEP*RurSecSch.	-2.931	6.022	5.306	4.571	-3.751	1.085	1.004	4.448	-4.390	1.292	2.148	-1.000	-3.920	1.917	2.510	-1.072
	(1.68)*	(4.16)***	(3.47)***	(1.43)*	(2.89)***	(0.54)	(0.50)	(0.34)	(2.76)***	(0.64)	(1.18)	(-0.06)	(3.05)***	(1.05)	(1.74)*	(-0.11)
Land Gini		1.499	0.416	-3.310		0.472	-0.819	-18.219		-0.400	-1.669	-6.268		-3.152	-4.002	-4.710
		(0.35)	(0.10)	(-0.91)		(0.16)	(0.28)	(-3.54)***		(0.12)	(0.53)	(-1.21)		(0.84)	(1.06)	(-1.22)
LifeExp.		0.474	0.558	0.838		0.405	0.482	0.996		0.435	0.529	0.882		0.512	0.597	0.859
		(4.49)***	(4.76)***	(9.22)***		(4.42)***	(4.80)***	(6.57)***		(4.57)***	(5.01)***	(6.09)***		(5.16)***	(5.42)***	(5.89)***
Afr.*Land Gini		-24.440	-23.359	-12.658		-13.487	-11.378	5.024		-13.878	-11.898	-9.589		-11.660	-9.505	-27.745
		(3.65)***	(3.08)***	(-2.52)***		(1.83)*	(1.57)*	(0.46)		(1.94)*	(1.90)*	(-0.85)		(1.70)*	(1.52)*	(-2.25)**
Afr.*LifeExp.		0.557	0.598	0.135		0.302	0.146	-0.055		0.374	0.125	0.145		0.385	0.067	1.388
		(4.91)***	(2.86)***	(1.13)		(1.57)*	(0.70)	(-0.20)		(1.92)*	(0.73)	(0.35)		(2.26)**	(0.40)	(2.09)**
Ln(Area)			0.874	-0.121			0.558	-1.200			0.384	0.195			0.227	-0.105
			(1.69)*	(-0.25)			(1.58)*	(-1.83)*			(1.29)	(0.39)			(0.83)	(-0.27)
Pol. Freedom			-0.014	-0.090			0.001	-0.143			-0.003	-0.126			-0.011	-0.038
			(0.33)	(-2.43)**			(0.02)	(-1.76)*			(0.11)	(-2.28)**			(0.45)	(-0.94)
Afr.*Ln(Area)			-1.076	0.547			1.235	1.069			2.315	-0.142			2.583	2.315
			(1.10)	(0.62)			(1.38)	(0.35)			(2.66)***	(-0.04)			(3.33)***	(0.87)
Afr.*PolFreedom			-0.029	0.023			-0.041	-0.031			-0.034	-0.282			-0.020	-0.438
			(0.54)	(0.51)			(0.76)	(-0.14)			(0.68)	(-0.92)			(0.47)	(-1.52)*
Constant	16.243	-17.985	-33.579	-26.610	16.759	-12.823	-25.616	-8.761	18.544	-13.413	-24.966	-21.660	18.548	-18.567	-26.832	-29.997
	(4.03)***	(2.54)***	(3.06)***	(-2.37)**	(5.97)***	(2.05)**	(2.89)***	(-0.49)	(7.25)***	(2.03)**	(2.90)***	(-1.39)	(8.38)***	(2.75)***	(2.98)***	(-2.04)**
Estimation Method.	OLS	OLS	OLS	GMM	OLS	OLS	OLS	GMM	OLS	OLS	OLS	GMM	OLS	OLS	OLS	GMM
Observations	73	73	73	72	125	125	125	124	161	161	161	160	185	185	185	184
Adjusted R-squared	0.21	0.43	0.44	-	0.26	0.39	0.40	-	0.22	0.37	0.38	-	0.20	0.36	0.38	-

Absolute value of the robust t statistics in parentheses. * significant if t statistic is greater than 1.4; ** significant if greater than 2; *** significant if greater than 2.5. GMM estimation delivers negative adjusted R-squared.

Table 3. Inequality Equation - All Countries (SS African Effects Separated)

	Dep. Var: Gini – 10 Year Focus				Dep. Var: Gini – 20 Year Focus				Dep. Var: Gini – 30 Year Focus				Dep. Var: Gini – 40 Year Focus			
ISEP	6.565	5.807	4.957	3.378	6.724	7.051	4.241	4.196	6.221	6.809	4.107	4.207	6.237	6.728	3.861	4.025
	(1.09)	(0.81)	(0.82)	(0.54)	(1.53)*	(1.42)*	(1.15)	(1.02)	(1.65)*	(1.65)*	(1.31)	(1.21)	(1.78)*	(1.72)*	(1.37)	(1.27)
α	-0.373	-0.344	-0.063	-0.320	-0.253	-0.258	0.031	-0.221	-0.230	-0.241	0.069	-0.210	-0.239	-0.257	0.054	-0.235
	(2.90)***	(2.16)**	(0.30)	(1.96)*	(2.10)**	(1.88)*	(0.24)	(1.79)*	(2.17)**	(1.90)*	(0.57)	(1.86)*	(2.61)***	(2.29)**	(0.51)	(2.36)**
ISEP*α	0.144	0.096	0.168	0.199	0.040	-0.040	0.120	0.090	0.028	-0.042	0.113	0.105	-0.001	-0.067	0.121	0.111
	(0.66)	(0.37)	(0.74)	(0.85)	(0.22)	(0.19)	(0.81)	(0.52)	(0.17)	(0.23)	(0.86)	(0.67)	(0.01)	(0.38)	(1.00)	(0.77)
ISEP5*β5(EP)*Migr5	-0.922	-0.693	-0.666	-0.511	-0.876	-0.730	-0.561	-0.502	-0.764	-0.640	-0.465	-0.463	-0.735	-0.601	-0.459	-0.452
	(2.79)***	(1.63)*	(1.73)*	(1.35)	(3.69)***	(2.58)***	(2.37)**	(2.02)**	(3.76)***	(2.88)***	(2.55)***	(2.33)**	(3.72)***	(2.89)***	(2.84)***	(2.53)***
ISEP10*β10(EP)*Migr10					0.248	0.224	0.213	0.234	0.258	0.235	0.232	0.260	0.240	0.207	0.222	0.256
					(1.23)	(1.04)	(1.20)	(1.18)	(1.31)	(1.15)	(1.47)*	(1.43)*	(1.22)	(1.03)	(1.48)*	(1.47)*
ISEP15*β15(EP)*Migr15									-0.190	-0.202	-0.103	-0.138	-0.214	-0.216	-0.094	-0.132
									(1.15)	(1.14)	(0.70)	(0.87)	(1.27)	(1.25)	(0.66)	(0.86)
ISEP20*β20(EP)*Migr20													-0.071	-0.042	0.009	0.012
													(0.34)	(0.17)	(0.05)	(0.06)
SS Afr.*ISEP	4.843	-7.731	0.559	-4.671	3.695	-9.739	-0.747	-6.398	5.354	-6.480	2.008	-3.192	4.894	-5.667	2.788	-2.288
	(0.31)	(0.48)	(0.04)	(0.31)	(0.31)	(0.79)	(0.07)	(0.56)	(0.44)	(0.51)	(0.18)	(0.27)	(0.40)	(0.44)	(0.25)	(0.19)
SS Afr.* α	0.394	0.125	0.013	0.149	0.320	0.117	-0.006	0.137	0.309	0.152	-0.019	0.169	0.313	0.193	0.023	0.220
	(3.09)***	(0.72)	(0.07)	(0.87)	(2.89)***	(0.86)	(0.05)	(1.10)	(3.12)***	(1.22)	(0.16)	(1.49)*	(3.84)***	(1.74)*	(0.21)	(2.15)**
SS Afr.*ISEP* α	-0.403	-0.053	-0.309	-0.178	-0.344	0.026	-0.292	-0.126	-0.366	-0.048	-0.351	-0.218	-0.336	-0.055	-0.389	-0.256
	(1.12)	(0.13)	(0.88)	(0.48)	(1.19)	(0.08)	(1.09)	(0.43)	(1.27)	(0.15)	(1.31)	(0.74)	(1.18)	(0.17)	(1.45)*	(0.87)
Afr.*ISEP5*β5(EP)*Migr5	0.515	0.877	0.373	0.769	0.936	1.624	1.027	1.496	0.696	1.449	0.756	1.306	0.662	1.453	0.772	1.346
	(0.26)	(0.42)	(0.20)	(0.39)	(0.62)	(1.05)	(0.71)	(1.01)	(0.44)	(0.89)	(0.49)	(0.84)	(0.42)	(0.88)	(0.51)	(0.87)
Afr.*ISEP10*β10(EP)*Migr10					-0.839	-1.663	-1.825	-1.836	-0.798	-1.647	-1.749	-1.797	-0.753	-1.592	-1.721	-1.756
					(1.13)	(2.17)**	(2.35)**	(2.53)***	(1.05)	(2.10)**	(2.17)**	(2.40)**	(1.01)	(2.04)**	(2.17)**	(2.38)**
Afr.*ISEP15*β15(EP)*Migr15									-1.649	-3.344	-3.566	-3.605	-1.648	-3.393	-3.665	-3.684
									(1.12)	(2.30)**	(2.49)**	(2.56)***	(1.13)	(2.33)**	(2.57)***	(2.62)***
M2/GDP		-0.101	-0.009	-0.075		-0.070	0.010	-0.037		-0.069	-0.007	-0.033		-0.063	0.001	-0.024
		(1.47)*	(0.14)	(1.14)		(1.48)*	(0.23)	(0.86)		(1.78)*	(0.19)	(0.92)		(1.67)*	(0.03)	(0.71)
Pol. Freedom		-0.114	-0.083	-0.082		-0.127	-0.076	-0.092		-0.100	-0.044	-0.069		-0.090	-0.035	-0.058
		(1.77)*	(0.98)	(1.40)*		(3.05)***	(1.65)*	(2.50)**		(2.94)***	(1.26)	(2.38)**		(3.04)***	(1.19)	(2.35)**
Afr.*M2/GDP		-0.033	0.034	-0.039		-0.120	-0.057	-0.131		-0.147	-0.057	-0.152		-0.175	-0.077	-0.183
		(0.19)	(0.20)	(0.23)		(1.20)	(0.54)	(1.34)		(1.74)*	(0.62)	(1.84)*		(2.33)**	(0.93)	(2.50)***
Afr.*PolFreedom		0.234	0.262	0.223		0.248	0.262	0.239		0.225	0.226	0.218		0.214	0.218	0.204
		(3.35)***	(2.92)***	(3.40)***		(4.39)***	(3.95)***	(4.53)***		(4.28)***	(3.55)***	(4.32)***		(4.24)***	(3.52)***	(4.19)***
East Asia & Pac.			-5.448	-7.365			-7.731	-8.536			-8.822	-8.458			-9.317	-9.510
			(1.48)*	(2.30)**			(3.32)***	(4.03)***			(4.26)***	(4.60)***			(4.94)***	(5.91)***
Latin Amer.			6.436				5.366				3.574				3.931	
			(1.92)*				(2.59)***				(1.86)*				(2.18)**	
South Asia			-5.115				-6.867				-8.930				-9.378	
			(1.03)				(2.15)**				(3.23)***				(3.73)***	
Expend.	-13.925	-14.002	-14.208	-13.432	-15.059	-15.133	-14.792	-14.868	-14.949	-14.843	-14.685	-14.693	-14.434	-14.235	-14.037	-13.887
	(5.53)***	(5.16)***	(5.32)***	(4.85)***	(7.89)***	(7.55)***	(7.79)***	(7.41)***	(8.74)***	(8.26)***	(8.90)***	(8.39)***	(7.93)***	(7.69)***	(8.10)***	(7.77)***
Person	4.282	2.454	-0.487	0.225	4.192	1.808	-0.376	0.309	5.418	3.767	1.690	2.099	4.745	3.430	1.207	1.458
	(1.49)*	(0.78)	(0.15)	(0.07)	(2.04)**	(0.79)	(0.18)	(0.14)	(3.28)***	(2.13)**	(1.00)	(1.20)	(3.00)***	(2.05)**	(0.78)	(0.92)
Net	-3.257	-4.563	-4.078	-3.487	-4.804	-5.384	-4.891	-4.013	-3.915	-3.748	-4.386	-3.063	-3.276	-2.671	-3.586	-1.979
	(1.38)	(1.59)*	(1.36)	(1.21)	(2.85)***	(2.93)***	(2.72)***	(2.24)**	(2.78)***	(2.50)***	(2.96)***	(2.13)**	(2.45)**	(1.86)*	(2.61)***	(1.46)*
Earnings	-1.736	1.224	0.063	0.425	0.772	3.381	1.212	1.779	0.065	1.318	-0.130	0.136	-0.621	-0.029	-1.123	-1.048
	(0.42)	(0.31)	(0.01)	(0.10)	(0.28)	(1.17)	(0.43)	(0.59)	(0.03)	(0.56)	(0.06)	(0.06)	(0.27)	(0.01)	(0.51)	(0.44)
Monetary Inc.	-4.694	-0.110	-0.167	1.220	-2.795	0.923	0.030	1.139	-4.938	-2.710	-2.600	-2.148	-5.475	-3.960	-3.525	-3.396
	(0.94)	(0.02)	(0.04)	(0.29)	(0.87)	(0.34)	(0.01)	(0.46)	(1.94)*	(1.22)	(1.39)	(1.12)	(2.31)**	(1.86)*	(2.24)**	(2.00)**
Gini Qual.	2.200	2.363	1.438	2.652	1.176	1.255	0.747	1.790	0.849	0.945	0.074	1.196	0.728	0.818	-0.016	1.056
	(1.54)*	(1.80)*	(1.18)	(2.05)**	(1.11)	(1.24)	(0.85)	(1.83)*	(0.96)	(1.12)	(0.09)	(1.42)*	(0.93)	(1.09)	(0.02)	(1.49)*
Constant	48.435	58.364	51.649	56.367	50.094	60.960	52.585	57.447	49.503	58.095	51.883	55.715	50.596	58.230	51.816	56.027
	(10.84)***	(8.53)***	(7.51)***	(8.28)***	(14.77)***	(12.32)***	(11.38)***	(11.59)***	(16.53)***	(14.15)***	(12.92)***	(13.53)***	(18.46)***	(15.82)***	(14.56)***	(15.86)***
β^*					0.62	0.78	0.61	0.68	0.66	0.86	0.72	0.74	0.69	0.91	0.68	0.72
Observations	87	86	86	86	143	142	142	142	183	182	182	182	211	209	209	209
Adjusted R-squared	0.27	0.33	0.43	0.37	0.30	0.38	0.52	0.45	0.31	0.38	0.52	0.45	0.31	0.36	0.54	0.46

Notes to Table 3: Absolute value of the robust t statistics in parentheses. * significant if t statistic is greater than 1.4; ** significant if greater than 2; *** significant if greater than 2.5. β^* is the minimum level of β in developing countries, evaluated at the median migration rate (12.37%), to counter-act the stand-alone inequality effect of the regime change in the first-five year period after the switch, holding other factors constant. ISEP5 is the first five-year period after the switch. β5(EP) is the productivity level of migrant workers in manufacturing who have been in the urban area for one period (i.e., five years). Migr5 is the migration rate of the migrant batch which has been in the urban area for one period (i.e., five years). Likewise, ISEP10 is the second five-year period after the switch; β10(EP) is the productivity level of migrant workers in manufacturing who have been in the urban area for two periods (i.e., 10 years); and Migr10 is the migration rate of the migrant batch which has been in the urban area for two periods (i.e., 10 years), and so on.

Table 4a. The Impact of β on Gini – Developing Countries – 5 Years After the Switch

	Country	Migr. Rate	β	Impact on Gini (no reg.)†	Stand-alone (no reg.)	Overall Change in Gini (no reg.)	Impact on Gini (region) ††	Stand-alone (region)	Overall Change in Gini (region)
Max. β	Jamaica	11.53%	0.93	-6.44	6.73	+0.29	-4.95	3.86	-1.09
Med. β	South Korea	19.62%	0.50	-5.90	6.73	+0.83	-4.50	3.86	-0.64
Min. β	Guatemala	5.73%	0.17	-0.59	6.73	+6.14	-0.45	3.86	+3.41
Max. Migr.	Dom. Rep.	24.83%	0.57	-8.50	6.73	-1.77	-6.50	3.86	-2.64
Med. Migr.	Chile	12.37%	0.55	-4.09	6.73	+2.64	-3.12	3.86	+0.74
Min.Migr.	Nepal	0%	0.29	0	6.73	+6.73	0	3.86	+3.86
Median	Sample	12.37%	0.50	-3.71	6.73	+3.02	-2.84	3.86	+1.03

Notes: †: the coefficient used is -0.601 (of ISEP5*β5(EP)*Migr5 from the second column of Table 3, 40-Year Focus). ††: the coefficient used is -0.459 (of ISEP5*β5(EP)*Migr5 from the third column of Table 3, 40-Year Focus). No Reg.: Region-specific effects are not accounted for. Region: Region-specific effects are accounted for.

Table 4b. The Impact of β on Gini – Developing Countries – 10 Years After the Switch

	Country	Migr. Rate	β^{avg}	Impact on Gini (no reg.)†	Stand-alone (no reg.)	Overall Change in Gini (no reg.)	Impact on Gini (region) ††	Stand-alone (region)	Overall Change in Gini (region)
Max. β	Jamaica	10.61%	0.97				-2.44	3.86	-3.53#
Med. β	South Korea	21.61%	0.54	-	-	-	-2.77	3.86	-3.41#
Min. β	Guatemala	7.96%	0.22				-0.42	3.86	+2.99#
Max. Migr.	Dom. Rep.	23.23%	0.61				-3.36	3.86	-6.00#
Med. Migr.	Bangladesh	13.88%	0.54	-	-	-	-1.78	3.86	+2.08
Min.Migr.	Sri Lanka	3.22%	0.76				-0.58	3.86	+3.28
Median	Sample	13.88%	0.54	-	-	-	-1.78	3.86	-0.76#

Notes: β^{avg}: the weighted average β of the first batch of migrants and the second batch of migrants in the society, where the weights are respective migration rates. †: no calculation is made due to the insignificance of the coefficient (which is 0.207 of ISEP10*β10(EP)*Migr10 in the second column of Table 3, 40-Year Focus). ††: the coefficient used is -0.237 (which is equal to -0.459 of ISEP5*β5(EP)*Migr5 plus 0.222 of ISEP10*β10(EP)*Migr10 from the third column of Table 3, 40-Year Focus). #: accumulated effect from the first and second period (otherwise, period-specific effect). No Reg.: Region-specific effects are not accounted for. Region: Region-specific effects are accounted for.

Table 5a. The Impact of β on Gini – Sub-saharan African Countries – 5 Years After the Switch

	Country	Migr. Rate	β	Impact on Gini (no reg.) †	Stand-alone (no reg.)	Overall Change in Gini (no reg.)	Impact on Gini (region) ††	Stand-alone (region)	Overall Change in Gini (region)
Max. β	Zambia	5.27%	0.62	-1.93	6.73	+4.80	-1.50	3.86	+2.36
Med. β	Uganda	1.04%	0.44	-0.28	6.73	+6.45	-0.21	3.86	+3.65
Min. β	Ethiopia	0%	0.11	0	6.73	+6.73	0	3.86	+3.86
Max. Migr.	South Afr.	19.93%	0.45	-5.39	6.73	+1.34	-4.12	3.86	-0.26
Med. Migr.	Tanzania	4.21%	0.46	-1.16	6.73	+5.57	-0.89	3.86	+2.97
Min.Migr.	Ethiopia, Burkina Faso	0%, 0%	0.11 0.22	0	6.73	+6.73	0	3.86	+3.86
Median	Sample	4.21%	0.44	-1.11	6.73	+5.62	-0.85	3.86	+3.01

Notes: †: the coefficient used is -0.601 (of ISEP5*β5(EP)*Migr5 from the second column of Table 3, 40-Year Focus). ††: the coefficient used is -0.459 (of ISEP5*β5(EP)*Migr5 from the third column of Table 3, 40-Year Focus). No Reg.: Region-specific effects are not accounted for. Region: Region-specific effects are accounted for.

Table 5b. The Impact of β on Gini – Sub-saharan African Countries – 10 Years After the Switch

	Country	Migr. Rate	β^{avg}	Impact on Gini (no reg.)‡	Stand-alone (no reg.)	Overall Change in Gini (no reg.)	Impact on Gini (region) ‡‡	Stand-alone (region)	Overall Change in Gini (region)
Max. β	Madagascar	2.15%	0.58	-2.73	6.73	+4	-2.72	3.86	+1.14
Med. β	South Afr.	19.03%	0.52	-21.67	6.73	-20.33#	-21.57	3.86	-21.83#
Min. β	Ethiopia	0.4%	0.18	-0.16	6.73	+6.57	-0.16	3.86	+3.70
Max. Migr.	South Afr.	19.03%	0.52	-21.67	6.73	-14.94	-21.57	3.86	-17.71
Med. Migr.	Madagascar	2.15%	0.58	-2.73	6.73	+4	-2.72	3.86	+1.14
Min.Migr.	Mauritania	0%	0.29	0	6.73	+6.73	0	3.86	+3.86
Median	Sample	2.15%	0.52	-2.45	6.73	+3.12#	-2.44	3.86	+0.57#

Notes: β^{avg}: the weighted average β of the first batch of migrants and the second batch of migrants in the society, where the weights are respective migration rates. ‡: the coefficient used is -2.19 (which is equal to -0.601 of ISEP5*β5(EP)*Migr5 minus 1.592 of Afr.*ISEP10*β10(EP)*Migr10) from the second column of Table 3, 40-Year Focus). ‡‡: the coefficient used is 2.18 (which is equal to -0.459 of ISEP5*β5(EP)*Migr5 minus 1.721 of Afr.*ISEP10*β10(EP)*Migr10 from the third column of Table 3, 40-Year Focus). #: accumulated effect from the first and second period (otherwise, period-specific effect). No Reg.: Region-specific effects are not accounted for. Region: Region-specific effects are accounted for.

Table 6a. Hausman Test for α in ISEP Equation

	(1)	(2)	(4)	(3)	(5)	(6)
	ISEP-40	ISEP-40	ISEP-40	ISEP-40	ISEP-40	ISEP-40
FMV*RurNoSch.	0.005	0.005	0.005	0.005	0.004	0.005
	(0.81)	(0.84)	(1.53)*	(0.60)	(1.44)*	(1.41)*
FMV*α*RurSecSch.	-0.009	-0.009	-0.006	-0.010	-0.004	-0.005
	(2.99)***	(2.89)***	(3.05)***	(3.06)***	(3.28)***	(2.93)***
FMV* β(IS)*RurSecSch.	0.261	0.257	0.168	0.273	0.122	0.132
	(3.04)***	(2.96)***	(3.11)***	(3.07)***	(3.32)***	(3.04)***
WMV	-0.081	-0.026	0.127	-0.107	0.086	0.267
	(0.18)	(0.06)	(0.47)	(0.19)	(0.40)	(0.83)
Afr.*FMV*RurNoSch.	-0.007	-0.014	-0.009	-0.010	-0.010	-0.007
	(2.00)**	(2.50)**	(3.09)***	(1.51)*	(3.33)***	(1.69)*
Afr.*FMV*α*RurSecSch.	0.014	0.007	0.008	0.014	0.004	0.004
	(1.73)*	(0.84)	(1.73)*	(1.25)	(0.95)	(0.94)
Afr.*FMV* β(IS)*RurSecSch.	-0.458	-0.361	-0.362	-0.745	0.047	0.115
	(1.53)*	(1.22)	(2.10)**	(0.93)	(0.15)	(0.37)
Afr.*WMV	-0.206	-0.537	-0.866	-0.528	-0.953	-0.425
	(0.99)	(2.42)**	(2.27)**	(1.42)*	(2.50)**	(0.50)
Residual of α	0.938	0.853	0.645	0.931	0.412	0.204
	(1.25)	(1.11)	(1.58)*	(1.11)	(1.34)	(0.51)
SS Afr* Residual of α	-1.150	-0.084	-0.258	-0.532	0.441	0.588
	(0.89)	(0.06)	(0.35)	(0.33)	(0.63)	(0.74)
Land Gini, SS Afr*Land Gini	No	Yes	Yes	Yes	Yes	Yes
Pol. Freedom, SS Afr*Pol Free.	No	Yes	Yes	Yes	Yes	Yes
Infl (+ lags), SS Afr*Inf. (+lags)	No	Yes	Yes	No	Yes	Yes
FX/GDP (+ lags), SS Afr (+ lags)	No	No	No	Yes	Yes	Yes
TOT (Ag/Nonag), SS Afr* TOT (Ag/Nonag)	No	No	No	No	No	Yes
F - Residual α	1.59	1.76	2.86	1.32	3.63	1.58
Observations	183	183	166	167	161	159
Pseudo R-sq.	0.04	0.08	0.26	0.11	0.28	0.33

Note: F-Residual α is the statistic of the F-test, which tests whether the residual terms of α and its interaction with SS Africa are jointly equal to zero.

Table 6b. Hausman Test for β in Inequality Equation

	Dep. Var: Gini – 10-Year Focus			
ISEP	6.581	5.903	4.967	3.436
	(1.06)	(0.80)	(0.82)	(0.55)
α	-0.397	-0.348	-0.070	-0.324
	(2.46)**	(2.16)**	(0.33)	(1.93)*
ISEP*α	0.160	0.093	0.170	0.200
	(0.67)	(0.35)	(0.74)	(0.86)
ISEP5*β5(EP)*Migr5	-0.924	-0.689	-0.647	-0.494
	(2.73)***	(1.61)	(1.68)*	(1.29)
SS Afr.*ISEP	5.685	-6.761	1.214	-3.608
	(0.40)	(0.44)	(0.09)	(0.25)
SS Afr.*α	0.411	0.128	0.018	0.154
	(2.74)***	(0.73)	(0.09)	(0.88)
SS Afr.*ISEP*α	-0.443	-0.074	-0.325	-0.204
	(1.33)	(0.20)	(0.97)	(0.59)
Afr.*ISEP5*β5(EP)*Migr5	0.275	0.690	0.234	0.574
	(0.15)	(0.33)	(0.12)	(0.29)
Res_Beta*ISEP5*Migr5	0.666	0.709	1.085	1.313
	(0.48)	(0.51)	(0.90)	(0.94)
Res_Beta*SS Afr* ISEP5*Migr5	8.403	4.360	2.704	3.683
	(1.67)*	(0.73)	(0.50)	(0.65)
M2/GDP, SS Afr.*M2/GDP	No	Yes	Yes	Yes
Pol. Freedom, SS Afr.*PolFreedom	No	Yes	Yes	Yes
Latin Amer., South Asia	No	No	Yes	No
East Asia & Pac.	No	No	Yes	Yes
Constant, Gini construction dummies	Yes	Yes	Yes	Yes
F-Residual Beta	1.95	0.51	0.64	0.83
Observations	86	86	86	86
Adjusted R-squared	0.26	0.32	0.43	0.38

Note: F-Residual β is the statistic of the F-test, which tests whether the residual terms of β and its interaction with SS Africa are jointly equal to zero.