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## **FINDING THE BALANCE BETWEEN AGRICULTURAL AND TRADE POLICY: RWANDA COFFEE POLICY IN FLUX**

by

**David Tardif-Douglin, Jean-Léonard Ngirumwami,  
Jim Shaffer, Anastase Murekezi, Théobald Kampayana**

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The authors reiterate that the views presented in this paper do not necessarily represent those of the government of Rwanda or of the cooperating institutions, USAID, and Michigan State University. The authors take sole responsibility for its contents.

This is an updated translation of the original French document produced in Rwanda. It takes into account the abrupt, if somewhat ephemeral, increases in world coffee prices that took place in the second quarter of 1994.

## SUMMARY

Coffee is the principal source of foreign exchange for Rwanda. Over the years the predominating coffee policy has been to remunerate coffee producing highly to ensure sufficient production and foreign exchange receipts. Along with high producer prices have come restrictions to exiting once having become a coffee grower. Recently this policy has proven costly to the national treasury as well as overly restricting to farmers. It may also have contributed, ironically, to reduced production, by prohibiting entry by would-be coffee growers.

The current policy debate focuses on whether the government can remove or modify coffee laws in existence since 1978 in such a way as to reduce the burden of the State and return crop choice to farmers without bringing about a catastrophic collapse in foreign exchange inflows.

The Division of Agricultural Statistics (DSA) of the Rwanda Ministry of Agriculture and Livestock manages a database including information that can shed light on the debate. The analysis of these data suggests that at the current nominal producer price of 115 Rwanda francs per kilogram of parchment coffee very few coffee growers would uproot their coffee trees. The impact on production would be even smaller. The worrying prediction, however, is that if the price fell to 80 francs, as it would if the explicit subsidies were removed, one-third of coffee growers would remove their coffee trees regardless of coffee laws.

Further analysis of data suggests that the internal and external conditions of the coffee market need to be given particular attention if the disaffection of coffee farmers for producing coffee is to be understood. This same confluence of events in the domestic and world markets could combine to produce the massive treasury deficits that could make coffee policy suddenly become the focus of government (and donor) attention.

The real producer price of coffee has fallen over the years, at least since the coffee boom of the mid- to late- 1970s, but so have the producer prices of other crops that would compete with coffee for land. The terms of trade have tended to favor non-agriculture to agriculture. But coffee prices have not significantly deteriorated in comparison to other key crops. Hence one would not necessarily expect to see coffee growers switching crops in droves.

The real problem with coffee over the years has been in the relative instability of its purchasing power. The amount of other crops that can be purchased from the sale of one kilogram of coffee has varied greatly. Rather than focussing on price levels, perhaps further analysis of price parity stability could contain the key to solving the coffee policy dilemma.

Deficit payments to finance the subsidization of coffee production, and thereby foreign exchange inflows, grew astronomically to a high of 4 billion Rwanda francs by the end of 1990, the year the currency suffered its first large devaluation. Because of continuing low

world prices, and a relatively inflexible and high producer price, the deficit began to grow quickly, even after the devaluation, suggesting the need for more substantive medicine.

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## **1. INTRODUCTION**

Rwanda coffee policy is at a cross-roads. Coffee has for a long time been unparalleled in its ability to profitably generate large amounts of hard currency for the largely agricultural population of this country of 7.9 million, 90% of whom live on farms. Coffee production has been an important source of foreign exchange, often accounting for more than 80% of foreign currency earnings, and an important engine of growth and investments for the 50% of farm households engaged in it. Consequently, coffee policy has tended to promote and protect the subsector on the grounds that doing so is good for the country and for individual growers. Recently, this has grown expensive as the cyclical nature of world coffee prices of the past has given way to sharply downward trends (the high prices of mid-1994 notwithstanding), turning a program of price stabilization into one of price supports. The high cost of price supports is evident in the 4 billion Rwanda franc coffee subsector deficit for 1990 (devaluation occurred in November 1990). Viewed in the long term, prices are dropping because of an endemic oversupply of coffee, brought on in part by the collapse of the International Coffee Agreement. Rwandan decision-makers need to decide whether the time is right for re-thinking and adapting coffee policy to new realities. This involves re-assessing the role of coffee as an earner of foreign exchange and the benefits and costs of promoting coffee production and export.

### **1.1. The Current Situation**

In order to ensure a steady supply of foreign exchange earnings from coffee exports, Rwandan decision makers have followed a carrot-and-stick approach with the large mass of smallholder coffee growers, producing virtually all the coffee grown in Rwanda. The carrot historically has been stable and relatively high prices to farmers, protected from the often abrupt fluctuations of the world market. The stick is a law (on the books as recently as 1994) interdicting the uprooting of coffee trees or association of other crops with coffee, as well as requiring that strict coffee tree maintenance guidelines be followed. Deviation from this law could result in the imposition of stiff fines.

In light of new realities--price declines, greater pluralism, and so on – policy makers have begun to question the wisdom of such a costly and choice-restricting policy. The debate has centered on whether the law and the deficiency payments can be abolished, changed, or removed to lighten the burden of the state and to free farmers to grow and sell what they determine to be beneficial, without causing a drastic and critical decline in foreign exchange earnings. Recently some policy-shapers have been learning toward abolition of the law. This view is based on pragmatism and ideology: the law is not consistent with the overall trend towards greater personal freedom, and the government is finding the law more difficult to enforce. What should be done about the subsidy is less clear, largely because of the common belief that without supported prices farmers would abandon coffee production en masse. Even though the law appears to be losing support, it is not at all clear that policy implementers are

uniformly willing to remove the law. Some policy makers fear that abolition of the law would lead to a serious reduction in production, and to a foreign reserve crises, not to mention reduced income to localities and individuals responsible for levying and collecting fines.

The Division of Agriculture Statistics (DSA) has information that sheds light on this debate. The information comes from a national sample maintained by the DSA of 1248 rural households, half of which are coffee growers.<sup>1</sup> Table 1 and Figure 1 present data of special interest to policy makers. These data gauge the likelihood that coffee growers will drop out of coffee production at various prices. At the current official price for parchment coffee<sup>2</sup> (115 francs at the farm gate) few growers would uproot their coffee trees, and the overall effect on production would be small. What is more troubling, especially for those favoring reduction of price subsidies, is that at the unsubsidized market price prevailing in 1992 (roughly 80 francs per kilogram of coffee at the farm gate) more than a quarter of all growers would stop growing coffee. Because less productive farmers would be more likely to drop out, the resultant drop in production would be about one fifth, a sizeable drop nonetheless. This would lead to equal declines in **gross foreign exchange revenues**, but would have a much smaller effect on **net foreign exchange earnings** depending on how the saved deficiency payments, whose removal would have driven the price to its market level, were allocated.

To test the extent to which the law is respected and determinant of coffee grower behavior, farmers were asked about the prices at which they would uproot or abandon (less drastic) their coffee trees **if the law were not abolished**. The results were only slightly different from what they would be in spite of the law, and they were in the expected direction. The law has some influence on farmer behavior, but much less than the subsidy (see Table 1, columns 3 and 4).

The information in Table 2 should allay the fears of those who are concerned about a collapse of the coffee subsector if subsidies are removed/reduced and the law abolished. The growers least attached to coffee growing, those who would uproot their coffee trees at the current official price and all prices above 80 francs per kilogram, tend also to produce, on average, less per household, they are also less productive on a per hectare basis. That nearly three times more of these growers with the lowest yields fertilize their coffee fields is indicative of the lower productivity of their land for growing coffee, and could explain their lack of enthusiasm for coffee growing.

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<sup>1</sup> The Division of Agricultural Statistics, a division of the Ministry of Agriculture and Livestock, is the principal source of scientific statistics on agricultural production, cropped area, yields, and income and expenditure for Rwanda. It has been supported since its inception 10 years ago by the United States Agency for International Development through projects managed by Bethesda-based Development Alternatives Inc., and Michigan State University.

<sup>2</sup> Parchment coffee, the name for the level of processed coffee most growers sell, is the product of the first level of processing, the de-pulping of coffee cherries and the drying of coffee beans. Further stages of processing are nearly always carried out industrially in coffee processing plants. Throughout this paper farm-gate or producer prices refer to parchment coffee.

**Table 1. Estimated Producer and Production Response to Various Farm-Gate Prices with or without the Ministerial Law Regulating Coffee Growing**

RESPONSE	Without Regulation*		With Regulation**	
	@115F/kg	@80F/kg***	@115F/kg	@80F/kg
% households uprooting trees	3	27	1	24
% households abandoning trees	9	44	3	37
% coffee trees abandoned	13	n/a	n/a	n/a
% coffee trees uprooted	3	27	n/a	n/a
% of production lost	3	20	n/a	n/a

Sources: Coffee surveys, Minagri/DSA, Prices: OCIR-Café

\*1991/92 DSA coffee survey.

\*\* Supplementary coffee survey, 1993.

\*\*\* This represents the un-subsidized price the coffee grower would have received given the FOB Mombasa price prevailing for the 1992 coffee season, and given the average exchange rate for the period.

**Table 2. Comparison of the Household and Economic Characteristics of Coffee Growers Who Are Highly Committed to Coffee Growing to Those Who Are Less Committed**

Characteristics	Committed	Less Committed	All Coffee Growers
Average amount of land available (acres/hh)	99.35	116.42	106.53
Average amount of cultivable land available	86.12	104.87	93.97
Number of cultivable acres/person	16.35	18.87	18.12
Average quantity of coffee (kgs) produced per household in 1990	65	41	58
Average quantity of bananas (kgs) produced per household in 1990	2,323	3,893	2,799
Average coffee yields (gr/tree) 1990	352	220	315
% households adding trees in past 6 years	45	38	35
% households applying fertilizer to coffee trees	7	21	10

---

Source: Minagri/DSA, 1990= 1991/1992.

\* Committed coffee growers are those who would not uproot their coffee trees until the farm-gate price falls below 80 Rwanda francs per kilogram, or who would simply not uproot their trees regardless of the price, given current exchange rates and legal conditions. Less committed growers would begin to uproot trees at prices well above 80 francs per kilogram (in some cases eliminating their trees at prices as high as the official price of 115 francs per kilogram).

DSA (Division des Statistiques Agricoles), Ministry of Agriculture, Rwanda.

Farmers more attached to coffee growing (those who would not uproot until the price fell to 80 francs and below) on average have less land, produce half again as much coffee as their unattached counterparts, and have higher yields. Significantly, they produce much less of the principal competing crop, bananas, but show great confidence in the future of coffee. One can assume that these farmers tend to be located where coffee productivity is high, even with limited investments in fertilizer.

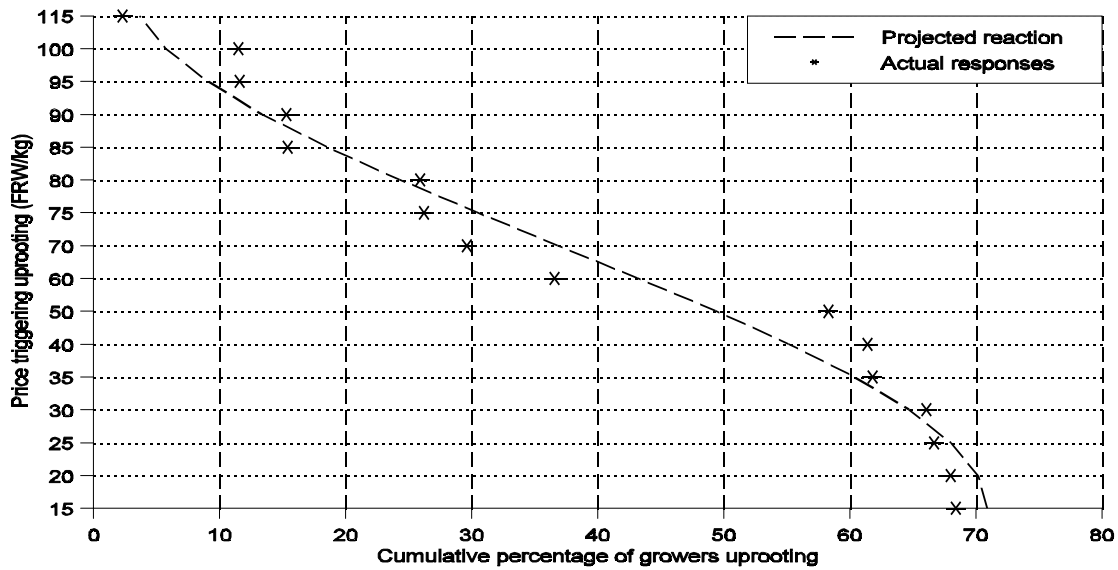
It doesn't necessarily follow naturally that the farmers in agriculturally marginal areas will be the most likely to discontinue coffee production. Consider that farmers in highly productive regions where coffee does well, but where bananas do even better, might well consider coffee production a poor alternative. It might be precisely in some more marginal areas, where coffee is more productive relative to other crops such as bananas. Consequently, it is not inconceivable that coffee production would decline in the most rather than the least productive areas in spite of our finding that coffee growers with the least productive fields are most susceptible to dropping out tend to have less productive coffee fields.

The two principal factors that contribute to the deficit in the coffee subsector in the last four to five years are the sharply lower world prices and an overvaluation of the Rwanda franc against the US dollar, in which international coffee trade is denominated. Understanding the internal and external conditions responsible for these factors is key to understanding the fundamentals of the problem facing Rwandan policy makers with respect to coffee production, foreign exchange earnings, and agricultural productivity.

## **1.2. Domestic Conditions**

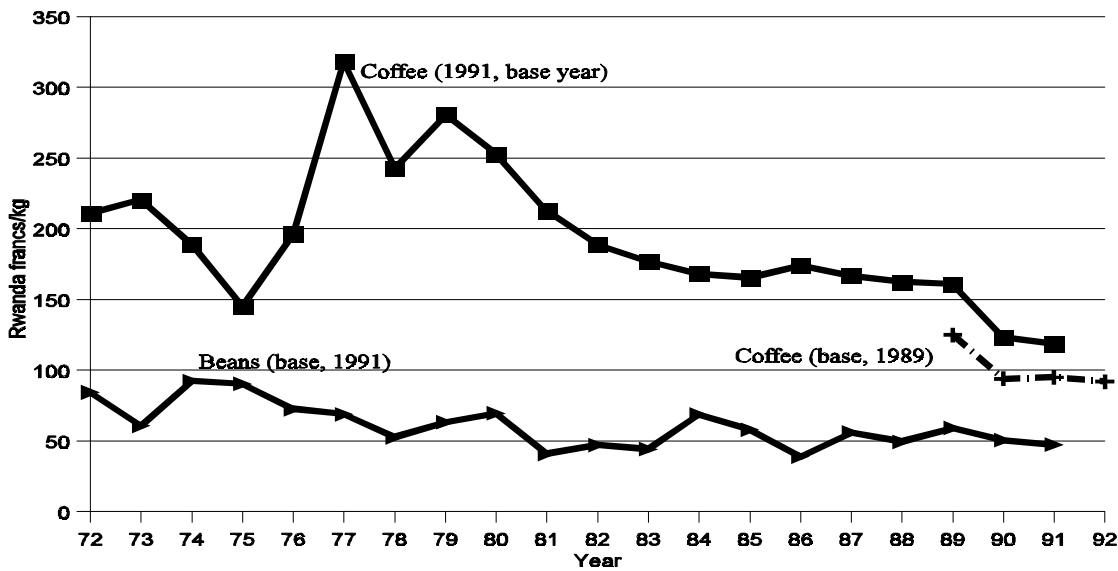
Figure 2 shows that the domestic real price of coffee in Rwanda has fallen steadily since the late- 1970s, following a large increase in the administered nominal price in the mid- 1970s and related upswings and corrections in real prices in 1977, 1978 and 1979. (Show what happened to nominal prices, moving from 25 francs per kilogram to 125 during that period). The general decline in real prices was reflected by similar declines in the prices of other key agricultural products, as terms of trade of agricultural goods in general weakened. For, example, the real price of beans, has also exhibited a downward trend since the mid- 1970s. From the policy-maker's viewpoint a more important ratio is the relative price of coffee against the prices of crops that compete for farm resources. Figures 3 and 4 show trends in these ratio's which; suggest that on the income side, coffee earnings have probably not slid substantially against other crops in spite of the conventional wisdom.

**Figure 1. Cumulative Percentage of Coffee Farmers Who Would Uproot Their Trees at Different Prices**



Source: DSA/Ministry of Agriculture, 1992.

**Figure 2. Real Coffee and Bean Prices Deflated by CPI. 1972-1992**

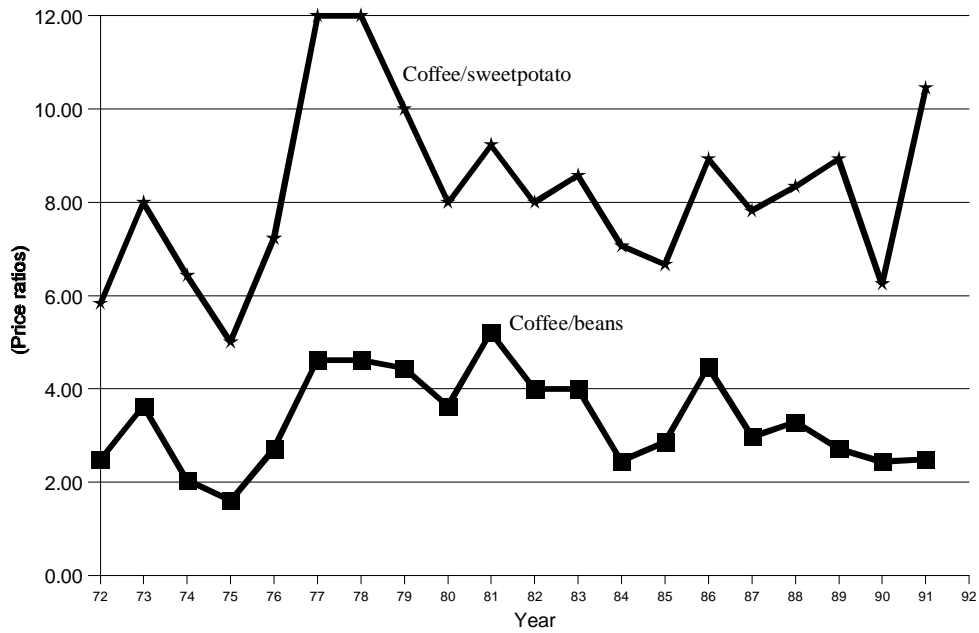


Source: DSA (Division des Statistiques Agricoles), Ministry of Agriculture, Rwanda.

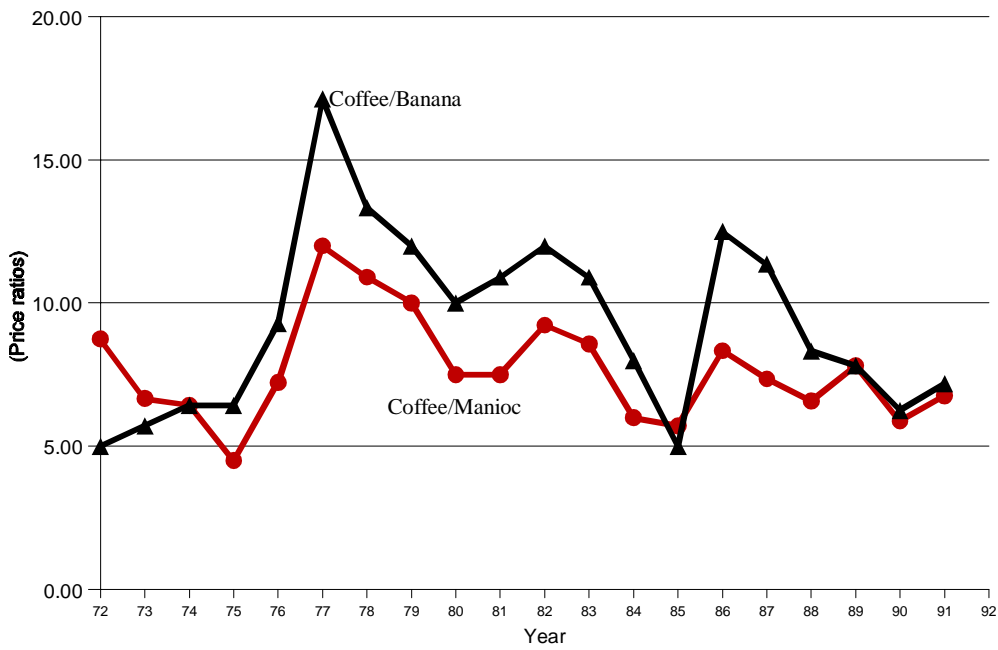
So



**Figure 3. Relative Prices, Coffee/Other Crops (Beans, Sweet Potatoes) 1972-1991**



**Figure 4. Relative Prices, Coffee/Other Crops (Bananas and Manioc) 1972-1992**





The top curve in Figure 3 shows real coffee prices as a multiple of sweet potato prices, sweet potatoes being an extremely important subsistence crop. The bottom curve represents coffee prices as a multiple of bean prices. Figure 4 shows coffee prices as multiples of bananas (top curve) and cassava. Conventional wisdom that farmers are losing interest in coffee implies that the loss of interest is based on a perception of reduced profitability. Obviously, price is one of the important determinants of profitability. Figure 3 shows that coffee prices have on average maintained their purchasing power versus these other important crops. Year-to-year fluctuations have sometimes been large. **Growers are more concerned about high variability, a high risk in specialization, than in relative prices.**

One cannot say unequivocally that the purchasing power of coffee has declined. What one can say, however, is that coffee growers cannot count on coffee sales for buying the same amount of other goods (primarily food items, which account for the vast majority of rural expenditures) from year to year. Since the nominal price of coffee is administered and fixed over a period of years, the sharp fluctuations in purchasing power come from fluctuations in the nominal prices of market-determined products. The high degree of variability in bean prices, for example, means that in one year the profit from a kilogram of coffee could buy four kilograms of beans, and in the next year, only three. **Perhaps rather than concentrating on getting the prices right for coffee, policy-makers need to examine the stability, availability and prices of food items that would be purchased by coffee growers.**

Addressing them might contribute to a less risky environment within which to make coffee-growing and specialization decisions.

### 1.3. External Conditions

At the same time that policy makers must contend with the domestic market forces that determine the profitability of coffee growing, they must understand and track developments in the external market. In that regard the trend in world coffee prices over the last seven years is very worrying. Without a functioning International Coffee Agreement, fundamental overproduction has translated into supply far in excess of demand, which in turn has led to plummeting prices. The 1992 nominal price for "other mild" arabicas, the category most closely representing Rwandan coffee, was 32% of what it had been in 1986, admittedly a peak-to-trough comparison. It was 66% of the more representative 1985 price. See Figure 5.

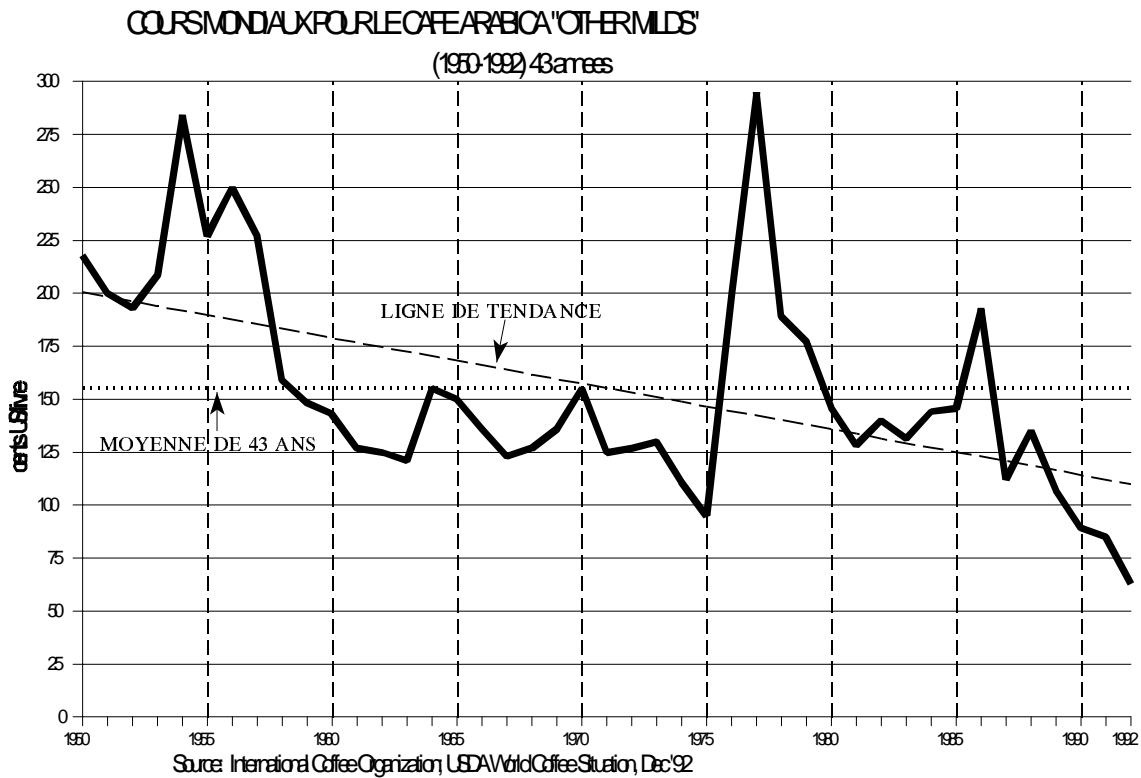
Two new international agreements on coffee, one between African producers, and the other more global, with the big Latin American producers participating, might temporarily level prices off or increase them by holding back exports. But until the fundamental situation of overproduction changes, the tendency will be downward.<sup>3</sup> Coffee prices have increased

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<sup>3</sup> The mid-1994 upsurge in world prices is going to place a lot of pressure on producing countries to break the agreements and take advantage of high prices by sell their harvest and stocks, which will put great downward

erratically since the summer of 1993, to reach a five-year high in May 1994. Prices may well increase some more, but what is more likely is that they will decline or stay at a low equilibrium for the short to medium term. In the longer-term, as extensification of coffee production becomes less likely, production might begin to lag behind growth in consumption, thereby leading, perhaps in five years to steady price increases. In retrospect, the upward movements in prices followed their historical monthly lows in the summer of 1992 (shown in Figure 6) were heralding a period (how long) of (erratic) price increases. The reference price (NY coffee futures for the closest delivery month) in June 1994 was around 120 cents/lb. As recently as one year before it was in the vicinity of 50 cents.

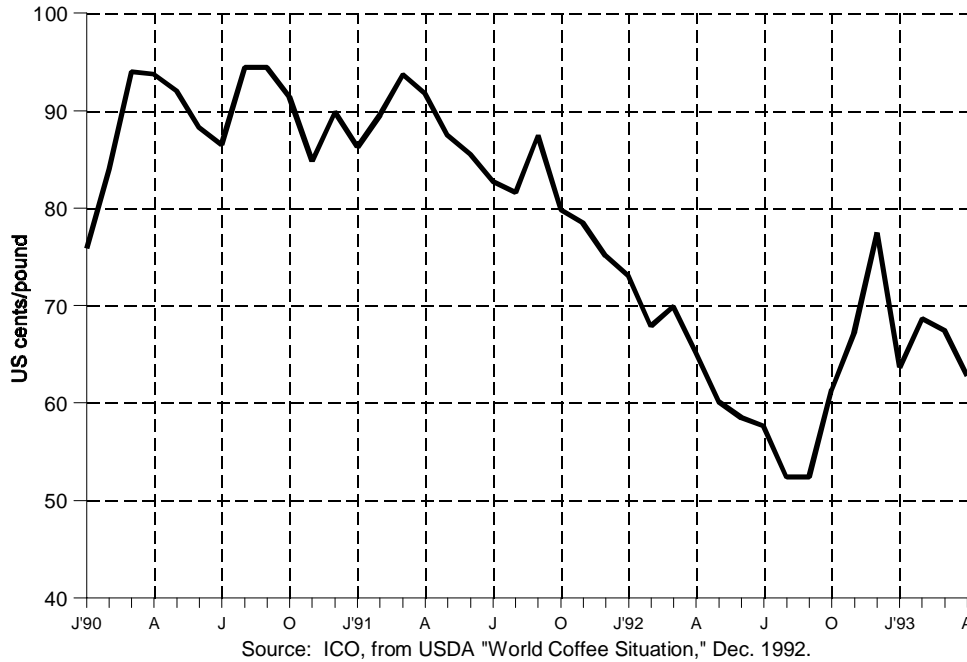
**Figure 5. World Price of “Other Milds” Arabica Coffee. 1950-1992**



pressure on prices again.



**Figure 6. Monthly World Prices for “Other Milds” Arabica Coffee. New York. January 1990 - March 1993**



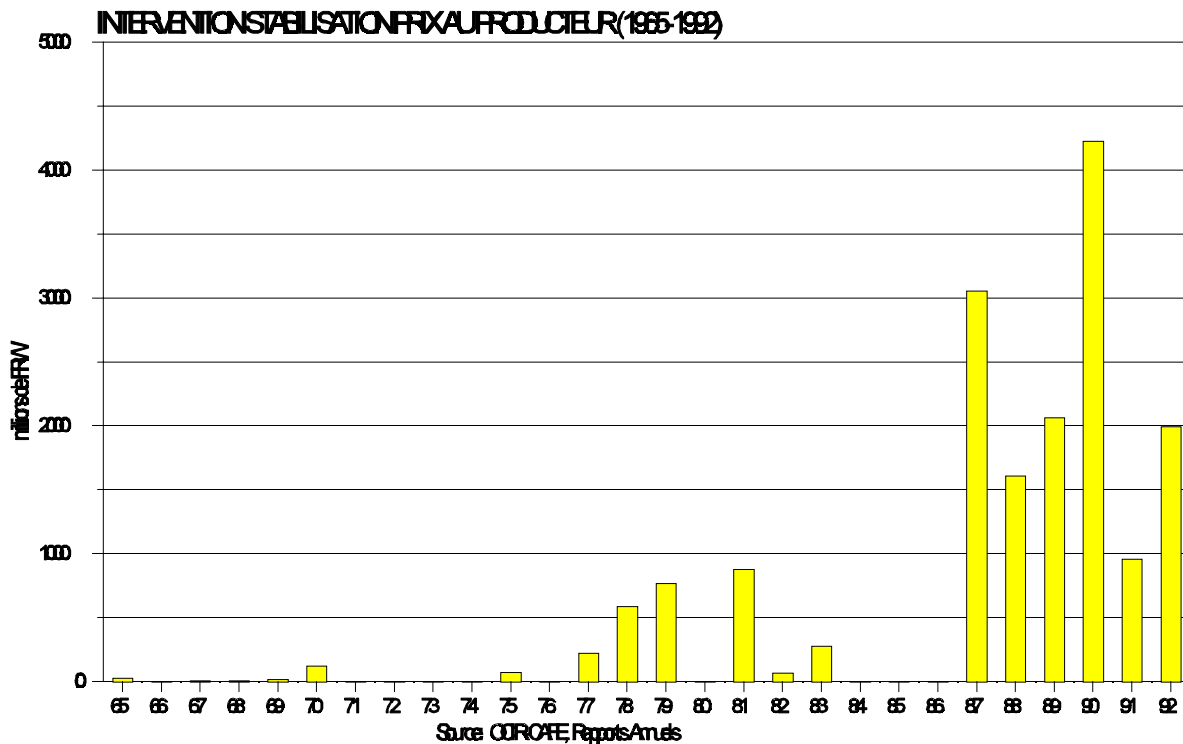
#### 1.4. Implications for the Rwandan Coffee Subsector

The turn around in world coffee prices comes none to soon for the Rwandan economy, which has relied, probably too heavily, on coffee earnings in the past. The government has generated very high deficits in an attempt to maintain coffee production. Possibly over the long run, the high price respite will only prolong the budgetary problems and risks associated with a mono-culture-based trade by relieving the pressure to make changes. Figure 7 shows how high the deficiency payments had become by 1990, when the first and largest in a series of devaluations was undertaken. From 1965 to 1986 the system was probably neither in deficit nor in surplus (although when there were surpluses the government credited them to the treasury apparently without considering them a loan from the coffee sub-sector stabilization fund, or figuring in interest, the cost of the money "loaned" to the national treasury). In conjunction with the beginning of the sharp six-year decline in world coffee prices, the coffee deficit grew tremendously, reaching its highest level in 1990. Low world prices, an overvalued currency, and a policy of maintaining stable (fixed) prices to farmers, gave policy makers, seeking to maintain export of coffee at all costs, no option but to devalue in order to reduce the large 4 billion Rwanda franc (roughly \$40 million) deficit to under 1 billion in the immediate post-devaluation period. As prices continued to plummet, however, the deficit rapidly grew again, reaching 2 billion in 1992.

### 1.5. Policy Issues

1. Coffee growers state that under current farm-gate prices the restrictions on uprooting coffee trees would have only a minimal effect on their behavior. Consequently, the abolition of these restrictions would probably lead to a production decline of little more than 5% as some trees are cut down and others are neglected. Under the current political-economic context, these laws are nearly unenforceable. Many of the farmers, convinced of the unprofitability of growing coffee, have already quit the business; for them the risk of sanctions does not outweigh the potential benefits to be derived from switching from coffee to other activities. They have a sense that it is no longer really against the law to cut down one's coffee trees. Furthermore, they have a growing belief that democracy means freedom of choice in, among other things, farming decisions.

**Figure 7. Annual Rwanda Government Expenditure to Support Producer Price for Coffee. 1965-1992**



Maintaining these restrictions or neglecting to inform farmers of policy changes will result in some combination of these adverse effects:

- Otherwise interested potential coffee growers might resist entry for fear that should they at a latter date decide coffee growing was not profitable they would be unable to exit
  - Extension agents who have to combine facilitator roles with enforcement roles will find both to be compromised, thereby affecting the effectiveness of both
  - To appear to oblige farmers to do something which they may perceive to be against their own best interests may influence their relationship to the government and their willingness to respect other laws
  - Furthermore, ambiguity about the restrictions facilitates corruption, allowing agents to extract for themselves fines for a law that has been abolished de facto
2. Coffee grower responses to questions about their reaction to price declines show a surprising reticence to uproot coffee trees. Surprising because the conventional wisdom is that all coffee growers are on the verge of uprooting their trees, and that even a small drop in prices would have catastrophic production and foreign exchange earnings ramifications. Stepping back from the rhetoric, however, it is important to note that for many farmers, productive coffee trees represent important investments not to be removed the moment prices fall below average production costs. Furthermore, farmers are more likely to make production decisions about perennial crops such as coffee based on an historical income stream criterion; if coffee has been good to a farmer over the past 10 years he is unlikely to uproot his trees simply because there have been two poor years.

The questions posed to farmers concerned actual prices. Farmers said in 1991 that if prices would fall to 80 francs per kilogram of coffee at the farm gate) they would uproot coffee trees representing 20% of the annual harvest. At that time the official price was 115 francs per kilogram, which represented a 35 franc per kilogram subsidy or deficiency payment over the true market price of 1990. The total amount of the deficiency payment required to maintain prices to farmers in 1990 was 4 billion Rwanda francs.

Four arguments could be advanced for deficiency payments, which represent a large draw from the state treasury:

- Payments represent a return of the funds that coffee growers deposited involuntarily into a mythical price stabilization fund. The State extracted substantial revenues from the coffee subsector (implicit taxes) during the mid- to late- 1970s when world prices were higher. Might there not be a moral

obligation to repay farmers now. Currently no funds are available for such a restitution.

- Offering a higher than market price to farmers will ensure that some farmers will continue to produce coffee throughout a period of unusually low prices. These farmers might otherwise have dropped out of production if prices fell lower. Unfortunately, the only certainty about world coffee prices, as for many commodities, is that they will be variable. While they might well be higher one day, unfortunately one cannot say with much precision when that might be. Thus, such a policy becomes insupportable if prices continue to drop.
- The benefits of foreign exchange receipts from coffee exports that would not have occurred without deficiency payments exceed the costs (the opportunity cost of using those funds).

Net foreign exchange losses from removing deficiency payments would appear to be small. The size of those losses depends to a great extent on the sources of deficit financing (domestic or external, fungible or tied). Whatever the hypothesis, we estimate that the maximum loss of net foreign exchange earnings would have been less than three million U.S. dollars. Much of what is earned from coffee exports is used to purchase inputs and to pay for transport, insurance, banking, marketing, and other institutional costs, as well as to buy coffee from neighboring countries such as Zaire and Uganda.

Deficiency payments change relative prices and incentives to produce and market coffee. Data is insufficient to show precisely what kinds of adjustments might be made to reduce the net loss in foreign exchange earnings. Ample evidence verifies a large unregistered cross-border trade in food stuffs, however. DSA data indicate, for example, that substantial quantities of beans are imported through informal channels. In the course of a survey, coffee growers stated that beans were the second most likely crop (after bananas) to replace coffee. In the absence of deficiency payments there would probably be a reduction in bean imports as the relative domestic price of beans to coffee improved, increasing the incentive to switch from coffee production to beans. This would, in turn, lead to a savings in foreign exchange through import substitution.

- Deficiency payments could be considered as compensation to coffee growers for an overvalued currency. This might have figured importantly in the pre-reform period of 1990, before the currency was devalued. One can note the different deficit payments of 1990 and 1991 (post devaluation) (see Figure 7, above).

It is worth noting the use of the term "deficiency payment" rather than "subsidy." This clarifies that the payment might represent compensation for

other policy consequences such as the loss from overvalued currency. Should one really consider payment to an exporter in compensation for an overvalued exchange rate a subsidy?

3. Coffee growers who say they would cut down their coffee trees if the farm-gate price were in the 115 to 80 francs per kilogram range seem to be the least adept coffee growers. The reduction of the risks associated with market failure for these marginal coffee growers could lead to greater specialization (as the marginal producers fall out) and optimal use of agricultural resources. Ensured markets for sweet potatoes, for example, by permitting greater specialization, could improve the efficiency of agricultural investments. DSA data show substantial regional differences in relative yields (for example coffee yields divided by sweet potato yields), which would suggest that Rwanda would stand to gain in productivity and total production with greater specialization and improved marketing. Depending, of course, on transactions costs, this could lead to increased real incomes.
4. The levels of deficiency payments and the coffee budget deficit were reduced by a very large amount in 1991 by the monetary devaluation. The coffee policy result is that a bag of coffee has a higher Rwanda franc value than it did before the devaluation. Growers were paid with money that cost fewer goods than before. As of this writing, they receive for their coffee a value very close to the market value, even if the parallel market rate of the franc against the dollar is higher than the official (devalued) one.

This raises some basic policy questions: Is there a good reason to maintain fixed official prices if the policy is to eliminate (trim the size of) deficiency payments? DSA data provide some indications of coffee growers' responses to nominal prices. Here are some of the policy implications of maintaining an official price. Farmers' (as well as other economic actors) might sense a reduction in risk. If risk reduction is the principal reason for maintaining a stable (and, possibly, profitable) price, or if avoidance of other negative policy implications such as shortages of foreign exchange suggests official pricing, what should be the official price relative to world market prices? Should the official price be linked more closely to world prices without at the same time exhibiting all the often sharp fluctuations that occur in that market?

Furthermore, is there a justification and an aptitude to adopt a modest program of price stabilization?

5. What is the likely reaction of farmers to the maintenance of the domestic coffee price structure as it is? The questions concerning the likelihood of continued production of coffee were asked in terms of current nominal prices. While it is difficult to find a real index representing what farmers buy, one indication of real prices is obtained by adjusting nominal prices by dividing them by the general consumer price index. As is shown in Figure 2, real farm gate prices for coffee have been in decline since 1977. A



bag of coffee would buy in 1991 only half of the goods that it bought in 1980, and a farmer looking back over a 10 year horizon (1980) probably feels he has the right to expect a return in the future as good as it was in 1980.

As noted before, the survey of coffee growers found the crops most likely to replace uprooted coffee trees were bananas, beans, cassava, and sweet potatoes. The most striking observation from the information on relative prices is the great year to year variability in the quantity of these goods that can be purchased with one kilogram of coffee sold. This shows that coffee growing is an uncertain way to ensure household food security.

A slight downward trend is evident in the quantity of other agricultural goods that can be purchased with one kilogram of coffee. Generally, however, it appears that from a relative income perspective coffee is only slightly less competitive vis a vis these other crops than it was ten years ago. If competition with these crops is a key determinant for continued production of coffee, these data don't suggest a rapid decline in production. If the competition is rather between coffee production as a source of revenue and the production of other crops for their value in home consumption, the response is more ambiguous and requires further analysis.

6. Another particularly significant observation is that the decision to devalue the franc, avoid increased prices to the coffee subsector, and thereby reduce deficiency payments and the budget deficit seemed to have little effect on the value of goods that could be bought by the sale of a kilogram of coffee or on average relative prices between coffee and other competing crops. The real price of coffee remained nearly constant in spite of a slight downturn between 1990 and 1992.

We are unable to explain with great certainty why deficiency payments increased between 1991 and 1992 in the apparent absence of an overvalued currency or any price increases to coffee growers. Evidently, our price index may not be as precise as necessary, it reflects urban better than rural consumption. But, the growth in deficiency payments was likely due to increases in other imported or import-based factors of production or transformation of coffee--transportation, processing, insurance, etc.

7. The most fundamental concerns and questions have to do with the policy of long-term support of the coffee price. Is coffee an appropriate product for what is essentially an industrial policy, i.e., a policy of promotion of coffee so as to promote its production relative to other crops and at the expense of other sectors of the economy? Technical and institutional innovations in the coffee subsector can, in the medium-term, increase producers revenues and lead to further increases in foreign exchange earnings.

These suggestions include better sorting, development of a system of bonuses to increase the proportion of high quality coffee, auction sales, increasing the amount of trees that are of improved varieties, etc.

We await the results of more in-depth analyses, such as estimates of domestic resource costs and other measures of social vs private cost and benefit to supporting the coffee sale sector.

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