

The Influence of Private Sector Participation in  
Market Regulatory Institutions of Developing Nations:  
Farmer Participation in Authorities of Coffee Exporting Countries

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## **Abstract**

How has commodity market liberalization and the privatization of market regulatory institutions since the 1990s affected the political influence of farmers in directing policy? Examining the case of coffee exporting countries, this paper explores how farmer participation in the coffee authority affects market outcomes for farmers. Using the gap between farm and world export prices for coffee, this analysis tests whether farm prices are higher in countries where farmer groups participate in the country's coffee authority. The results of a weighted least squares regression indicate that producer participation in the coffee authority has a positive impact in arabica-producing countries.

**Keywords:** coffee farmers, agricultural policy, cooperatives, export commodities

## **Introduction**

Theoretical discussions of the capacity of farmers in developing countries to exert political influence have typically characterized small farmers as powerless. Marx argued that, although they face common circumstances, peasant farmers form a class only “by the simple addition of isomorphous magnitudes, much as potatoes in a sack form a sack of potatoes” (1852, p. 239). They are unable to effect change as a class or represent themselves politically because their “mode of production isolates them from one another instead of bringing them into mutual intercourse” (p. 238). Robert Bates (1981) has also noted how the costs of organization for small farmers are typically prohibitively high because of their sheer numbers, their relatively low output and their wide geographical distribution (p. 95). Even in the case of large farmers that can overcome these collective action problems and form a political lobby, Bates argues that states in Africa have used “their control of markets to fragment the rural opposition,” providing selective benefits to certain individuals in an effort to divide and conquer their political lobby (1981, p. 108). By selectively rewarding benefits to individuals through their control of commodity marketing boards, African states kept rural opposition ‘demobilized’ (p. 109).

Furthermore, imperfect political competition in developing countries, even in those countries with democratic systems, means that small farmers are unlikely to have a political voice through their government representatives. In many developing countries, small farmers do not constitute a population to which a “political entrepreneur” is accountable, because of fraudulent elections or an authoritarian system (Geddes 1994, p. 36). Thus it is unlikely that farmers, as a group, can exert much political influence through their designated state representatives in developing countries.

Given these collective action problems, a lack of representation in the state and state domination of economic policy, farmers appear impotent as a political force. Yet they represent a crucial part of the economies of most developing countries. Many developing countries rely on primary agricultural commodity exports for a significant part of their export earnings. The World Bank notes that forty developing countries receive over half of their export earnings from agricultural products. Meanwhile,

seventy percent of the world population that lives in poverty resides in rural areas (2004). This population lives predominantly as farmers.

However, recent changes in economic and regulatory policy have altered the economic policy environment since the above arguments on the political incapacity of farmers were made. Since the early 1990s, the role of the government in directing the market has been reduced in almost all developing nations that export agricultural commodities. In addition, partial or full privatization of the authorities that oversee these markets has frequently occurred in tandem with the deregulation of marketing. The reconfiguration of market regulatory authorities to allow private sector participation has meant, in a number of cases concerning agricultural products, the inclusion of farmer associations as private interest participants. In many instances, associations consisting of small farmers have achieved representation, as well as large farm groups. Have these changes allowed farmers, as a group, to gain influence over policies to improve their economic outcomes? This analysis uses the case of coffee markets and coffee farmer participation in regulatory authorities to examine whether farmers are able to secure benefits for themselves by participating in these authorities.

By examining the case of farmers' groups in coffee exporting countries after liberalization, this paper argues that market liberalization, the removal of the state from direct participation in the economic sector, and the inclusion of private interests in market regulatory policy has created a potential for farmers to use corporatist structures to influence the state, even in countries with weak democratic institutions at the national level. The focus is on coffee farmers both because data of farm prices for coffee is readily available and because, as noted above, farmers in developing countries are frequently considered to be politically disenfranchised. Thus the question of their potential influence in these institutions is of interest. Using farm prices for coffee as an example of a domestic market outcome, this analysis shows that coffee farmers receive higher prices when they are collectively organized and politically motivated, and they participate in the country's designated coffee market regulatory institution (the "coffee authority"). With data for thirty seven cases for which market-based coffee

prices are available, I regress the price gap between farm prices and export prices for coffee on a number of policy, economic and control variables to determine whether active producer participation in a country's coffee authority appears to play a role in decreasing the size of this price gap and improving farmer prices.

It may be argued that market regulatory authorities<sup>1</sup> have become superfluous after market deregulation, no longer offering private groups access to benefits such as preferential price controls or quotas. Yet, in fact, these authorities continue to play an important role for the groups that participate in the commodity market in a country. Even in those countries that have fully liberalized their markets by allowing the private sector to control marketing and pricing, market regulatory authorities oversee exporter and processor registration procedures, credit provision, quality control boards, research and technology extension services, the dissemination of market information, and access to inputs and higher quality seed varieties for farmers. Furthermore, there is evidence that in many countries, private participants in the export commodity sector feel that representation in the regulatory authority helps promote their industry interests, as decisions of the authority affect national market policy.

This paper first surveys arguments for private sector participation in market regulatory policy that can encourage economic development, focusing on farmer participation in policymaking. Following this is a presentation of the model used to test the idea that farmer involvement in market regulatory policy can result in benefits for the participant group. The paper then presents the results of this statistical analysis and concludes with a discussion of why the effect of producer participation is stronger in arabica producing cases.

### **A New Role for the Private Sector in Market Regulatory Policy**

“New Institutional Economics” (NIE) emerged in the 1990s, and with it came a renewed theoretical role for the state and other institutions to correct market imperfections common in developing countries (Doner and Schneider, 2000, p. 4-5). NIE still focuses on the rational individual actor who seeks to maximize his or her own utility according to neo-classical economic theory, but allows for

state oversight to encourage the functioning of markets. State-sponsored institutions can potentially improve upon imperfect markets by lowering transaction costs through the efficient provision of information, ensuring property rights and providing a space for individuals to benefit from collective action (2000). However, such pro-institution arguments may be tempered by the fact that political institutional capacity in developing countries is typically weak (van de Walle, 2003, p. 1; 2001, p. 113-114).

It is exactly this widespread weakness of the state that strengthens arguments for regulatory institutions with private sector participation. Some authors have noted that there may indeed be a renewed role for private interest associations in the recently liberalized markets of countries, capable of serving both public and private goals (Schneider, 1998; Schleifer, 1998). In addition to influencing the government, private economic groups may do a *better* job regulating their market than the government did. Ben Ross Schneider argues that business associations with mandated regulatory authority may be able to improve market outcomes in some cases where “state capacity is low,” where the costs of collecting and disseminating market information are very high for the state, and where the timely provision of market information is crucial to the functioning of the market (1998, p.20). In these cases, it may be more efficient for the state to delegate some aspects of marketing policy and extension service provision to private interest groups. Schneider refers to this as “private interest government” (1998, p.20). Baccaro calls this “social partnership” (2002, p.1).

“Private interest government” or “social partnership” are alternative names for societal corporatism in that private groups penetrate the state to direct policy to their advantage. Like other forms of societal corporatism, this may result in the provision of public goods. By co-opting the state, it is conceivable that private interest associations may both improve the outcomes for their participants, while at the same time improving the institutional capacity of the organizations they have co-opted. When farmers are represented through one of these private groups, furthering their own economic interests may imply improvements in economic development, as farmers, especially small farmers,

typically make up some of the poorer segments of the population. Overall improvements in export crop production can also benefit the national economies of countries that are dependent on export earnings from these crops.

From the perspective of the private sector, what are the perceived benefits of participation in a market regulatory authority? The first and most obvious would be direct influence over market controls. While direct government intervention in the market through export quotas and price controls has ceased in most of the markets considered in this study, exporters still must be registered and processors and producers must meet quality standards. Registration procedures and quality standards are determined by the market regulatory institution: in this case, the coffee authority. Access to credit on reasonable terms is a large concern for exporters, processors and producers and the coffee authority directly designs credit-issuing programs. Price information dissemination and the development of price hedging instruments is controlled by the coffee authority. Finally, research, training, extension services and input subsidies are managed by the authority. While an individual farmer's decision to join a group which participates in a market regulatory authority may be driven by her desire for excludable benefits, there may be non-excludable benefits to all farmers of that commodity that result from farmer participation, such as improvements in access to price information and extension services and even, higher prices. Thus, there are significant potential benefits for coffee farmers as a group through farmer participation in the coffee authority. In the coffee markets examined here, looking at national average farm prices for coffee allows us to measure whether farmer participation in a country's coffee authority results in higher prices for coffee farmers on average.

If private sector participation by a group in a market regulatory authority results in benefits for that group, at whose expense are these benefits gained? In the case of coffee markets, benefits for farmers gained through their participation in the coffee authority may be at the expense of coffee consumers, or the other links in the domestic chain, including exporters, intermediary traders and processors. There are at least three possible scenarios to explain how farmer participation in the coffee

authority can lead to higher farm prices: one in which all players in the producing country win at the expense of consumers and two scenarios in which producers win at the expense of other links in the commodity chain. In the first, if coffee farmers get higher prices because they gain access to inputs, credit and training that leads to higher quality output, then traders, processors and exporters will also be able to earn more from their sales of the good and the coffee will reach a higher-end consumer market that pays more. In this case, all the participants in the producing country benefit from higher farm prices at the (consensual) expense of the consumer. According to a second scenario, farmers may get higher prices because they gain access to the resources and licenses that enable them to process the product themselves and bypass intermediaries, marketing their production directly to exporters or even buyers in importing countries. In this case, farmers take the cut of the export revenue that previously went to intermediaries or exporters. Finally, in the third scenario, farmers receive higher prices because of their influence over direct government controls on prices or marketing. This benefit comes at the expense of exporters and processors who are taxed to subsidize farmers. This last scenario is only possible in countries where the government still controls prices or marketing. Thus, it is only plausible for twelve of the cases examined here.<sup>2</sup> We will return to these three scenarios when discussing the results of the analysis.

### **Producer Participation in Coffee Authorities**

To test whether farmer participation in commodity market regulatory authorities affects their market outcomes, this analysis explores farmer participation in coffee authorities across coffee-exporting countries. A country's "coffee authority" is the government-designated market regulatory institution recognized as the industry representative by the International Coffee Organization (ICO). Many of the current coffee authorities of exporting countries fit Doner and Schneider's definition of "private interest government" (2000). This sort of quasi-governmental coffee authority is not new in Latin America, where private coffee interests have long played strong political roles in determining market regulatory policy. Private sector government institutions have also grown alongside export

industries in Asia, but with downstream processors and exporters typically exerting more influence than farmers. However, private sector control of market regulation is relatively new in sub-Saharan Africa. Over half of the cases considered here are African. As part of the reform process, the governments of many of these countries created coffee authorities with at least some institutionalized private-interest representation in the place of government marketing boards.

While there are many degrees of private sector participation by different private sector groups in coffee authorities, the data available only allow the author to distinguish whether private sector participation is present and whether farmers are represented. In Colombia, farmers completely control the regulatory process. In many cases, though, farmers are one of many groups represented. For example, the coffee authority of India, called the Indian Coffee Board, has 33 members, eleven of which are central and regional government representatives and twenty-two of which come from private industry. Of the private industry representatives, eleven represent farmers: three for large-scale coffee growers and eight for small-scale farmer groups. In other cases, such as Indonesia and Vietnam, exporters are the only private interests directly represented in the coffee authority. Thirdly, in some cases, such as Angola, there is no apparent private sector participation (Gilbert et al., 1999). Finally, in other cases where there is apparently mandated participation of farmer interests in the coffee authority, the authority, in fact, seems to be little more than an office and private farmer groups do not seem to be actively engaging in these institutions (Doner and Schneider, 2000, p.14-15). This appears to be the case in Burundi and Togo (East African Fine Coffees Association (EAFCA), 2003; Gilbert et al., 1999). The following discussion details the model used to test whether producer participation results in higher farm prices.

While the paper's focus on farmer participation is therefore narrow, it can also be seen as too broad. The level of this analysis limits us to only consider coffee farmers as one interest group. In fact, coffee farmers' individual interests may differ considerably, as some are large farmers while most are smallholders that intermittently farm other crops. Some farmers only farm coffee while some also

process and export. However, as the data used in this study uses national averages of farm prices for coffee, most of these divergent interests among individual coffee growers cannot be examined in this study. Furthermore, this analysis, in being a cross-national study that focuses on discerning broad trends, necessarily abstracts from the contextual circumstances particular to individual cases.

### **Explaining the Gap in Prices between the Farm Level and Export Level: The Model**

The price gap between domestic farm prices and world export prices for a commodity can be used to test the market outcomes for farmers in a particular country. The dependent variable is the average gap between farmer prices for coffee and the world export price across coffee-exporting countries over the years 1996-2002. The export price is the same across all countries that export a particular type of coffee. This price represents the world market freight-on-board (f.o.b.) price. Thus, the difference between the farm price in a country and the export price- the price gap- gives a measure of the level of farm prices in a country in relation to export prices, controlling for the variety of coffee produced.<sup>3</sup> While time-series data for prices are readily available, this cannot be used in this research design because many of the policy and control variables do not vary at all over the time period of interest. Therefore, the only meaningful comparison of variation of conditions is in the differing price gaps across countries.

### **Examining Variation in the Price Gap Across Countries**

Given the circumstances that many farmers face, we cannot expect equal prices across countries at the farm level, even in fully liberalized markets that produce the same type of coffee. Many farmers welcomed the wave of market liberalization in coffee that occurred in the first half of the 1990s because it meant they would be able to market their crops directly to exporters or their intermediaries, ending inefficient and often corrupt government taxation and control. For example, in India “the drive for liberalization came from producers who were dissatisfied with the pooling system, late payments and the Government's continued imposition of export tax [...] these factors reduced the growers' price at a time when international prices were declining” (ICO Country Report: India 1997). Liberalization promised

farmers a higher percentage of world prices. Nonetheless, many factors remain that might create differences in farm prices between countries, even with full market liberalization.

Farm prices might vary according to both political and market conditions from one country to the next. Some economists have noted the increased risks that smallholder, subsistence-wage farmers faced when suddenly confronted with the vagaries of the volatile world market and the potential for powerful exporters to distort world prices when transmitting them to farmers. Besides multi-cropping, these farmers seldom have diverse investments to spread their risk. Coffee planters have large sunk costs which take at least 3-5 years to bear fruit. They also have limited access to credit or other forms of risk insurance (de Fontenay and Leung, 2000, p.5). In fact, comparing across countries in the post-liberalization period from 1996-2002, there remain large differences in the magnitude of the average price gap between producer prices and export prices for coffee. To some extent, differing transaction costs and other intervening variables, such as type of coffee, might explain the differences in this price gap. For example, in Figure 1 (see Appendix II), which displays the farm-to-export price gap in different coffee-exporting countries, the countries on the left-hand side of the graph up to Vietnam (VNM) produce the robusta variety of coffee, while the countries on the right-hand side of the graph produce arabicas. Robustas typically undergo less processing before leaving the country as green coffee. This explains the generally smaller price gap between farm prices and world prices for the robusta producers on the left-hand side of the graph as compared to the arabica producers on the right-hand side, where coffee must pass through more processing and generally travel farther before leaving the country. Not only is the apparent price gap for arabica coffees larger on average, but it appears that the variation in this price gap across arabica countries is more extreme than across robusta countries (see Figure 2, Appendix II).<sup>4</sup>

The main hypothesis of this paper is that, after controlling for a number of other policy and market factors, active producer participation in the coffee authority decreases the price gap. Farmer groups which can effectively assume a role in the private interest government regulatory mechanism of

their country's coffee authority may be able to gain political and economic benefits, or at least, compete with the other links in the commodity chain, in ways that are not possible without participation in the authority. Thus, this analysis hypothesizes that active producer participation in the coffee authority leads to higher farm prices relative to the world price.

Cases are classified as either having producer participation or lacking it. In order to be designated as a country with producer participation, a case must meet the following two criteria: (1) farmer participation as board members or simply, members in the national coffee authority that is identified by the International Coffee Organization; *and* (2) qualitative evidence of active farmer participation in and utilization of farmer organizations, whether these associations were originally formed and encouraged by government initiative or not. Evidence that farmer associations have taken on a life of their own independent of government efforts by, for example, contesting certain government policies or advocating reforms on their own behalf is evidence of active participation. Without evidence of both mandated participation in the coffee authority and active organizational capacity on the part of farmers' groups, a case cannot be designated as having producer participation. In all, twenty-one of thirty seven cases are classified as having producer participation. These are Brazil (arabica and robusta), Colombia, Ivory Coast, Costa Rica, Dominican Republic, Ecuador (arabica and robusta), Guatemala, Honduras, India (arabica and robusta), Kenya, Mexico, Malawi, Peru, El Salvador, Tanzania (arabica and robusta), and Uganda (arabica and robusta). Appendix III provides summaries of the nature of producer participation in all of the cases included in this study.

While this paper's principal hypothesis is that active farmer participation in a country's coffee authority helps to lower the farm-to-export price gap, increasing farm prices, there are other arguments that might explain differences in the magnitude of the price gap. The size of the price gap may also be determined by government intervention into the market, the general political environment, and the overall market environment. The market environment can be measured by the general economic wealth of citizens in a country and by the average size of coffee farms. Also, the level of transaction costs and

the presence of civil conflict can affect the market. The way that these factors might affect the price gap and how they are measured in the statistical model are discussed below.

Government intervention into the market may increase the price gap. Countries where the government still regulates the market to some extent might be expected to have lower farm prices (a higher price gap). The funds reaped by the government over control of marketing and pricing of agricultural commodities have frequently been used to finance industrialization projects while farm prices are kept low and the agricultural sector's development needs are neglected. In addition, many governments that intervene in the market attempt to stabilize producer prices and government export revenue through the imposition of marketing boards or similar market controls. While the discussion above notes how most coffee exporting countries liberalized their markets to some extent in the early 1990s, twelve of the cases examined here did not fully liberalize and retain some government market regulation and four of them continue to operate marketing boards (see Appendix I). These boards typically oversee the collection of export taxes, may impose export quotas, and attempt to create a price stabilization fund for farmers. Government intervention has been condemned for promoting inefficient, low quality production, withholding potential income from farmers, embezzling public funds and preventing farmers' groups from organizing among themselves (de Fontenay and Leung, 2002, p.14; Paláez, 1973, p.227). Thus market controls by the government are associated with suppressing farmer incomes, causing a larger gap between farm prices and world prices. To measure the effects of government intervention on producer prices, cases are designated in the model as being fully liberalized, having government intervention in pricing, having government intervention in marketing or being unliberalized (having a government marketing board that controls both marketing and pricing).

The strength of a country's democratic institutions may also influence producer prices. It is possible that higher prices for farmers may result, not because of producer participation in market regulatory authorities, but because of a more generally democratic environment, where farmers, as a large constituent, are rewarded through their voting power. As this study seeks to measure whether

producer participation in regulatory authorities can result in higher prices, even in countries with weakly democratic or authoritarian systems, the model must necessarily control for the nature of the political regime in each case. The model uses the average Polity score for each case over the period, using the Polity IV dataset. Furthermore, it is important to note that a case's strength of its overall democratic institutions does not predetermine producer participation in the regulatory authority. Figure 3 in Appendix II shows that strength of democratic institutions, as measured by the Polity IV scores (with +10 being the highest level of democratic regime and -10 being the highest level of autocratic regime) does not determine producer participation. While there is a positive correlation between democracy and producer participation, there is only a .37 correlation between these two variables. Thus producer participation is not a proxy for a democratic regime.

In addition, individual market power may determine the prices farmers receive. Larger farms with economies of scale may be able to use higher quality technology and better inputs to produce a higher quality crop. Also, large farmers may be more politically influential, as they historically have been in Latin America. They may become so powerful that the state subsidizes them directly and constructs market barriers to limit the market access of smallholder coffee farmers, as Robert Williams argues they did in Nicaragua at the turn of the twentieth century (1994, p.177). Thus, individual market power signified by large farms may decrease the price gap. The impact of large farms is measured by a dummy variable designated as one for markets where large farms of over ten hectares account for more than 20% of coffee production. Furthermore, just as a democratic regime does not predetermine producer participation, neither does the presence of large farms. Small farm cases are nearly as likely to have producer participation in the coffee authority as large farms cases,<sup>5</sup> implying that producer participation is not driven by large farm size.

Finally, there are a number of other factors which may affect the prices farmers receive. These include the type of coffee, average incomes, transaction costs, civil conflict and extant environmental conditions. As noted above, the price gap for robusta coffee is smaller than that of arabica, even though

the absolute prices that farmers receive for robusta are lower. This is because of the increased processing necessary for arabica coffee, which adds value to the commodity, while causing it to pass through a number of intermediary steps before reaching the port for export. In addition, arabica is typically grown at higher elevations and so must be transported farther to reach port than robusta coffees (ICO), adding to the price gap from farmer to export market. Therefore, the model includes a dummy variable for robusta coffee markets.

It may also be important to control for per capita income level in a country, as local farm prices may be higher or lower relative to average incomes. The model uses data from the Penn World Table on per capita income averaged over 1996-2002 for each case to control for this factor. Furthermore, less developed transportation networks and general market infrastructure between countries may increase market transaction costs, adding to the price gap. While there exists no measure that incorporates the multiple facets of transaction costs into one variable that is comparable across countries, the World Bank's measure of percentage of roads paved in a country serves as a proxy in this model for at least the level of road transport infrastructure. In addition, civil conflict occurred over the period from 1996-2002 in many of the countries examined. Civil conflict can disrupt production and thus, farm prices, as farmers may abandon their crops and transportation networks might be disrupted (Southern African Regional Poverty Network, ca. 2003). The model uses Christian Gleditsch's Intensity of Conflict dataset to measure the level of conflict occurring during 1996-2002 in each case. Finally, natural disasters such as drought, flood, frost, pest epidemics and diseases can affect coffee prices, too. However, these disasters have not been measured in a comparable way across countries and so, they cannot be accounted for in this study.<sup>6</sup> Rather, it is reasonable to assume that natural disasters affect coffee production in all countries over the six-year time period measured from 1996-2002. The time length that this study considers allows the effects that these shocks might have on individual countries in a given coffee season to at least be averaged out over time.

The analysis considers four main models to explain variation in the coffee price gap across countries. The first model considers only the principal hypothesis that producer participation improves farm prices, with the robusta control for type of coffee. Two interaction terms designating farmer participation in arabica countries and farmer participation in robusta countries allow different intercept estimates of participation in the two types of coffee markets. The Robusta dummy variable allows for the intercept to differ between the two types of coffee markets as the price gap for robusta producers is typically lower. The second model uses the same variables as Model One and adds the government intervention policy variables and the regime type variable to determine whether these have any independent effect on the price gap. The third model adds only the market environment variables to test whether aspects of the market situation determine the farm-to-export price gap for coffee. The final model adds all of the variables to test for a joint effect among variables.

For each model, Szroeter's test for heteroskedasticity was performed prior to regression because there was reason to believe that heteroskedasticity might cause inefficient estimates if OLS regression is used when there are different magnitudes of variation in prices across arabica cases and robusta cases. The results of this test were compared against another test for heteroskedasticity, the Goldfeld Quandt test. In all four models, heteroskedasticity is detected by the Szroeter test, though it is only detected in Models One, Two, and Three in the Goldfeld Quandt test. A third, Breusch-Pagan test for heteroskedasticity on Model Four also detects heteroskedasticity and so, the analysis uses weighted least squares regression to correct the non-constant variance in the residuals caused by differences between robusta and arabica coffees.

## **Results**

Table 1 shows the results from the WLS regression of price gap on the four models. Model One, using only the producer participation variable and the Robusta control, shows that producer participation has a negative, statistically significant impact on the farm-to-export price gap in arabica-producing markets. Farmers in arabica-producing countries where there are actively organized farmer groups that

participate in the coffee authority receive prices for their coffee that are, on average, approximately US\$ 19 cents per pound higher in relation to the world export price than farmers in arabica cases without farmer participation. Given that the world price for “Other Milds” arabicas averaged US\$ 114 cents per pound over the period from 1996-2002, the average farmer of this variety in a country with producer participation would be expected to earn approximately US\$ 77 cents per pound of coffee. The farmer of the same variety in the country without producer participation would only be expected to earn US\$ 58 cents per pound.

[Table 1]

However, participation has no apparent impact on farm prices in robusta producing countries. There is only an estimated US\$ 4-6 cents per pound decrease in the price gap for participation in robusta countries and this is not statistically significant. As noted earlier, absolute prices for robusta coffee are lower than for arabicas, and the magnitude of the price gap between the farm and the port of export is less than for arabicas. In fact, the average robusta market price gap is US\$ 34-38 cents per pound smaller than the arabica price gap, and this difference between the intercepts for the two types of coffees is statistically significant. Thus, given average robusta world prices of US\$ 59 cents per pound over the period studied, expected robusta producer prices are approximately US\$ 21 cents per pound less than the world price, for an average of US\$ 38 cents per pound.

The estimates for the effect of producer participation in arabica countries on the price gap and the effect of robusta on the size of the price gap change only slightly as more variables are added to the regression in Models Two, Three, and Four. In fact, none of the government market intervention variables or the other control variables approach statistical significance, nor are they jointly significant. In the case of the government market intervention variables, their impact may be small because, although government controls remain in twelve cases, there has been reform in most countries. This implies that the significance of government intervention into the market, regardless of remaining

controls, has declined since the early 1990s. The type of regime also does not play a role in influencing prices. Even the occurrence of medium-level and intense civil conflict does not, over the six-year period studied, affect farm prices on the whole. While it is likely that short-term farm prices are disrupted by conflict, this cannot be measured in this study, as it averages prices from 1996-2002.

Per capita GDP in a country does not affect the levels of farmers' prices for coffee. Even as the estimate for this variable becomes slightly more stable in Model Four, it does not reach statistical significance and the estimated effect on the price gap is substantively small. Thus, coffee farmers in countries with lower average incomes do not necessarily receive lower prices. It is also interesting to note that large-scale farm production does not significantly improve farm prices in relation to the world export price. Although we might expect that economies of scale with high levels of technology and multiple sources of credit get higher prices for higher quality production, the aggregate effect of this large-scale production on overall farm prices in a country is not evident. This may be because the lower farm prices for lower quality coffee on other farms drown out the effect of higher prices on large farms when farm prices are aggregated to the national level. It may also be because some of the large farms are, in fact, unproductive state-owned enterprises or that large farms do not produce higher quality, higher priced coffee on the whole.

Finally, the transaction cost variable's insignificance may be simply due to the fact that the measure, as a proxy, only captures a small aspect of the myriad variables which affect the costs of doing business. While high transaction costs resulting from poor market and physical infrastructure are noted as causes of low farm prices for coffee (see ICO Country Report, Central African Republic 2000, for example), there exists no dependable measure for all aspects of transaction costs that is comparable across countries for coffee markets. The closest comparable measure available is the proxy measuring the development of physical infrastructure: the percentage of paved roads used in this study. However, this factor alone appears to have little explanatory value.

To test the robustness of the estimates displayed in Table One, two alternative regressions were run to observe how the estimates change as high leverage cases are excluded and as a high residual case is excluded. In the first test, the leverages for the cases were computed, then the two cases with the highest leverage in each model were excluded temporarily and the regressions were run again. In the second test, the regressions were run excluding the case with the residual that is significantly higher than the other cases in all models: Kenya. The results of these robustness tests appear in Appendix IV. In all four models, the coefficient estimates remain similar under both tests and those that were statistically significant before remain so. In particular, the coefficient on producer participation in arabica-producing countries increases by approximately one and a half cents and two and a half cents after excluding the high leverage cases in Models One and Two, respectively, and by five cents and three cents in Models Three and Four. These estimates remain statistically significant at the .05 level in Models One, Two, and Three, and at the .10 level in Model Four. When Kenya, which has a significantly larger residual than the other cases, is excluded, the coefficient estimates for producer participation in arabica-producing countries remain significant at the .05 level, but the estimated effect of participation on the price gap is smaller than in the original test, by two to three cents. GDP per capita is significant at the .10 level in Model Four, though its effect on the price gap remains substantively small. These checks on robustness demonstrate that the estimates in Table One are fairly stable, though removing cases does change the estimated effect of producer participation by a few cents.

## **Discussion**

Why does producer participation have a large and statistically significant impact on the price gap in arabica-producing markets, but not robusta-producing markets? As mentioned previously, arabica is a higher quality coffee that fetches a higher price on the world market. Arabica production offers farmers the potential to enter niche markets, where supply of coffee becomes limited according to specialty qualifications based on Fair Trade, Organic, Shade-Grown, and country-of-origin labels. Farmers who can reach these niche markets by differentiating their coffee product in some way enter a

domain where their coffee cannot be substituted with any other coffee. Given the limited supply of coffee fitting these labels, consumers with a preference for niche market labels are willing to pay more. However, in order to enter a niche market and sell at a higher price, producers must farm arabicas. Robusta, the heartier, sun- and disease-resistant variety grown at low altitudes, has yet to achieve any status in the consumer niche market that is willing to pay a significant price premium for coffees with the above labels. Instead, robustas typically become inputs for processed instant coffees or are sold as cheap, bulk coffees in cans at grocery stores. The consumer of the robusta variety is price-elastic in his or her consumption decisions: cheaper is better. Meanwhile, the arabica consumer is less price-elastic: he or she will pay more for perceived higher quality or a label that he or she supports. Arabica farming requires more inputs, more maintenance and better processing facilities. It also requires timely processing and delivery to market. Although the costs of entry are higher, farmers who can enter the arabica market have more room to maneuver towards higher-end markets and thus, more potential to increase their prices for coffee than do robusta farmers. Active farmer organization and participation in the coffee authority helps enable entry and competitiveness in the arabica market.

Through participation in the coffee authority, farmers can seek access to credit and inputs needed to fund arabica investments and crop maintenance. The resulting higher quality output may earn higher prices, as proposed in Scenario One above. The transition into the specialty coffee market for arabicas is fuelled by government support secured in the coffee authority. For example, in Malawi, the national Coffee Association is represented through the Smallholder Coffee Farmers' Trust, a privatized national farmers' association representing the country's minority small farmers. The national trust consists of five regional farmers' associations made up of 3,500 farmers. The Association has focused on developing a Rural Coffee Farmers Savings and Credit organization and an improved extension service with the goal of marketing "Mzuzu Coffee as a specialty product" (European Commission's Delegation to Malawi, 2004). Another example comes from Costa Rica. There, FEDECOOP, the national farmer cooperative association, has received training to use price risk hedging strategies such as "price to be

fixed” contracts with its customers as a form of providing price risk insurance to itself and its farmer members, so that they may continue to protect their investments in high-quality arabica production (ITF-Commrisk Country Profile: Costa Rica, 2003).

Through the coffee authority, farmers can also seek special processing licenses and even, permission to export directly, allowing them to bypass traditional links in the commodity chain, in accordance with Scenario Two discussed above. Tanzania and again, Costa Rica, provide examples of this. In Tanzania, the Association of Kilimanjaro Specialty Coffee Growers, through their participation in the farmers’ coffee association that consults to the national Coffee Board, became the first group to receive special permission from the government to bypass the mandatory auction and export directly (East African Fine Coffees Association, 2004). Part of the Kilimanjaro Association’s direct exports were destined for the Fair Trade and Organic markets. In this case, Tanzanian farmers increased their prices by both bypassing middle traders, processors and exporters and by selling higher quality coffee into niche consuming markets. The East African Fine Coffees Association notes that some of the Southern farmers from the Kilimanjaro Association were able to market their coffee at prices 66% higher than farmers who went through the government auction (2004). In Costa Rica, some coffee farmers’ cooperatives represented in the coffee authority, the Costa Rican Coffee Institute (ICAFE), through the national farmers’ cooperative (FEDECOOP) recently received government permission to export directly through an online auction as “part of a strategy to promote Costa Rican coffee as a gourmet product” (Muñoz, 2003). One farmer noted that customers in Japan were willing to pay up to US\$ 4.08 a pound for Costa Rican coffee auctioned directly by farmers online (Muñoz, 2003).

In contrast, arabica producing countries without producer participation have coffee authorities that are either government-dominated (even when private sector participation is mandated, as in Papua New Guinea) or have active private-sector participation, but only by the downstream industries such as roasting, retail and export (as in Cameroon and the Philippines). Although the mission statements of such coffee authorities frequently state goals such as to “maximize financial returns to all coffee

producers,” we can hardly expect an exporter-dominated authority, for example, to adhere to such ideals at their own expense. For example, in Cameroon, the National Office for Coffee and Cocoa (ONCC) is the government-run coffee authority, with the private sector wing being the Inter-professional Board on Coffee and Cocoa (CICC). While the CICC represents coffee growers in name, its “claim to represent Cameroonian farmers is hard to sustain, and in practice, there has been little to distinguish it from the main exporters’ associations,” which are the Organization of Cocoa and Coffee Exporters (GEX) and the Association of Cocoa and Coffee Exporters (AECC) (Gilbert et al., 1999, pp.5). Since liberalization, Cameroon no longer offers any extension services or technical assistance to farmers. The story of the coffee authority is similar for the Philippines: farmers are nominally claimed to be members of the Task Force of the Philippine National Coffee Development Board. However, they do not appear on the actual list of members of the Task Force: only government ministries, coffee retailers, roasters and exporters are present (*Philippine Business*, 2002). The structure of these authorities allows the government, or other private sector players to seek market benefits for themselves, possibly at the expense of farmers. In seeking these benefits, downstream players may pursue quality enhancement programs that benefit farmers,<sup>7</sup> however, the analysis in this study shows that, on average, organized coffee farmers do better for themselves by participating directly in their national coffee authority.

## **Conclusion**

This analysis challenges the commonly held notion that farmers are politically powerless and incapable of organizing for their own benefit. Market liberalization and the decreasing role of the state in directing regulatory policy has, in many cases, allowed farmers new political access and has given them an economic motivation to overcome significant impediments to collective action. Using corporatist networks to participate in the national coffee authority and diffuse benefits to individuals at the local level, farmers’ groups that participate in the authority are able to deliver access to inputs, credit, and licensing privileges to their members. The regression analysis in this paper shows that active producer participation in the coffee authority results in higher farm prices for producers of arabica

coffee, even when controlling for aspects of the policy and marketing environment. In the case of arabica coffees, farmer participation in the regulatory authority has contributed to farm prices that are fifteen to twenty cents higher per pound than in cases where arabica farmers do not participate in the authority. In the case of robusta coffees, producer participation does not appear to result in higher farm prices. This is most likely because of the greater potential that arabica farmers have to move into producing coffees that can be marketed to higher-paying niche consumer markets abroad. Thus, the ability of farmers to benefit, at least in terms of higher prices, from participation in a market regulatory authority may be a function of the structure of the market in which the farmers participate. These findings may have implications for markets of other primary commodities in developing countries. In markets where the commodity can be differentiated by many grades of quality or undergo processing in the producing country to add value, farmer participation in the regulatory authority may offer direct benefits of higher prices and provide some of the poorer segments of the world's population opportunities to move into more profitable markets.

Table 1. What determines the Gap between Farm Prices and Export Prices for Coffee?

Weighted Least Squares Regression	Sample: Producing Country by Type of Coffee Exported			
Dependent variable: Price Gap: Difference between the Export Price and Farm Price of Coffee				
<i>Prices are in US cents per lb.</i>	Robusta Control	Policy Controls	Market Environment Controls	All Controls
	(1)	(2)	(3)	(4)
Producer Participation*Robusta	-5.68 (5.54)	-3.59 (6.03)	-6.69 (6.12)	-4.94 (7.01)
Producer Participation*Arabica	-19.64** (7.71)	-18.80** (8.29)	-18.00** (8.98)	-19.28** (9.28)
Robusta	-36.62*** (7.73)	-38.53*** (7.83)	-34.81*** (8.26)	-38.32*** (9.28)
Government Marketing		-2.53 (6.79)		-6.01 (7.53)
Government Pricing		9.88 (8.71)		9.32 (10.26)
Unliberalized		3.83 (7.44)		8.64 (8.55)
Regime Type		-.089 (.480)		.151 (.593)
GDP (per capita)			-.001 (.001)	-.002 (.001)
Transaction Costs			-4.52 (12.33)	1.31 (13.90)
Civil Conflict			-.393 (2.99)	-3.19 (3.58)
Large Farms			.981 (6.41)	.744 (7.05)
Constant	56.70*** (6.52)	56.60*** (7.16)	59.51*** (8.35)	63.42*** (9.35)
Observations	37	37	37	37
R-squared (Adjusted)	.50	.47	.46	.43
Joint F-test of Significance on variables not independently significant		F(5,29) = .58 p>F = .72, no joint significance	F(5,29) = .49 p>F = .78, no joint significance	F(9,25) = .54 p>F = .83, no joint significance

Standard Errors in Parentheses \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

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## Appendix I. Extent of Market Reform in Coffee Producing Countries

	unliberalized	government marketing	government pricing	fully liberalized	Designation as of 1996-2002
Burundi arabica	<i>before</i> → <i>after</i>				<i>unliberalized</i>
Colombia arabica	<i>before</i> → <i>after</i>				<i>unliberalized</i>
Ivory Coast robusta	<i>before</i> → <i>after</i>				<i>unliberalized</i> <sup>8</sup>
Gabon robusta	<i>before</i> → <i>after</i>				<i>unliberalized</i>
Kenya arabica	<i>before</i> →	<i>after</i>			<i>government marketing</i>
Tanzania arabica (64%)	<i>before</i> →	<i>after</i>			<i>government marketing</i>
Tanzania robusta (36%)	<i>before</i> →	<i>after</i>			<i>government marketing</i>
Vietnam robusta	<i>before</i> →	<i>after</i>			<i>government marketing</i> <sup>9</sup>
Ethiopia arabica	<i>before</i> →	<i>after</i>			<i>government marketing</i> <sup>10</sup>
Costa Rica arabica		<i>before</i> → <i>after</i>			<i>government marketing</i>
Angola robusta	<i>before</i> →		<i>after</i>		<i>government pricing</i>
Central African Republic robusta	<i>before</i> →		<i>after</i>		<i>government pricing</i> <sup>11</sup>
Cameroon robusta (85%)	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Cameroon arabica (15%)	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Dominican Republic arabica	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
El Salvador arabica	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
India robusta (57%)	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
India arabica (43%)	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Madagascar robusta	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Malawi arabica	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Peru arabica	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Rwanda arabica	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Uganda robusta (87%)	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Uganda arabica (13%)	<i>before</i> →			<i>after</i>	<i>fully liberalized</i>
Brazil arabica (85%)			<i>before</i> →	<i>after</i>	<i>fully liberalized</i>
Brazil robusta (15%)			<i>before</i> →	<i>after</i>	<i>fully liberalized</i>
Ecuador arabica (70%)			<i>before</i> →	<i>after</i>	<i>fully liberalized</i>
Ecuador robusta (30%)			<i>before</i> →	<i>after</i>	<i>fully liberalized</i>
Papua New Guinea arabica			<i>before</i> →	<i>after</i>	<i>fully liberalized</i>
Togo robusta			<i>before</i> →	<i>after</i>	<i>fully liberalized</i>
Guatemala arabica		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>
Honduras arabica		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>
Indonesia robusta		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>
Mexico arabica		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>
Philippines robusta (75%)		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>
Philippines arabica (10%) <sup>12</sup>		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>
Thailand robusta		<i>ICA</i> →		<i>after</i>	<i>fully liberalized</i>

**Key:** *before* = Situation prior to reform from 1989 to 1996; *after* = Situation after reform, over the period from 1996-2002; *ICA* signifies government intervention that was limited to enforcing ICA quotas

Appendix II. Descriptive Graphs of Price Gaps and Producer Participation Across Countries

Figure 1.

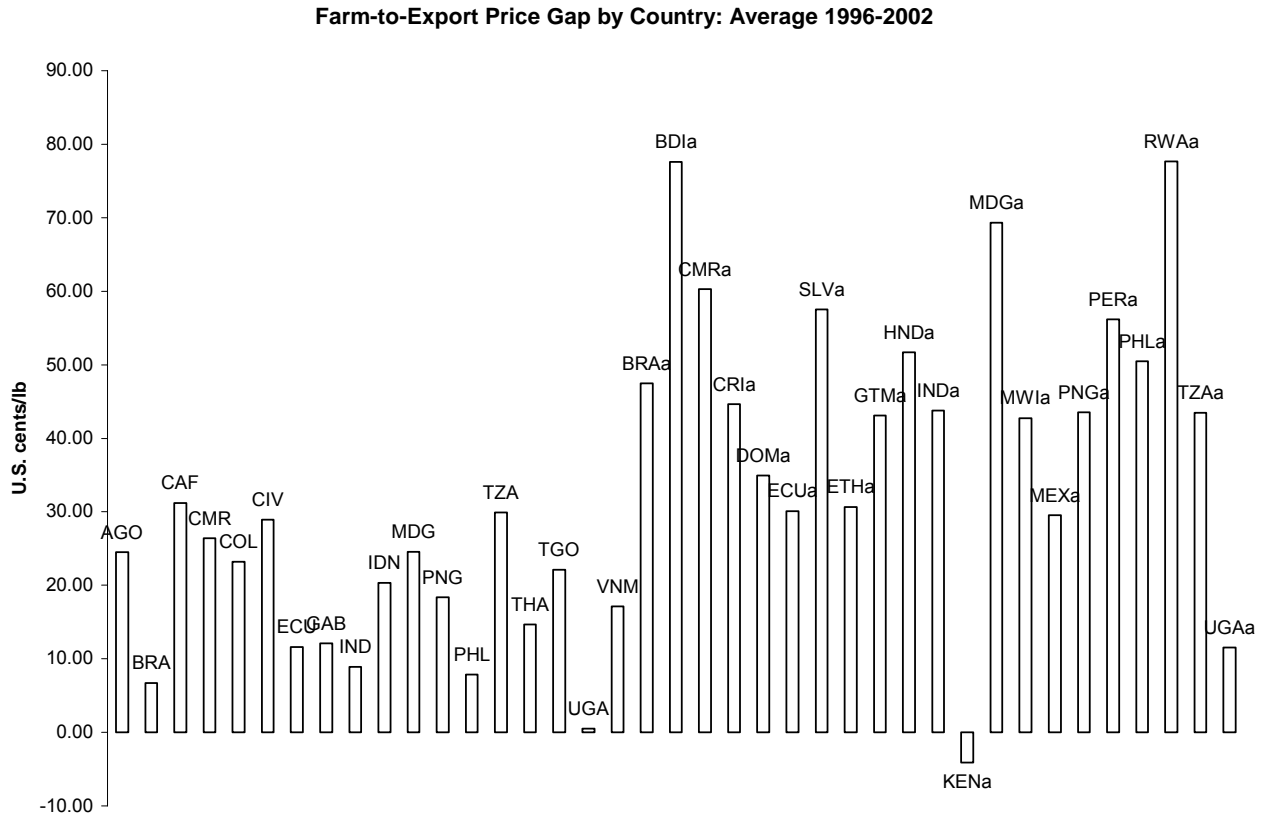


Figure 2.

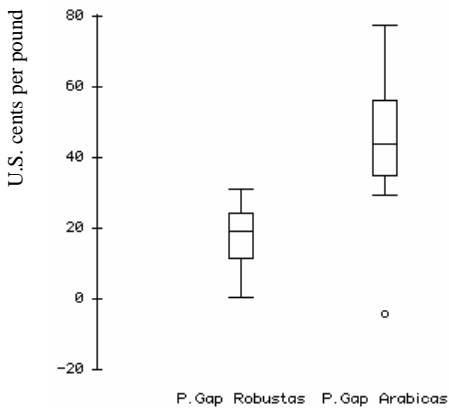


Figure 3.

**Producer Participation**

	Yes	No
10	Costa Rica India, Brazil Ecuador El Salvador, Colombia Mexico, Honduras, Malawi	Papua New Guinea Thailand, Philippines Madagascar
5	Peru Tanzania	Central African Republic
0		Indonesia Ethiopia
-5	Ivory Coast, Kenya	Burundi, Togo Angola Cameroon Rwanda
-10	Uganda	Vietnam

### Appendix III. Producer Participation in Case Countries

Country / Producer Participation?	Description
Angola No	<i>In Angola, farmers do not participate in the coffee regulatory policies laid out by the government organization INCA, the National Coffee Institute. INCA still mandates a minimum producer price, but marketing and exporting has been privatized. However, licensing procedures to market and export are still quite bureaucratic and it appears that two large State-owned coffee exporters are slow to privatize. Krivonos' work finds that the reforms in Angola have not improved price transmission from the world level to the farm (2003). Farmers' cooperatives in Angola were created by the state in the late 1970s, early 1980s, and the state continues to make plans for restructuring cooperatives, showing the way in which cooperatives remain a top-down method of state cooptation of farmer interests. Politically, many farmers were alienated by the MPLA in the 1970s and thus, became supporters of the UNITA opposition in the civil war and in politics today. Other than the political opposition, farmers seem to have little independent bargaining power against the state.</i>
Burundi No	<i>The Office of the Coffee Board of Burundi (OCIBU), which was formerly the state marketing board for Burundi, underwent some reforms in 1990, but these have not included the inclusion of private interests in the Board's membership. The extent of the reform in Burundi has been the government allowing private groups to rent coffee washing and pulping stations and run them as private enterprises. As a result of this and with the support of international non-governmental organization funding, many producers associations have been springing up as small cooperative businesses running coffee washing stations. Nonetheless, the government still retains sole control over OCIBU. Therefore, there is no mandated producer participation in the coffee authority in Burundi.</i>
Brazil Yes	<i>Producers are represented in Brazil through their delegate on the CDPC (Conselho Deliberativo da Política do Café)'s Board of Directors. Their delegate is a member of the CAN: National Confederation of Agriculture (Confederação Nacional da Agricultura). All sectors of the industry have representation on the CDPC's Board. There is still a strong government presence in the Board, with eight of twelve members being from government ministries and councils. The coffee market in Brazil is fully liberalized, so the CDPC's "intervention is limited to the management and sale of publicly-owned stocks, and the provision of credit for cultivation, harvesting and final processing" as well as research (ICO Country Profile). Farmers are organized into local cooperatives which fall under the overarching organization, CAN. Some farmers' cooperatives export directly and many use government-issued forward contracts called CPR's as price instability hedging instruments. The farmers' representatives have successfully lobbied the government to release funds for crop development and ensure credit to farmers on good terms.</i>
Cameroon No	<i>The Office National du Cacao et du Café (ONCC) is the reformed government body that was named the ONCPB (Office National de Commercialisation des Produits de Base) prior to market liberalization. The ONCPB previously acted as a caisse de stabilisation in Francophone areas and as a marketing board in Anglophone areas. The ONCC is now the government-run coffee authority, although it provides no active extension services to coffee farmers. As an advisory board to the ONCC, there is the CICC, Conseil Interprofessionnel du Cacao et du Café, responsible for statistics collection. The CICC is a public-private partnership, with three of the ten members being from the private sector. In fact, the two large exporter organizations dominate the CICC and, while farmers are nominally listed as members, it seems they participate only in name (Gilbert et al. 1999 pp. 5). Many active farmers' cooperatives serve as a marketing intermediary for coffee farmers, but there is no evidence that these farmer associations are actively participating in the coffee regulatory authority or in any sort of policy role.</i>
Central African Republic No	<i>The Office for the Regulation of Marketing and Quality Control of Agricultural Products (ORCCPA) is the organization that replaced the marketing board in 1991 in the Central African Republic. ORCCPA continues to be a government-controlled organization without private sector membership. It is in charge of setting the farm price for coffee and providing extension services. The National Agency for the Development of Family Coffee Planting (ADECAF) has stimulated a state-led cooperative movement and some farmers' cooperatives own coffee processing factories, but the private sector does not participate in overseeing the market or directing policy.</i>
Colombia Yes	<i>The National Federation of Coffee Growers, Federacafe, is Colombia's coffee authority. Its membership consists solely of coffee farmers. This organization has regulated the coffee market in Colombia since 1927. Federacafe oversees the minimum coffee price for farmers and controls the national price stabilization fund. It provides extension services and technical research as well as rural infrastructure. Since 1930, Federacafe has provided more than US\$ 2 billion in infrastructure to the Colombian countryside through the building of roads and bridges, schools, water supply systems and electricity networks.</i>

Costa Rica Yes	<i>The Coffee Institute of Costa Rica (ICAFE) replaced the Coffee Board in 1985 and was restructured to include private sector participation. In 1997, ICAFE was officially designated a non-state public institution as opposed to a state institution. It is responsible for supervising the coffee sector, providing research and development services, and promoting the interests of private coffee sector groups in policy formation. ICAFE determines the export quotas of exporters, monitors adherence to quality standards and registers contracts between exporters and processors. ICAFE's Board of Directors are the directors from the Congreso Nacional Cafetalero (Chamber of Coffee Producers) and consists of seven members: three producers, one processor, one exporter, one roaster and one representative from the Ministry of Economics. The Ministry of Economics nominates these individuals. The Chamber itself has forty-five members, twenty-seven of whom are from farmers' groups.</i>
Dominican Republic Yes	<i>The Dominican Coffee Council (CODOCAFE) replaced the Commission in 2000. CODOCAFE's main responsibility is to formulate the Dominican coffee policy, and administer the coffee funds created with exporters' contributions. The Council is presided by the Ministry of Agriculture, and includes coffee producers, exporters, the Banco Agrícola, and the Central Bank. In addition, producer groups in the Dominican Republic are active and strong. The Confederación de Cacaocultores Dominicanos (CONACADO), for example, is one of the larger farmer cooperatives. Its membership contains about 8,500 cocoa producers 4,000 coffee producers and it is one of the largest marketers of coffee in the Dominican Republic. CONACADO is a government-sponsored cooperative, and is one of the most successful participants in the Fair Trade market in the country.</i>
Ivory Coast Yes	<i>As part of market liberalization in the second half of the 1990s, New Caistab replaced the Ivory Coast's government marketing board, Caistab, but was soon dissolved because it was basically the same as the old marketing board. In its place, the government created the Bourse du Cafe et du Cacao (BCC), a privately-run marketing organization for coffee and cocoa. Two-thirds of the Board of Directors of BCC is represented by farmers, while the remaining third consists of small and medium exporters. Later, a minority share in the vote was granted to the organization representing large exporters, GEPEX (Groupement des Exportateurs de Cafe-cacao). The BCC is regulated by the government's Autorite de Regulation du Cafe and du Cacao (ARCC). By the beginning of 2001, the BCC was advocating a "forward buying system" for coffee and cocoa, by which approximately 75% of the nation's coffee and cocoa crop would be sold to purchasers in advance at pre-negotiated prices (EIU, May 2001). The BCC also promoted restructuring of the Fond de Garantie des Cooperatives Cafe-cacao, the price stabilization fund (EIU, May 2001). These policies are similar to those of the previous New Caistab, but the main difference is that the BCC is now mostly privately run with producers having the most input into the way the organization is administered and the use of its funds. While the IMF and World contest this arrangement, the current civil war has apparently halted any overt efforts to restructure the policies.</i>
Ecuador Yes	<i>The Consejo Cafetalero Nacional (COFENAC), or the National Coffee Industry Chamber was formed in 1995 in Ecuador as the national coffee authority. This organization supervises the coffee industry, providing credit, research and extension services, and promoting Ecuador's coffee. COFENAC consists of a Superior Chamber (Consejo Superior), an Executive Directors' Board (la Dirección Ejecutiva) and a Technical Division. The Superior Chamber has seven members: a representative from the Ministry of Agriculture, a representative from the Ministry of Industry and Commerce, one representative from ANECAFE (an exporters' association), a representative from independent coffee growers, a representative from other coffee industries, a representative for the Federation of Coffee Cooperatives of Ecuador (FENACAFE), and a representative from coffee growers in the Amazon region (CORACAF, named as of 1998). FENACAFE was founded in 1967 and as of 2001, incorporated 44 cooperative societies producing coffee. The cooperative associations are actively pursuing entrance into the Fair Trade and Organic markets for coffee and COFENAC's programs seek to improve these groups' chances of meeting quality standards to enter these niche markets</i>
El Salvador Yes	<i>The Council for Salvadoran Coffee, or CSC (Consejo Salvadoreño del Café) came into existence in 1989 when the purely governmental National Coffee Institute, INCAFE was declared unconstitutional. INCAFE had been created in 1979 when the Salvadoran coffee export industry was nationalized. With liberalization in 1989, the CSC gained private sector participation that includes board representation from farmers, processors and exporters, in addition to four government seats. Farmers are represented specifically through the Coffee Cooperatives Union (UCAFES de R.L.) and the Cooperative Associations from the Agrarian Reform (UCRAPROBEX). Recently, INCAFE has sponsored online direct auctions of farmers' coffee.</i>

Ethiopia No	<i>From 1974 until 1991, Ethiopia's Ministry of Coffee and Tea Development (MCTD) served as the marketing board under the country's military Marxist regime. After 1991, the MCTD became the Coffee and Tea Authority, in charge of quality control of coffee industry promotion at home and abroad. Prior to reform, the state-owned enterprise, Ethiopian Coffee Marketing Corporation (ECMC), marketed most of the coffee in the country. With reform, it was split into two companies, one which brings coffee to the government-owned auction and one which exports coffee bought at the auction. Private traders are also allowed to market coffee now along these two state-owned enterprises. Currently, private traders market 75% of production. Since 1991, under the Federal Democratic Republic of Ethiopia, regional states have been organized and farmers' associations represent the smallest administrative unit. While there is a strong and well-organized cooperative structure up to the national level in Ethiopia, the government has not yet allowed private sector participation in the Coffee and Tea Authority and the government continues to dominate the coffee auction.</i>
Gabon No	<i>In Gabon, the Caisse de Stabilization et de Perequation remains as a government-owned marketing board. All coffee passes through the board on its way to market and farmers are reimbursed for their sales to the board at a fixed price set in advance. Privatization of the board and marketing has been planned, but the government has been reluctant to implement this. Producers are not included in this regulatory process.</i>
Guatemala Yes	<i>Guatemala's coffee farmers are represented through the grower organization ANACAFE. The president of ANACAFE sits on the National Council for Coffee Policy along with the Ministers of Agriculture, Finance, Foreign Affairs and the president of the Monetary Council. Government intervention through the National Council is limited to the collection of the small export levy. ANACAFE, on the other hand, oversees technical extension, coffee promotion, research, export permits, registration, and statistics collection. After 1998, small producers' organizations were given greater representation in ANACAFE with the addition of the cooperatives FEDECOCAGUA, UNOFEG, and FEDECOVERA. Recently, ANACAFE has been seeking to obtain a separate contract for Guatemalan coffee on the New York Futures Exchange. The organization has also begun to market coffee directly through online auctions.</i>
Honduras Yes	<i>The Honduran Coffee Institute, IHCAFE (Instituto Hondureño del Café), is this country's coffee authority. Its membership consists of farmer organizations and its board and local representatives are elected through a system of local elections that lead to election of the national board. Government intervention into the market in Honduras was limited to implementation of ICA quotas, but now the market is fully liberalized. IHCAFE oversees research and market development, technical extension services, and training. Its engineering department is in charge with the construction and maintenance of roads in coffee-growing regions. AHPROCAFE, ANACAFE, UNIO COP, and CCCH are among the farmer organizations represented in IHCAFE. Recent initiatives by IHCAFE include the promotion of Organic and Shade-grown coffees.</i>
India Yes	<i>The Coffee Board of India was restructured in 1995 and, although it retained its original name, the organization was changed dramatically to include private sector participation. The Board of Directors of the Coffee Board consists of thirty three members, eleven of which are farmers, eleven of which represent other private sector coffee interests and eleven of which are government representatives. The Coffee Board oversees market development and extension services to farmers. It provides a monthly manual on best-growing techniques to coffee farmers. Farmers' groups have used the Board to argue for subsidies to encourage productivity. While individual planters sit on the board of directors, well-organized farmers' associations such as the Karnataka Planters' Association, the Karnataka Growers' Federation, the Association of Planters of Kerala and the Planters Association of Tamil Nadu work as pressure groups on the Coffee Board.</i>
Indonesia No	<i>In Indonesia, the Association of Indonesian Coffee Exporters (AEKI) serves as the industry voice to the government on coffee regulatory policy. With the abolition of ICA quotas in the early 1990s, Indonesia's coffee industry became fully liberalized. AEKI runs a full research and extension service for coffee production development in coordination with the government. AEKI is run by the private sector, but its membership consists of exporters. Producers are not represented.</i>
Kenya Yes	<i>Kenya is a country where coffee farmer interests dominate the coffee regulatory mechanism. The Coffee Board of Kenya (CBK), with fourteen members on its Board of Directors, has nine coffee grower representatives and four government ministers. The government ministers also have close ties to coffee interests, with at least one minister being a former farmer himself. The Kenya Planters' Cooperative Union (KPCU) has a strong influence in the CBK, as it is one of only three licensed millers allowed to deliver coffee to the mandatory weekly auction. Recent efforts by one minister in the CBK to introduce three more licensed millers into the system seem to be failing on account of KPCU disagreement with the decision. All smallholders in Kenya are required to market their coffee through their local cooperative societies. Smallholders account for at least 55% of coffee production in Kenya, but there are a number of medium and large coffee estates as well. Socfinaf, an organization representing white estate owners is also a licensed miller in the auction.</i>

Madagascar No	<i>After the marketing board, the Caisse de Commercialisation et de Stabilisation des Prix du Café, de la Vanille et du Girofle (CAVAGI), was dismantled in 1988, the government established the National Committee for Coffee Commercialization (CNCC) to continue to oversee ICA quotas. After the end of the ICA, the CNCC continued to oversee the coffee market. The government-sponsored coffee extension service ended in 1990, replaced by a poorly-run general agricultural extension service. The CNCC consists of a union of nine Malagasy coffee exporters. The government attends their meetings, but has no voting power in this organization. Coffee growers are not represented.</i>
Malawi Yes	<i>Malawi's government privatized its Smallholder Coffee Authority in 1999, and it was bought by the smallholders. Prior to this, in 1991, the government granted smallholders leaseholder property rights over their land, to prevent the continued transfer of land to large estates. The Smallholder Coffee Farmers' Trust is a private organization run as a corporation by an elected board of farmers that represented the five main coffee growing regions for smallholders. Thus the main coffee regulatory authority in the fully liberalized market of Malawi is the Trust, which represents at least 3500 growers. However, these farmers represent only 5% of the coffee crop, with the remainder being grown on large commercial estates. These estates do not have any obvious political organization of their own, but their individual market power in a deregulated market may ensure their powerful political position.</i>
Mexico Yes	<i>In 1993, the Mexican Coffee Institute (INMECAFE) was restructured following the ending of ICA quotas and renamed the Mexican Coffee Council (CMC- Consejo Mexicano del Café). The CMC is mandated to create regulatory policy to modernize and promote the Mexican coffee sector. Its board consists of representatives from the Ministries of Agriculture, Finance and Public Credit, Economy, and Social Development, the governors of the main coffee producing states, the heads of two large agricultural banks, six growers' groups, and representatives for processors, exporters, roasters and traders. For example, one of the producer groups, the Union of Coffee Producers (CNOG), formed in 1988, consists of 126 regional farmers' associations from Chiapas, Guerrero, Hidalgo, Oaxaca, Puebla, San Luis Potosí and Veracruz. It markets coffee for farmers and has begun forming regional 'fondos,' small credit enterprises for its farmer members.</i>
Papua New Guinea No	<i>Papua New Guinea's coffee is grown mostly by smallholders. The Coffee Industry Corporation nominally has six regional grower associations as members, but these cooperatives were largely created by state initiative and appear to be politicized, largely non-independent organizations. All initiatives seem to be directed from the CIC down, and extension services are provided by appointed regional extension officers. The level of service provision is poor, access to credit for smallholders is very limited and there appears to be little independent farmer impetus to counteract this.</i>
Peru Yes	<i>The National Coffee Council (Junta Nacional del Café) was created in 1993 as an organization to represent the interests of Peruvian coffee farmers, especially small farmers. As the national coffee authority, it is completely controlled by producers. The organization was restructured in this way as part of a larger governmental withdrawal from the economy in the early 1990s. The National Coffee Council includes representatives from sixteen producers' organizations, representing over 30,000 member families. Approximately 70% of coffee producers in Peru participate in the specialty coffees market, farming Organic and Shade-grown coffees. Currently the Coffee Council is pressuring the Peruvian government to renew its membership in the International Coffee Organization.</i>
Rwanda No	<i>OCIR-CAFE, the Coffee Board of Rwanda, is the national coffee authority. Prior to market liberalization, the government-owned enterprise RWANDEX served as the main marketer of coffee, exporting approximately 90% of the country's crop. With market liberalization in 1994, private marketing was allowed and all price controls on coffee were lifted. Restructuring of the Coffee Board was also planned, and the new board would have private sector participation from all aspects of the industry, including farmers. However, as of 2003, OCIR-CAFE had not been restructured, as a draft law for its restructuring was presented in Parliament (Republic of Rwanda 2003). Thus, the private sector currently does not participate in the coffee authority. Though there is evidence of increased farmer participation in cooperatives and entrepreneurial initiatives on the part of these cooperatives, farmers were not part of the regulatory process as of 2003.</i>
Philippines No	<i>In the Philippines, producer participation in coffee policy seems to be in name only and is imposed by the state or by private retail groups. The market is fully liberalized and there is a fair degree of domestic consumption and processing of coffee. The coffee authority is the Coffee Exporters' Association. There is significant private sector participation in coffee policy, but from the perspective of retailers, millers and exporters. In addition, the Philippines National Coffee Development Board (PNDCB) was created largely through the initiative of entrepreneurs of Figaro Coffee Company. The Figaro Foundation created the "Adopt a Coffee Farm" program to encourage farming investments into high-quality, organic coffee plantations. Independent farmers' cooperatives in the Philippines were unified under Marcos' martial law into one large, state-penetrated cooperative union in 1979. Farmers' cooperatives that do appear independently active now are not direct participants in coffee regulatory policy.</i>

Tanzania Yes	<i>Tanzania's producer associations have had a complicated tug-of-war with the government throughout the history of coffee production there. Under British colonial rule, some independent farmers' associations emerged as independent sources of credit through private African traders became available. The government initiated "organized markets" beginning in 1937 to crack down on the perceived threat to 'chiefly indirect rule' of private enterprise, continuing with state penetration into cooperative societies until the 1960s and really, until quite recently. Cooperatives were dissolved in 1976, reinstated in 1984 and then renewed in 1991 with more autonomy. After liberalization, cooperatives' share of marketing declined, but has been steadily rising since 1997 to now hold about 26% of the market. Primary Cooperative societies and their vertically integrated unions above them seem more closely entwined with the government than farmers associations which are also prevalent. While the Tanzania Coffee Board is purely governmental, it has created a private sector advisory forum consisting of the Tanzania Coffee Association (TCA), Tanganyika Coffee Growers Association (TCGA) and Association of Kilimanjaro Specialty Coffee Growers (AKSCG). The government still runs a mandatory auction through which all coffee must be marketed (with exceptions). Recently, some cooperatives, such as the Kilimanjaro Native Cooperative Union have received permission to bypass the government auction and make direct export contracts with buyers. Many pursue development of Fair Trade and Organic coffees.</i>
Thailand No	<i>Thai coffee farmers are ostensibly represented by local primary farmer cooperatives that are part of a vertically integrated, government-created cooperative structure crowned by the Agricultural Cooperative Federation of Thailand. However, there is no evidence of independent coffee farmer organization or even, active coffee farmer participation in the existing cooperative structure. Most of Thailand's coffee production is of the Robusta variety, grown on large plantations in the south. These farms appear to be owned by the large processor/roasters. It does not seem to be a case of farmers collectively organizing, gaining market power through the accumulation of large farms and then, having the power to process and export. Rather, export and processing companies have come to dominate production and regulatory policy. Predominantly exporter interests are represented in the Coffee Authority: the Thai Coffee Exporters' Association.</i>
Togo No	<i>Coffee farmers in Togo are represented in name within the Coordination Committee, the private-sector organization which took over market regulation from the marketing board, OPAT, after 1996. However, in terms of the design of the liberalization process, which constitutes most of the work thus performed by the CC, farmers were not included as independent bargainers. While there is evidence that cooperatives still serve as a buying agent for some farmers' crops (currently about 15% of the total coffee crop), cooperatives no longer provide credit and few subsidized inputs. Farmers obtain credit from the large exporters. Four large, foreign-funded exporters and their agents control most of Togo's coffee exports and marketing. Outside of the top-down organized farmers union, the Union of Coffee and Cocoa Producers (GPCC), and its subsidiary regional organizations, there is no evidence of other, independent farmers organizations. Gilbert et al note that the CC, while representing farmers in name, may serve as little more than an exporters' association (pp.5). Indeed, there is no evidence of farmer participation in this organization and only exporters, banks and the government participated in the design of the liberalization program.</i>
Uganda Yes	<i>The Uganda Coffee Development Authority (UCDA) was created in 1991 to replace the Coffee Marketing Board. At this time, price controls were lifted and, the following year, private marketing was legalized. The UCDA oversees market development, research and quality control for the coffee sector. Private sector participation in the UCDA was mandated in 1994. The Board of Directors of the UCDA consists of two farmer representatives, two processors, two exporters, one representative each from the Ministry of Finance, Ministry of Agriculture, Animal Industry &amp; Fisheries, Ministry of Tourism, Trade &amp; Industry, and a Chairman of the Board and a Managing Director. The Board reviews and creates industry regulatory policies and sets quality standards and production goals. At least one of the farmer representatives is from NUCAFE, a national cooperative structure which has sixty subsidiary farmers' associations. NUCAFE's recent projects include developing a farmer extension service, policy advocacy and building rural institutional capacity.</i>
Vietnam No	<i>The Vietnam Coffee - Cocoa Association, VICOFA, was founded in 1990 as an industry representative organization. The Socialist Republic of Vietnam dismantled its agricultural collectives in 1989 and then officially allowed families to have long-term land-use rights to family-sized plots in 1993. Furthermore, private domestic marketing was allowed as part of the economic renovation called "Nhoai Mo'ui" and private exporters were allowed in 1999. However, the government still dominates the export-end of most agricultural trade through state-owned trading enterprises. VICOFA's board consists of the director of Dak Lak province's INEXIM (State-owned exporting company), Dak Lak Coffee Club, two representatives from VINACAFE (State-owned exporter), and a representative from CENTRIMEX (State-owned exporter). VINACAFE is a state-owned conglomerate consisting of 70 companies, processors and producers. 20-25% of Vietnam's coffee exports leave the country under the name of VINACAFE alone. Private assemblers and exporters, while allowed by law, are subject to government control through restrictive licensing procedures. On the production end, farmers in Vietnam are not allowed to collectively organize independent of State-sanctioned Farmers' Associations. These do not appear to be particularly vibrant organizations.</i>

Appendix IV. Regressions without High Leverage Cases and High Residual Case to Test for Robustness

**Robustness Check One: Excluding High Leverage Cases**

	Excluded Cases	Price Gap	Leverage	Residual
<i>Model 1</i>	Philippines (arabica)	50.50	.254	-6.20
	Cameroon (arabica)	60.31	.254	3.61
<i>Model 2</i>	Ethiopia (arabica)	30.65	.430	-23.34
	Burundi (arabica)	77.57	.454	16.97
<i>Model 3</i>	Thailand (robusta)	14.67	.438	.501
	Papua New Guinea (ar.)	43.52	.518	-13.23
<i>Model 4</i>	Burundi (arabica)	77.57	.522	13.27
	Papua New Guinea (ar.)	43.52	.565	-16.07

Dependent variable: Price Gap

<i>Without:</i>	<i>Philippines (arabica), Cameroon (arabica)</i>	<i>Ethiopia (arabica), Burundi (arabica)</i>	<i>Thailand (robusta), Papua New Guinea (ar.)</i>	<i>Burundi (arabica), Papua New Guinea (ar.)</i>
	<i>Robusta Control (1)</i>	<i>Policy Controls (2)</i>	<i>Market Controls (3)</i>	<i>All Controls (4)</i>
Producer Participation *Robusta	-5.68 (5.69)	-3.81 (5.86)	-7.58 (6.39)	-5.75 (7.11)
Producer Participation *Arabica	-20.29** (9.24)	-21.22** (9.50)	-22.92** (11.12)	-22.67* (11.47)
Robusta	-37.27*** (8.92)	-40.19*** (9.01)	-37.97*** (9.13)	-39.63*** (10.67)
Government Marketing		1.17 (7.05)		-6.78 (7.61)
Government Pricing		10.04 (8.48)		9.59 (10.29)
Unliberalized		1.37 (7.77)		5.85 (9.45)
Regime Type		-.013 (.469)		.211 (.603)
GDP (per capita)			-.001 (.001)	-.001 (.001)
Transaction Costs			-6.48 (17.26)	-2.70 (14.26)
Civil Conflict			-1.19 (3.35)	-4.30 (3.75)
Large Farms			3.39 (7.21)	2.94 (7.42)
Constant	57.35*** (8.21)	58.03*** (8.12)	63.77*** (9.65)	66.38*** (11.59)
Observations	35	35	35	35
R <sup>2</sup> (Adjusted)	.45	.56	.45	.36
Joint F-test of Significance		F(5,27) = .50 p>F=.77, no joint significance	F(5,27) = .48 p>F=.79, no joint significance	F(9,23) = .52 p>F=.85, no joint significance

Standard Errors in Parentheses \* significant at 10%; \*\* at 5%; \*\*\* at 1%

**Robustness Check Two: Excluding High Residual Case**

Case	Price Gap	<i>Residual Model 1</i>	<i>Residual Model 2</i>	<i>Residual Model 3</i>	<i>Residual Model 4</i>
Kenya	-4.13	-41.19	-39.49	-44.71	-40.64

Dependent variable: Price Gap

<i>Without: Kenya (arabica)</i>	<i>Robusta Control (1)</i>	<i>Policy Controls (2)</i>	<i>Market Controls (3)</i>	<i>All Controls (4)</i>
Producer Participation *Robusta	-5.68 (4.98)	-3.56 (5.38)	-8.21 (5.29)	-6.23 (6.05)
Producer Participation *Arabica	-16.70** (7.00)	-15.41** (7.49)	-15.82** (7.77)	-16.80** (8.04)
Robusta	-36.62*** (6.60)	-38.36*** (6.99)	-33.79*** (7.13)	-37.11*** (8.00)
Government Marketing		2.19 (6.27)		-1.34 (6.65)
Government Pricing		10.46 (7.78)		9.55 (8.84)
Unliberalized		3.74 (6.64)		9.11 (7.37)
Regime Type		-.189 (.429)		-.087 (.516)
GDP (per capita)			-.001 (.001)	-.002* (.001)
Transaction Costs			-7.95 (10.68)	-.611 (11.99)
Civil Conflict			-1.37 (2.60)	-3.37 (3.09)
Large Farms			5.00 (5.66)	5.96 (6.30)
Constant	56.70*** (5.86)	55.97*** (6.39)	61.77*** (7.23)	63.10*** (8.05)
Observations	36	36	36	36
R <sup>2</sup> (Adjusted)	.59	.56	.59	.57
Joint F-test of Significance		F(5,28) = .76 p>F=.58, no joint significance	F(4,28) = 1.07 p>F=.39, no joint significance	F(8,24) = .67 p>F=.71, no joint significance

Standard Errors in Parentheses \* significant at 10%; \*\* at 5%; \*\*\* at 1%

## Notes

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<sup>1</sup> This paper defines a market regulatory authority to mean a government-mandated organization charged with monitoring a particular commodity market in a country and acting as the liaison between the private sector and the government in setting and implementing market policy.

<sup>2</sup> See Appendix I.

<sup>3</sup> The International Coffee Organization's price data distinguishes between four types of coffees: robusta and three types of arabicas: Brazilian Naturals, Colombian Milds and Other Milds.

<sup>4</sup> This points to a potential problem of heteroskedasticity, or non-constant variation in the residuals from an OLS regression. Tests for heteroskedasticity, detailed within, determine the need to use a weighted least-squares regression model to remedy this problem.

<sup>5</sup> Ten out of twenty-one cases of producer participation have mostly small farm production.

<sup>6</sup> There are innumerable factors of weather and the natural environment which affect coffee production in coffee exporting countries. Pests and disease include the Hemileia vastatrix, Koleroga, Nematodes, Tracheomycosis and Coffee Berry Disease (ICO 2004). While these pests and disease are a recurring problem for farmers in all coffee growing countries, there are no consistent measures across countries to show the extent to which these factors affect production and in which regions. Even in the case of drought data, "no historical drought database exists and there is no global drought assessment product that is based on one or two key indicators" (United Nations International Strategy for Disaster Reduction 2002).

<sup>7</sup> One example is the Philippines' "Adopt a Coffee Farm" program run by coffee retailers.

<sup>8</sup> Akiyama et al. (2003) designate Ivory Coast as fully liberalized. However, the *Economist Intelligence Unit's* Country Reports for Ivory Coast from 2001-2002 carefully track the failed liberalization of the marketing board and its takeover by farmers' groups.

<sup>9</sup> I classify Vietnam as having government intervention in marketing because, although private exporters and assemblers exist, they are limited because marketing is carefully controlled through restrictive licensing procedures (de Fontenay and Leung 2002).

<sup>10</sup> Krivonos (2003) designates Ethiopia as having government pricing, but no government marketing. However, Akiyama et al. (2003) and the Ethiopian Coffee and Tea Authority clearly explain that there is a government-mandated auction that serves as the marketing channel.

<sup>11</sup> Akiyama et al. (2003) designate Central African Republic as fully liberalized. However, the ICO notes that the government sets an indicator price at the beginning of harvest season on which farm prices must be based (Country Profile 2000).

<sup>12</sup> The remainder of the Philippines' production is of other, minor varieties for which prices are not available.