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A Survey on Colombian Agriculture during the
1990's.

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Abstract

This survey reviews some of the key developments in Colombian agriculture during the 1990s. While economic reform and macro policy appear to largely determine the evolution of the sector throughout most of the decade, the impact of sectoral policy is not that clear. The long-run significance of changes brought about in the structure of agricultural production, trade balance, and social conditions in rural areas is unclear. Whether they are the product of a transitional period between two macro and sectoral policy perspectives, of a temporarily distorted set of incentives, or a combination of the two is an open question. Hopefully, a set of interrogations may arise that help improve our understanding of Colombian agriculture.

Introduction

This paper is aimed at providing a general overview of the main developments in Colombian agriculture during the 1990s. It draws upon a set of studies conducted by different researchers and on data coming from official sources. Even though the views of the author are indirectly reflected in the composition and structure of the survey, no own analysis is attempted and any “conclusion” stated in the last chapter of the paper should be more properly regarded as a question to be answered through further work.

The survey covers a wide range of issues. The relationship between macro and sectoral policies and the impact of the former on the agricultural sector is the topic of the first chapter. Then, in chapter two, the evolution of cultivated areas and of production costs is depicted. Chapter three surveys the agricultural trade balance and main agricultural exports and imports’ recent behavior. The evolution of domestic prices and of the internal market of agricultural products are the subjects of chapters four and five, respectively. In chapter 6 a broad overview of the main changes recorded in agricultural employment and other social variables is provided. Finally, chapter seven summarizes the main findings and identifies issues of relevance for further research.

¹ Use of this paper is restricted to academic activities performed at the Universidad del Rosario. It has been published under authorization from the University of Sussex’s Institute of Development Studies and is based upon a consultancy report prepared for the Institute. As part of the Borradores de Investigación series, it is intended to be one of several Background Documents aimed to partly provide the basic framework for a research area in Rural Economics. It also serves as a reference material for the undergraduate introductory

1. The Relationship of the Agricultural Policy with the Macro-Economic Policy

Stemming from major changes in macro policy, sectoral policy experienced important modifications during the 1990s aimed at reducing government direct intervention and to foster a more market oriented approach in dealing with the rural sector². Also, significant institutional changes took place to allow for enhanced private sector and public regional and local participation in setting up priorities and resource allocation. Given this, the aim of this chapter is to take a glimpse on the impact of some macro or macro dependent variables on the performance of the agricultural sector during the 1990s.

The process of opening up of the Colombian economy implied two major changes that had direct effects on sectoral policy. First, the shift from a relatively high level of government intervention to a more market-based approach. Second, the lowering of nominal protection levels. The assessment of the impact of these changes on agriculture has been widely (and hotly) debated and remains, so far, uncertain. It appears that on the 1992 agricultural crisis a set of adverse factors coincided, making it difficult to judge the extent to which forces such as those stemming from economic reform exerted negative influence on the sector. Regardless of having a precise quantification of this, what is commonly accepted is that both reducing direct (or price) support to certain crops and lowering the nominal protection rate for agriculture (including the dismantling of quantitative restrictions), have had a negative impact on agricultural growth during the analysis period.

The other issue arising from reform, though from political rather than economic reform, is decentralization of the central government. A relatively complex arrangement of consensus building organizations was put in place, while sectoral organizations covering a broad range of activities (land improvement, research, extension, etc.) were given new organizational patterns and direct relation with user groups. It has been considered that the sort of institutional changes necessary for these adjustments to perform properly, have fallen short of expectations prejudicing the scope and potential of reform. Difficulties such as inadequate municipal extension services, deficiencies in technology transfer, undue political pressures in allocating resources for land improvement, and other failures have been signaled as a hindrance for institutional adjustment. The impact of this situation on agricultural growth is unclear but it certainly has exerted a negative influence.

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² For a relatively detailed overview of sectoral policy during the 1990s see Argüello, Ricardo "A Survey on Colombian Agricultural Policy During the 1990s", Universidad del Rosario, Borradores de Investigación, No.5, 2000

Movements in the exchange rate stemming from changes introduced with the reform, led to appreciation of domestic currency from 1994. This movements appear to be associated with foreign capital inflows, rising interest rates, and receipts from privatizations. As expected, the decrease in the real exchange rate (RER) caused a deterioration of competitiveness that tended to shift incentives in favor of non-tradables (as will be illustrated in the next chapter). Moreover, the period coincided, first, with a downward trend in international prices during 1991-1992, then with an upward trend (during 1994 and 1995) and, third, with a new decrease from 1996 on. This chain of mixed signals to producers is, nonetheless, dominated by diminishing international prices that importantly contributed to encourage imports. In this way, incentives not only favored non-tradables over tradables, but also acted against importables.

There was still another factor that, arising from macro policy, acted as an incentive against importables and partly in favor of certain non-tradables (given the relatively inelastic short run supply of these products and the existence of other forces preventing increases in supply). As a temporary result of the reform process, Colombia experienced a consumption boom that, it seems, led to an important increase in demand for food products of relatively high elasticity of demand. The expansion that the poultry and beef sectors registered during the 1990s has been associated with this factor. Particularly, the poultry sector experienced an annual compound growth rate of about 9% during 1991-1995 and of 4.5% for the whole period. This high growth implied great pressure on the derived demand for feed grains, especially corn, and therefore on imports.

Ospina (98) examined the behavior of agricultural imports for the period 1970-1997, finding that they are responsive to the RER, income per capita, and to an index of the openness of the economy. The results show that agricultural imports per capita are the most responsive to the RER (with an elasticity of about -0.8), followed by income per capita (with an elasticity of almost 0.5), and last by the degree of openness of the economy (although with estimates varying according to the estimated function). The responsiveness of agricultural imports with respect to income support the idea that consumption expansion acted as a trigger for increasing competition for importables.

Rising interest rates also impinged upon agriculture in at least three ways. First, in an environment characterized by diminishing credit subsidies (in the form of lower than market interest rates), an important share of producers experienced significant interest rates rises that led to falling demand for loans. Not only new planting of temporary crops was affected, maintenance of permanent crops suffered and, in general, the sectoral rate of return diminished. Second, as domestic interest rates tended to be higher than international rates, there was an incentive for buying importables abroad given lower financial charges associated with them. Loans for buying products abroad were cheaper and the same happened with storage costs. Third, new investment or the continuation of investment projects also dropped. As interest rates soared, loans for land improvement and other productive infrastructure felt, leading to what has been known as a rural decapitalization process.

The minimum legal wage in Colombia is fixed at the same level for urban and rural workers. Even though the government sets the annual increase in the minimum wage in accordance with the goals of macro policy, in dollar terms there has been an important increase in wages relative to other factors (due to the peso appreciation). Between 1990 and 1997, the price index for rural wages roughly increased at the same pace as the Consumer Price Index (3.6 times), while the Producer Price Index grew 2.6 times. In real terms, data from the Consumer Price Index, shows an increase of 8% in wages between 1990 and 1997 (with an important peak in 1995). Meanwhile, within the framework of the Producer Price Index rural wages show an increase of 43% in real terms. This has led some analysts to consider that while rural wages have just kept its purchasing power, as a component of production costs they have experienced a dramatic increase adding to the deterioration of agricultural returns. This is particularly valid in the case of tradables, given that while wages (that tend to be important within the cost structure) increase at a pace near that of the Consumer Price Index, the income generated largely depends on the dollar value of crops under conditions of peso appreciation.

Finally, it is important to mention the impact that fiscal adjustment measures have had on budget allocation for agriculture. In 1991, the total budget allocation for agriculture reached US\$228.4 million, figure that in general experienced a steady increase until 1996 year at which almost US\$ 650 million were allocated to the rural sector. An important part of the budget increase was due to the implementation of policies aimed at improving productive infrastructure, particularly land improvement and irrigation programs. However, from 1996 on the need to adjust the increasing current account deficit led to important cuts in budget allocation. In 1997 the budget for the rural sector was cut in almost 24% with respect to the year before, and 1998 put a further reduction of 20% in place.

In spite of the fact that there are no assessments on the impact that budget cuts have had on the functioning of programs and rural policies, it is clear that they have caused important difficulties for implementing programs that have been under way and, in some cases, have led to render them useless (not only because of shortage of money but also because of the limitations imposed by the cash flow). This adds a further dimension to the relationship between macroeconomic policy and sectoral policy, that appears to be of increasing importance in the near future.

2. Evolution of Cultivated Area and Production Costs

This Chapter provides an overview of the evolution that cultivated surfaces have had in Colombia during the reform period. The reform period for Colombia should be understood as the period beginning at the onset of the decade of the nineties. It will be seen that the most important transformations experienced in terms of cultivated areas seem to have a

close relationship with the process of opening up of the Colombian economy and its related economic conditions.

2.1 Evolution of Cultivated Area

According to data from the MADR, total cultivated area in Colombia presented a downward trend during the period 1991-1997. In 1991, cultivated area (without livestock and other animal based production) was estimated in 3.6 million hectares and, after some variations, in 1997 it had decreased to 3.1 million hectares which supposes an annual negative compound growth rate of near 2.3%.

Table 1 presents the evolution of the cultivated surface for two classification categories of products. From there, it is easy to appreciate that the decrease experienced by the cultivated surface was mainly due to a decrease in areas devoted to temporary crops (with a natural cycle of a year or less). In fact, the area allocated to temporary crops diminished at an annual compound rate of 5.4%, while that allocated to perennials grew at a compound rate of 2.2%. This is due to the fact, as will be shown, that an important number of temporary crops belong to the category of importables, while perennials tend to belong either to the groups of exportables or non-tradables.

From the viewpoint of products being tradable or non-tradable, there is a similar distinction among them regarding its growth rate during the analysis period. In general, the area allocated to tradables decreased at an annual compound rate of 4.6%, while that pertaining to non-tradables increased at a little more than 2% per year. The decrease in tradables, on its part, is caused by the negative behavior of importables whose cultivated areas diminished at an annual average rate of 6.5%. In the meantime, areas devoted to exportables increased at an average rate of 2.8%.

This evolution is largely consistent with what has been mentioned as expected as impact from the macro variables, particularly the exchange rate. Changes in relative prices arising from movements in the exchange rate, shifted, during the period, incentives in favor of non-tradables and against importables. This situation is reflected in the description of the way cultivated surfaces have evolved recently in Colombia. As far as exportables are concerned, incentives depend upon the balance between the peso appreciation and the behavior of international prices, given their predominant perennial nature.

Table 1 Colombia. Evolution of Cultivated Surfaces, 1991-1997

Product Type	Item*	1991	1992	1993	1994	1995	1996	1997
TOTAL	Cultivated Area	3.61	3.41	3.42	3.43	3.33	3.19	3.07
	Annual Growth Rate		-5.5	0.3	0.4	-3.1	-4.2	-3.7
Temporary	Cultivated Area	2.34	2.06	2.00	2.02	1.89	1.71	1.62

	Annual Growth Rate		-12.1	-2.9	1.2	-6.7	-9.5	-5.5
Perennial	Cultivated Area	1.26	1.35	1.42	1.41	1.44	1.48	1.45
	Annual Growth Rate		6.6	5.2	-0.7	2.0	2.9	-1.7
Tradables	Cultivated Area	2.51	2.29	2.24	2.22	2.11	1.94	1.85
	Annual Growth Rate		-8.7	-2.3	-0.8	-5.1	-7.9	-4.5
Exportables	Cultivated Area	0.40	0.46	0.51	0.47	0.49	0.50	0.50
	Annual Growth Rate		12.7	11.8	-7.9	4.1	2.0	0.4
Importables	Cultivated Area	2.11	1.84	1.73	1.75	1.62	1.44	1.35
	Annual Growth Rate		-12.8	-5.8	1.4	-7.5	-10.9	-6.3
Non-tradables	Cultivated Area	1.10	1.12	1.18	1.21	1.22	1.25	1.22
	Annual Growth Rate		1.7	5.6	2.7	0.5	2.3	-2.4

* Cultivated areas in million hectares

Non-tradables include fruits (except bananas)

Source: MADR

The above mentioned changes brought the share of temporary crops within total area down from 65% in 1991 to less than 53% in 1997, while the converse is true for perennials. In a similar, though smoother, fashion, tradables decrease its share in planted area from almost 70% in 1991 to 60.4% in 1997. Among these, exportables increased their share in more than 5 points, from 11.2% in 1991 to 16.3% in 1997, while importables decrease theirs in more than 14 points, from 58.4% in 1991 to 44.1% in 1997.

2.2 Evolution of Animal Based Production

On the other hand, as has been noted by different analysts, animal production registered a positive evolution during the analysis period. Since data available does not permit to reduce the information to a comparable unit, figures presented in Table 2 should be read with caution. In any case, what they illustrate is that beef production, either as sacrificed heads or as a stock count, milk production, hogs production, and poultry, both broilers and eggs, registered positive average rates of growth between 1991 and 1997.

Average rates of growth for animal based production in Colombia during 1991-1997 were not only positive but also impressive and contrasting with those pertaining to crops. The number of livestock heads sacrificed grew at an annual compound rate of 1.13% (the lowest within the group), while the number of heads held in stock grew at 3.14%³. Milk production registered a growth rate of 4.68% and the number of hogs sacrificed grew at 6.25%. Poultry production also increased in an important fashion. Meat production (broilers) grew at an annual compound rate of 2.96% between 1991 and 1997, after showing an annual compound growth rate of 9.6% between 1991 and 1995. Egg production also grew at 3.76% for the whole period.

³ The increase in livestock activities, presumably at the expense of agriculture – a process known in Colombia as “ganaderización”, has a number of causes among which it is worth mentioning the conversion of extensive cultivation (mainly of importables) to livestock, the easiness of this business to be administered “from distance” – an attractive in areas characterized by insecurity, and the manifest preference of illegal drug dealers for this business.

Table 2 Colombia. Evolution of Livestock, Pork, and Poultry Production, 1991-1997

Product	Item	1991	1992	1993	1994	1995	1996	1997
Livestock (Sacrifice)	Thousand heads	3,877	3,306	3,234	3,283	3,545	3,735	3,851
	Annual growth rate		-14.7	-2.2	1.5	8.0	5.3	3.1
Livestock (Stocks)	Thousand heads	6,608	6,559	6,846	7,132	7,367	7,586	7,814
	Annual growth rate		-0.7	4.4	4.2	3.3	3.0	3.0
Milk	Million liters	4,131	4,214	4,425	4,625	4,925	5,172	5,327
	Annual growth rate		2.0	5.0	4.5	6.5	5.0	3.0
Hogs	Tons. (gross)	65,454	59,888	61,326	66,860	61,161	86,956	89,957
	Annual growth rate		-8.5	2.4	9.0	-8.5	42.2	3.5
Poultry (meat)	Thousand tons.	386.1	408.2	445.1	498.8	553.1	464.5	432.8
	Annual growth rate		5.7	9.0	12.1	10.9	-16.0	-6.8
Eggs	Million eggs	5,029	5,347	6,019	6,300	6,935	5,929	6,319
	Annual growth rate		6.3	12.6	4.7	10.1	-14.5	6.6

Sources: MADR, CEGA

2.3 Evolution of Production Costs

Information on agricultural production costs in Colombia is scarce. Several attempts have been made to gather and maintain data on the topic but no systematic work has been sustained for the time period of interest. The more consistent efforts, carried out by CEGA⁴ and the National Planning Department, are based upon relatively fragmentary primary information on costs structure and periodically updated, on the assumption of fixed proportion coefficients and stagnant cost structures (disregarding the, unknown, impact of technological change), by means of producer price index information generated by the Central Bank. This section provides a glimpse on the topic, based upon the evolution of readily available producer price indexes for factors and inputs of interest and on CEGA's work.

Table 3, below, shows the evolution of producer price indexes for different types of goods required for agricultural production. From these data it is possible to derive some useful observations. As compared to the behavior of the aggregate producer price index (PPI), producer prices for inputs (mostly fertilizer), poultry foodstuff, and machinery experienced, in general, a slower growth rate. On the contrary, producer prices for insecticides, herbicides and rural (agricultural) wages tended to increase faster than the PPI. Additionally, dispersion (with respect to the PPI) of data for those growing faster is larger than that of those growing at a slower pace.

Table 3 Evolution of Producer Price Indexes for Agricultural Inputs in Colombia, 1990-1997

ITEM	YEAR (December)							
	1990	1991	1992	1993	1994	1995	1996	1997

⁴ A leading agricultural research center in Colombia.

PPI-General	100.00	123.10	145.06	164.20	198.24	228.83	262.10	307.93
PPI-Insecticides	100.00	126.86	156.77	182.06	220.94	268.96	331.84	369.54
PPI-Herbicides	100.00	123.11	153.16	183.60	224.59	266.67	424.02	513.92
PPI-Machinery	100.00	115.34	128.48	148.85	169.20	188.70	214.56	257.50
PPI-Inputs	100.00	120.59	139.79	156.59	184.28	224.34	281.62	325.93
PPI-Poultry Foodstuff	100.00	113.65	133.46	156.74	165.17	197.84	244.80	286.93
Wage Index	100.00	127.14	157.54	193.69	242.65	304.52	370.58	450.46

Source: Colombian Central Bank (the wage index was calculated from data from MADR)

The characterization of inputs, within the different input groupings, as non-tradable, exportable or importable products, provides an additional piece of useful information. This differentiation comes from the way the Central Bank distinguishes among these product-types for calculating the PPI and largely reflects the behavior of the exchange rate, which seems to be the most important reflection of economic reform and macro policy. In general, though with some qualifications, agricultural inputs classified as non-tradable goods tended to present the fastest growing producer price indexes while inputs classified as importables tended to have the slowest growing price indexes.

These observations, then, lead to the idea that the evolution of producer price indexes suggests that crops that are labor intensive must have experienced the fastest growing production costs during the analysis period. On the other hand, crops that make intensive use of capital, especially tractors, should have benefited from relatively slow-growing production costs⁵. Insecticide and herbicide use, which is probably more intensive in temporary crops, must have put pressure on production costs to rise, and fertilizers use must have the opposite effect. Additionally, use of non-tradable inputs (for whatever grouping above) must have induced an upward trend in production costs.

Finally, foodstuff for animal production, which within the PPI's methodology is considered to be non-tradable, experienced slow-growing price indexes (that for poultry production being the lowest), a fact that is consistent with price levels for imported raw materials required for its production.

On the other hand, Cega's analysis covered 21 of the most important crops (except coffee) during the period 1975-1996. As mentioned above, rather than the evolution of production costs themselves what Cega's analysis does is a follow up of the weighted average price index for agricultural crops. Weights are arranged according to the share that each cost item had in the cost structure used as a base for each crop. Accordingly, the assumption of fixed proportion coefficients and the constancy of cost structures are critical in determining the closeness of this indicator with real production costs.

In most crops, from 1982 to 1990 there was the tendency to have declining production costs. 1991 appears to be the turning point of this tendency. From this year on, production costs tended to increase, a behavior that

⁵ Assuming there is either a short-term impact on production costs from tractors' prices or a direct effect on tractors' rental fares stemming from the same source.

affected labor intensive crops the most. In the case of animal based production, especially poultry that is highly dependent on foodstuff, the situation is the opposite. Until 1990, these activities tended to have rising production costs while from 1991 on they have been decreasing. This trend appears to be caused by two facts. First, the relatively low share that labor costs have in the corresponding cost structure. Second, the relative price decline that cereals employed in foodstuff manufacturing have experienced from 1992.

Additionally, the evolution of agricultural income indexes *via a vis* production cost indexes shows the following main results. For 15 out of the 21 products analyzed, margins over production costs have increased between 1990 and 1996⁶. Non-tradables are among the crops that have experienced the highest margin improvement, in spite of the fact that they tend to be labor intensive. Seemingly, domestic relative price rises and enhanced productivity levels have offset the increase in labor costs. Cereals (except rice) and oilseeds group a set of crops with declining margins. These margins, however, are in general higher than those experienced by the same set of products during the crisis of the 80s; only cotton and soyabeans have similar margin levels than at that time. Rice is a special case in that, notwithstanding being an importable, has improved its margin level. A fact that appears to be linked to its relatively low labor use and to the effect of ad hoc trade protection measures that representatives of the subsector have been able to attain.

Oil palm and cocoa are among the few perennials that have experienced declining margins since the 80s. Although, oil palm has managed to stabilize them in recent years thanks to productivity increases. Banana and sugar cane tended to have increasing margins until 1991 and thereon the trend has reversed. This appears to be linked to productivity declines that have enhanced the effect of rising costs. Additionally, poultry, hog (modern), and milk production have increased their margins, largely as a consequence of relative price declines linked to cheaper raw materials. On the contrary, margins for beef production declined.

3. Trade Balance of Agricultural Products

This Chapter focuses on the evolution of Colombian foreign agricultural trade during the period 1991-1997. It has been considered important to include information on all agricultural products' trade flows. This means that in addition to products included in Annex 1 of the Agreement on Agriculture, data below comprises information on fisheries and fish products, natural fibers other than cotton, and a few other products⁷.

⁶ Margin in the sense of the gap between the agricultural income index and the production costs index (which is intended to be a measure of crop's profitability).

⁷ Consequently, these data and information provided on growth rates and other indicators are not comparable to those presented ahead in the chapter when referring to the main agricultural exports and imports (where only AOA's Annex 1 products are included).

Value of Colombian agricultural exports during the above-mentioned time period increased at an annual compound rate of 7.9% while that of imports at 30.1%. This difference has meant a progressive deterioration of Colombian agricultural trade balance, that, as will be shown, is highly dependent on the value of coffee exports. Having started at a relatively high level, agricultural trade surplus has decreased at an annual compound rate of slightly less than 1%. Table 4 below shows trade data, in value, for the whole agricultural sector and for four product groupings defined on the criterion of product usage.

Table 4 Colombian Agricultural Trade During the Period 1991-1997 (US\$ million)

Item	1991	1992	1993	1994	1995	1996	1997
Agricultural Exports	2,736	2,724	2,561	3,694	3,614	3,402	4,266
Seeds and Live Animals	319	370	395	441	499	525	566
For Human Consumption	2,298	2,233	2,109	3,168	3,038	2,800	3,639
For Animal Consumption	2	2	1	3	2	2	2
Other Raw Materials	118	119	56	82	75	75	58
Agricultural Imports	375	665	855	1,171	1,440	1,831	1,868
Seeds and Live Animals	23	28	30	50	31	46	37
For Human Consumption	286	441	587	800	1,018	1,213	1,258
For Animal Consumption	38	135	156	223	261	478	437
Other Raw Materials	26	60	83	99	130	94	136

Source: data from MADR

The group of products for human consumption comprises products that are ready for direct consumption and products that are raw or intermediate materials for food and other preparations. The group other raw materials mainly includes fibers and other raw materials for manufacturing non-food products (excluding tobacco that is included in the former grouping).

On the export side, the value of seeds and live animals increased at an annual compound rate of 10%, the value of products for human consumption at 8.2%, the value of products for animal consumption at 6%, and the value of other raw materials decreased at 9.3%. As a consequence, the share of seeds and live animals increased during the period from 11.6% to 15.4%, the share of products for human consumption remained relatively stable (around 83%), the share of products for animal consumption also remained stable (around 0.1%), and the share of other raw materials decreased from 4.3% to 2.2%.

Regarding imports, the evolution of growth rates and shares for the different product groupings is as follows. Seeds and live animals increased well below total imports at an annual compound rate of 8.9%, products for human consumption increased at 28.5%, products for animal consumption were responsible for the noticeable increase in total imports growing at a rate of 44.7%, and the imported value of other raw materials grew at 25%. The composition of imports modified in the sense that seeds and live animals' share decreased from 6.2% to 2%, imports for human consumption decreased from 76.5% to 67.3%, imports for animal consumption increased from 10.3% to 23.4%, and other raw materials' share remained relatively stable at a level of around 7%.

Trade balance data for the whole agricultural sector and each of the product groupings is presented in Table 5 below. As shown there, the aggregate balance remained stable while balances corresponding to seeds and live animals and products for human consumption (a category that includes coffee exports), increased throughout the period at annual compound rates of 10% and 2%, respectively. Largely as a consequence of the increase in demand for imports of products for animal consumption, the trade deficit registered from the beginning of the period for this group widened at an annual compound rate of 45.4%. Finally, after two years of trade surpluses, the trade balance for other raw materials becomes negative in 1993 and remained in red figures until the end of the observed period.

Table 5 Colombian Agricultural Trade Balance 1991-1997 (US\$ million).

Item	1991	1992	1993	1994	1995	1996	1997
Agricultural Trade Balance	2,362	2,059	1,705	2,523	2,175	1,571	2,398
Seeds and Live Animals	295	342	365	391	468	478	529
For Human Consumption	2,011	1,792	1,522	2,369	2,020	1,587	2,381
For Animal Consumption	-37	-133	-155	-220	-259	-476	-435
Other Raw Materials	91	58	-27	-17	-55	-18	-78

Source: data from MADR

If coffee exports were subtracted from the above data, the aggregate trade balance would be clearly decreasing until 1996, a year in which there would be a deficit amounting to US\$ 9 million, and a recovery would come in 1997 to a surplus of US\$ 136 million. Given that a decrease in imports of products for animal consumption of US\$ 41 million registered from 1996 to 1997, the 1997's surplus is partly due to an increase in exports other than coffee.

The deterioration of the agricultural trade balance has been a preoccupation for Colombian authorities. Sluggish sectoral productivity, partly due to lack of dynamism in technological innovation and the influence of macro variables (especially the exchange rate), the transition registered in the productive structure, the impact of a more open trade system, social unrest and insecurity in rural areas, and limitations and seeming inadequacy of sectoral institutions have been hypothesized as causes of this situation. It has been argued, also, that imports of products for animal consumption have stabilized from 1996 on. Once completed, a smoother transition process of Colombian agriculture that, under appropriate conditions, may lead to increasing trade surpluses would follow this change in the structure of agricultural trade. The adequacy of this hypothesis, which relays heavily on the implementation of the right policy measures, waits for the years to come to be tested.

Table 6 below shows the main Colombian agricultural exports during the period 1991 – 1997. The selection has been made on the basis of their aggregated value of exports in current dollars throughout the analysis period and only products under Annex 1 of WTO's Agreement on Agriculture have been taken into consideration. In table 7, the evolution of export values and quantities is presented for the same seven years.

Table 6 Main Colombian Agricultural Exports. 1991-1997

HS Code	Description	Quantity 1991-97 (1,000 tons)*	Value 1991-97 (US\$ million FOB)*
090111	Coffee, not roasted, not decaffeinated	4,915	11,382
080300	Bananas and plantains, fresh or dried	10,464	3,124
060310	Cut flowers and flower buds, fresh	926	2,951
210111	Coffee extracts and concentrates	78	682
170111	Cane sugar, raw, solid form, w/o added fl/color	1,988	560
170199	Cane/beet sugar & chem. pure sucrose refined	1,856	558
170490	Sugar confectionery, w/o cocoa, nesoi	118	175
520100	Cotton, not carded/combed, har./r.; <19.05 mm.	104	167
350300	Gelatin; glue animal origin, exc. Casein glue	27	111

* Figures for the whole period

Source: MADR (based on Colombian Customs Administration)

Without taking cotton into account (due to the fact that its exports have shown an unstable and declining behavior), the eight remaining products made up for 85% of Colombian agricultural exports during the whole analysis period, coffee overwhelmingly showing the largest share. Annual growth rates of export values for this group of products have been quite variable, ranging from 45.7% to -4.3%. Variability has partly come from price fluctuation as can be derived from observing the range of variation in annual growth rates for quantities. The latter ranged from 18.9% to -15.6%. On the other hand, for the whole period the average growth rate of the value of exports was 9.6% while that of quantities was 2.3%.

Table 7 Evolution of Main Colombian Agricultural Exports. 1991 –1997

HS Code	Item	1991	1992	1993	1994	1995	1996	1997
090111	Value*	1,336	1,248	1,140	1,990	1,832	1,577	2,259
	Annual growth rate		-6.6	-8.7	74.6	-8.0	-13.9	43.3
	Quantity**	734	953	782	672	557	600	617
	Annual growth rate		29.8	-17.9	-14.1	-17.1	7.7	2.8
080300	Value*	405	414	425	490	431	457	502
	Annual growth rate		2.3	2.6	15.3	-11.9	6.0	9.7
	Quantity**	1,338	1,432	1,581	1,702	1,360	1,470	1,581
	Annual growth rate		7.0	10.4	7.7	-20.1	8.1	7.6
060310	Value*	280	338	380	426	475	509	544
	Annual growth rate		20.8	12.5	12.2	11.6	7.1	6.9
	Quantity**	108	124	132	138	138	141	146
	Annual growth rate		14.9	6.8	4.0	0.7	1.5	4.3
210111	Value*	62	64	57	101	113	126	160
	Annual growth rate		2.8	-10.7	76.4	12.3	11.4	27.0
	Quantity**	8	10	10	12	10	13	15
	Annual growth rate		17.6	6.2	11.1	-10.5	29.7	7.9
170111	Value*	45	34	87	52	85	133	123
	Annual growth rate		-22.7	153.9	-40.5	64.5	55.5	-7.1
	Quantity**	161	108	352	197	264	460	447
	Annual growth rate		-33.3	226.6	-44.0	34.0	74.3	-2.9

170199	Value*	27	79	68	100	88	84	113
	Annual growth rate		197.8	-14.3	46.6	-12.0	-4.4	34.2
	Quantity**	95	281	268	339	243	260	370
	Annual growth rate		194.3	-4.7	26.8	-28.4	6.8	42.7
170490	Value*	9	14	18	18	31	37	48
	Annual growth rate		47.8	33.7	0.1	70.5	17.6	32.4
	Quantity**	9	12	13	13	20	22	29
	Annual growth rate		28.5	3.5	5.4	48.3	13.6	30.2
520100	Value*	70	58	10	3	13	12	1
	Annual growth rate		-16.7	-83.6	-67.9	317.1	-2.7	-90.7
	Quantity**	41	43	7	2	5	6	0.6
	Annual growth rate		5.0	-84.1	-76.8	238.4	7.6	-89.5
350300	Value*	14	15	15	14	16	19	19
	Annual growth rate		7.0	2.8	-8.4	16.8	16.8	3.6
	Quantity**	4	4	3	4	4	4	4
	Annual growth rate		-4.4	-2.8	3.9	12.3	7.1	1.7

* US\$ million FOB

** 1,000 tons.

Source: MADR (based on Colombian Customs Administration)

Excluding cotton, a set of twenty three countries is the main recipient of the selected group of products' exports. More than 77% of these products' exports were delivered towards these countries, making up for around 66% of Colombian total agricultural exports. Taking as a reference the aggregated value of this group of products, the United States account for almost 43% of these Colombian exports, followed by Germany with near 26%, Japan with a little more than 8%, and Belgium with 7.2%. Shares for the rest of destinations range between 3.4% and 0.1%.

Table 8 shows the main Colombian agricultural imports during the period 1991 – 1997. As in the case of exports, the selection has been made on the basis of their aggregated value of imports in current dollars throughout the analysis period and only products under Annex 1 of WTO's Agreement on Agriculture have been taken into consideration. Also, Table 9 presents the evolution of import values and quantities for the same time period.

Table 8 Main Colombian Agricultural Imports. 1991-1997

HS Code	Description	Quantity 1991-97 (1,000 tons)*	Value 1991-97 (US\$ million FOB)*
100590	Yellow corn, dent, except seed	6,690	1,070
100110	Durum wheat	5,326	943
230400	Soybean oilcake and other solid residues	1,547	434
520100	Cotton, not carded/combed, har./r.; <19.05 mm.	185	325
120100	Soybeans, whether or not broken, seeds for sow	1,086	308
150710	Soybean oil and fractions, crude	487	286
100630	Rice, semi or wholly milled, parboiled, long gr.	591	214
100300	Barley for malting purposes	1,181	210
080810	Fresh apples	277	202

* Figures for the whole period

Source: MADR (based on Colombian Customs Administration)

Without taking fresh apples into account, the eight remaining products made up for 46% of Colombian agricultural imports during the whole analysis period. This means that Colombian agricultural imports are less concentrated in a few products than what are its exports. Annual growth rates of the value of imports for this group of products have varied considerably, showing an upward trend until 1996. The highest growth rate registered in 1992 (193.3%), setting an important characteristic of what has been called “the 1992 crisis of the Colombian agriculture”. Among 1993 and 1996, growth rates fluctuated from 14.8% to 48.4%, followed by a negative growth rate of 9.1% in 1997. Alike the case of agricultural exports, fluctuations in the value of imports partly depended upon variations in international prices. In effect, in 1992 quantity’s growth rate was 128.5% and between 1993 and 1996 growth rates fluctuated from 1% to 43.5%, while in 1997 a drop registered of 1.5%. As an average for the whole period, the rate of growth for values was 38.2% while that for quantities was 28.2% (both considerably above the corresponding ones to exports).

Table 9 Evolution of Main Colombian Agricultural Imports. 1991 –1997

HS Code	Item	1991	1992	1993	1994	1995	1996	1997
100590	Value*	2.3	70.9	79.0	143.1	173.0	332.0	270.0
	Annual growth rate		2,881.9	11.4	81.1	20.9	91.9	-18.7
	Quantity**	8.0	505.6	569.8	1,043.5	1,140.9	1,698.1	1,724.5
	Annual growth rate		6,191.8	12.7	83.2	9.3	48.8	1.6
100110	Value*	56.2	110.7	119.9	120.7	169.6	198.2	167.6
	Annual growth rate		97.1	8.2	0.7	40.5	16.9	-15.5
	Quantity**	530.0	697.6	770.9	760.8	830.1	835.0	901.8
	Annual growth rate		31.6	10.5	-1.3	9.1	0.6	8.0
230400	Value*	2.7	28.2	34.5	62.9	60.7	125.1	119.7
	Annual growth rate		948.8	22.5	82.2	-3.4	106.2	-4.3
	Quantity**	10.0	92.0	133.3	259.7	256.3	435.9	359.4
	Annual growth rate		821.5	44.9	94.8	-1.3	70.1	-17.6
520100	Value*	0.9	17.4	39.2	54.7	80.8	47.5	84.1
	Annual growth rate		1,782.9	125.0	39.5	47.6	-41.1	77.0
	Quantity**	0.3	11.0	28.3	34.9	37.7	25.7	47.3
	Annual growth rate		3,550.0	155.8	23.2	8.1	-31.9	84.2
120100	Value*	16.5	31.2	41.1	41.1	34.0	76.6	67.5
	Annual growth rate		89.8	31.5	0.5	-17.7	125.5	-12.0
	Quantity**	69.1	118.3	151.0	158.3	128.8	245.6	214.8
	Annual growth rate		71.1	27.7	4.9	-18.6	90.7	-12.5
150710	Value*	10.1	18.4	35.0	36.2	59.6	67.1	59.4
	Annual growth rate		82.0	90.3	3.3	64.8	12.5	-11.4
	Quantity**	19.2	38.8	75.2	60.2	91.4	109.0	93.0
	Annual growth rate		101.7	93.9	-19.9	51.8	19.2	-14.6
	Value*	0.09	14.7	4.4	69.8	32.9	43.0	49.2

100630	Annual growth rate		15,654	-70.2	1,498.7	-52.8	30.4	14.6
	Quantity**	0.09	44.5	13.5	218.1	96.6	102.9	114.8
	Annual growth rate		44,954	-69.7	1,520.1	-55.7	6.5	11.6
100300	Value*	16.3	16.9	25.3	26.6	26.7	56.0	41.6
	Annual growth rate		3.8	49.2	5.4	0.2	109.9	-25.7
	Quantity**	72.2	112.4	159.3	193.1	174.5	263.5	205.8
080810	Value*	10.1	11.1	19.4	32.7	40.3	42.0	46.4
	Annual growth rate		10.5	74.3	68.5	23.3	4.1	10.6
	Quantity**	16.2	16.3	30.6	47.3	54.3	52.1	59.7
	Annual growth rate		0.4	87.4	54.7	14.6	-4.0	14.5

* US\$ million FOB

** 1,000 tons.

Source: MADR (based on Colombian Customs Administration)

Excluding fresh apples, a set of seventeen countries is the main origin of the selected group of products' imports. More than 97% of these products' imports originated in these countries, making up for around 45% of Colombian total agricultural imports. Taking as a reference the aggregated value of this group of imports, the United States account for almost 62% of these Colombian imports, followed by Canada with a little more than 8%, Bolivia with near 8%, and Ecuador with 5.6%. Shares for the rest of sources range between 3.8% and 0.1%.

4. Evolution of the Domestic Prices of Agricultural Produce

This chapter overviews the evolution of agricultural prices in Colombia between 1991 and 1997. First, the behavior of agricultural prices at the consumer level *via a vis* that of other products is assessed. Second, a comparison is made between prices of manufactures and agricultural products at the producer level. Third, some comparisons are made among consumer and producer prices for different product groupings. Finally, the evolution of prices for agricultural tradables and non-tradables is assessed.

The evolution of the ratio of the consumer price index for other than food products and that of food is presented in Graph 1 (continuous line). The consumer price index for other than food products, consists of a weighted composite index including 6 main categories of products ranging from housing to transport and communications. As can be appreciated, even though there are some short term fluctuations, the general trend over the period is towards a relative decline of agricultural prices. The major exception to this behavior is found during the first half of 1992, when food prices increased considerably in comparison with other goods. This fact appears to be related to adverse conditions faced by Colombian agriculture during that year, among which weather disturbances have been deemed significant. On the other hand, the sharp increase registered in

the index ratio during the second half of 1992 and almost all 1993, may be related with the dramatic growth in agricultural imports associated with the issuing of changes in trade policy. With the relative stabilization of the volume of imported products, particularly during 1997, the index ratio also tends to behave in a more stable manner within the pattern of relatively declining agricultural prices.

When a similar analysis is performed for the ratio between the producer price index for manufactures and the producer price index for food, a different picture is obtained. In this case the overall trend is for the index ratio to decline, implying that agricultural producers tend to obtain prices that increase speedier than manufactures'. Given the previous result, this would mean that margins between producer and consumer levels (presumably belonging to traders, marketing services providers, and, in the case of some agricultural products, agroindustry) for agricultural products are shrinking as compared to those of manufactures. It is possible to hypothesize several factors that may influence this outcome. Deregulation of the agricultural sector, along with other factors, may have enhanced the development of more competitive agricultural markets; implicit taxation of agriculture may have been ameliorated through economic reform; appreciation of the peso may have shifted relative prices in favor of agricultural non-tradables while making competing imported final goods cheaper; and demand expansion associated with the first phase of reform may have put upward pressure on prices of agricultural non-tradables

There are a number of caveats, however, that impinge upon this observation. Comparing the two index ratios is not straightforward. The consumer price index for food, includes a number of processed products that are not contained in the producer price index for the same category. Also, the consumer price index for other than food products is heavily weighted by consumption of services. Finally, but not least, the producer price index for food is really a wholesale price index alike the case of the producer price index for manufactures. Interesting as it may be, making more precise this observation and elucidating its possible causes is beyond the scope of this survey.

Graph 1 Evolution of Agricultural Prices in Colombia: 1991-1997



Data from Banco de la República

It is of interest, though, retaining four facts. First, at the consumer level there is the trend towards lower relative agricultural prices. Second, at the producer level there is a strong indication that farmers tend to get prices that increase faster than those obtained by manufacturers, during the analysis period. Third, margins between producer and consumer agricultural prices seem to be shrinking relatively to those of manufactures'. Four, there is no evidence that particular changes in agricultural price behavior have occurred as a consequence of the implementation of WTO's Agreement on Agriculture.

In order to have a more precise appreciation of the behavior of price margins for agricultural products, Graph 2 shows the evolution of the ratio between the consumer price index for food and the producer price index. Despite of the fact that this ratio does not avoid some of the caveats above mentioned, it provides a closer view of the issue by allowing breaking up the producer price index between crops and livestock.

Graph 2 Evolution of Consumer and Producer Price Indexes for Food in Colombia: 1991-1997



Data from Banco de la República

In the case of crops, the behavior of the index ratio can be divided in two main periods. A steeply one, covering from the beginning of 1991 to the beginning of 1993, during which the index ratio rose from 1 to 1.32 implying that consumer prices were increasing more rapidly than producer prices and, hence, that margins were broadening. Then, from the beginning of 1993 until the end of the analysis period, there is a general declining trend that brought the index from 1.32 to a low of 0.72 in 1997 (being unclear whether or not this trend would continue). Within this second period is clear the presence of relatively wide fluctuations in the index ratio, showing some short term instability in margins probably caused by price fluctuations in the general context of shrinking margins. The increase in the index ratio characteristic of the first period, is very much alike with the observed behavior of index ratios in Graph 1. In fact, until the end of 1992 the gap between the ratio of the consumer price index to the consumer price index for food and the ratio of the consumer price index for food and the producer price index for food, tends to remain stable and to widen from that point on. Then, the declining trend shown for the index ratio in Graph 2 is, in general, consistent with the widening gap observed in Graph 1.

The situation is quite different regarding the index ratio that includes the producer price index for livestock (long dash line). As a matter of fact, fluctuations in this index ratio show almost a mirror behavior with respect to crops. Being livestock products in Colombia mainly non tradable and livestock prices highly dependent on the livestock cycle, there are good reasons for expecting a different behavior. Taking into account the relative importance of the livestock sector, the composite producer price index for food and the corresponding index ratio (short dash line), tend to follow, in a smoother manner, the pattern depicted by the index ratio linked to the producer price index for livestock. This situation is true while there is an important

divergence between the behavior of the two index ratios. However, from the end of 1994 until the second half of 1996 the index ratios tend to converge in behavior and from this point on to diverge again, but in this case the index ratio linked to the composite of crops and livestock tends to follow the pattern of that linked to crops.

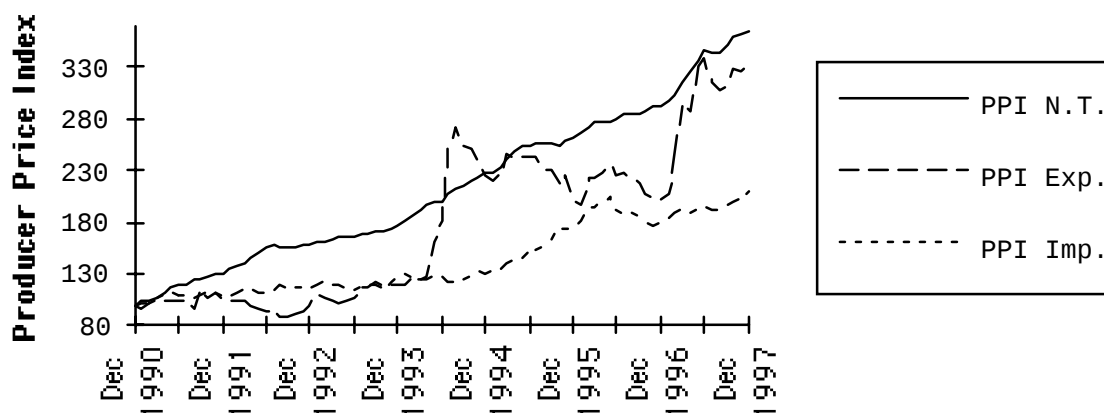
Price analysis conducted by Jaramillo et al (97) and Balcázar et al (98) have indicated also that there is a general trend for farmers to get higher relative prices and for price margins to diminish, although with significant variations at the product level. Producer relative prices (constructed in the same fashion that the index ratios used here) between 1991 and 1995 increased in the case of cereals; fruits; plantain, legumes and tubers; vegetables; and to a lower extent, in the case of beef and fish.⁸

Presumably, deregulation of the agricultural sector and more trade openness have influenced price behavior in the way just depicted. It is interesting know to take a glimpse at price behavior for agricultural tradables and non-tradables in order to have an appreciation of the differing effects of trade openness and the exchange rate. Graph 3 below shows the evolution of the producer price index for exportables, importables, and non-tradables. Since the methodology for building the producer price index distinguishes between goods that are produced and consumed domestically, export goods, and import goods, allowing for some overlap among the groups (assigning different weights to overlapping goods within each group to which they belong), the distinction between tradables and non-tradables may be not as clear cut as desirable but provides more than a fairly good approximation.

From Graph 3 it is easy to appreciate that producer prices for agricultural non-tradables (continuous line) are increasing at a faster pace than those of tradables. In particular, growth in producer prices for importables (short dash line) are consistently below prices for non-tradables, while prices for exportables (long dash line) fluctuate considerably and situate, as a trend, also below non-tradables'. Results in Graph 3 are consistent with various observations made earlier. The influence of the exchange rate on relative prices is clear. Appreciation of the peso has led to lower prices for importables and higher prices for non-tradables. Prices of exportables experienced a downward pressure from the peso appreciation, but their behavior is highly influenced by fluctuations in international prices (especially for coffee whose share within exportables accounts for a significant portion of this index). The results are also consistent with the way planted areas evolved during this period. Planted areas in temporary crops, with a significant share of importables, declined while those linked to perennials increased.

⁸ The ratio CPI/PPI varies from 1.02 to 0.8 for cereals, from 0.69 to 0.42 for fruits, from 0.57 to 0.46 for plantain, legumes and tubers, from 0.74 to 0.38 for vegetables, and from 1.03 to 0.97 for beef and fish.

Graph 3 Evolution of Agricultural Prices for Tradables and Non Tradables. Colombia: 1991-1997



Data from Banco de la República

Finally, it is possible now to introduce a qualification to the behavior of the index ratio between the producer price index for manufactures and the producer price index for food, presented in Graph 1. Taking into account the distinction between agricultural non-tradables and importables, what follows is that relative prices evolve in favor of farmers in the case of non-tradables while the opposite is true in the case of importables. In fact, the index ratio comes down from a unit base in December 1990 to 0.81 in December 1997 for non-tradables and goes up to 1.41 for importables.

5. Evolution and Determining Factors of the Internal Market Behavior of Agricultural Products

According to different analyses and empirical observation, demand for agricultural products in Colombia follows the traditional pattern observed internationally. Here an attempt is made to provide a broad overview of recent trends in demand for food in Colombia while illustrating the evolution of some variables considered to be key in explaining these trends.

From an economic viewpoint two major forces determine the basic behavior of aggregated food demand. The increase in per capita income, that allows for higher levels of disposable income, results in growing demand for food. Rising income not only leads to a greater demand volume but also to changes in the demand pattern, as stated in Engel's law (which implies too that a lower share of income is devoted to food purchases). In fact, as income rises, food demand tends to shift from staples and low value products to more protein rich goods, such as beef, and processed foods. On the other hand, population growth largely determines the pace of the increase in aggregate demand for food. The combined effect of these two factors set the basic stage for analyzing food demand.

Roughly, food demand's rate of growth may be calculated as follows:

$$d = p + g\eta$$

Where d is the rate of growth for food demand, p is the population rate of growth, g is the per capita income rate of growth, and η is the income elasticity of food demand. In the case of Colombia, appropriate values for the period 1991-1997 for these variables may be 1.8% for population growth, 2.8% for per capita income, and 0.6 for income elasticity⁹. These would yield, approximately, a food demand annual growth rate of 3.5%.

During the same time period, Colombian sectoral real GNP (valued at 1975 prices) grew at an annual compound rate of 1.4%, while physical production for domestic consumption of the main agricultural products grew at 0.3%. As mentioned in Chapter 3, agricultural imports grew at 30.1% in value and at 25.1% in volume. As a proportion of domestic production, imports went up from 3.6% to 14.4%. This situation is consistent with the findings of Ospina (98), in the sense that a growing demand for food in Colombia, is significant in explaining agricultural imports.

Using data from private aggregate consumption as a proxy for aggregate food demand (the share of food expenses within the representative basket of products employed for calculating the consumer price index from the mid 80s is 34.84%), the evolution of the demand side may be briefly portrayed as follows. From 1981 to 1990 private aggregate consumption grew at an annual compound rate of 2.75% (significantly below the 3.5% annual increase in food demand estimated above). Then, as a result of changing macroeconomic conditions stemming from reform, during the period 1991-1997 private aggregate demand grew at 4.35%. This would have implied a boost in the demand for food during this period that may be partly behind the expansion of sectors such as livestock, poultry, and certain perennials (as illustrated in Chapter 2).

⁹ These values, as well as some from next paragraph, come from basic data for the period 1991-1997 from D.N.P. Estadísticas Históricas de Colombia. Tomo I; Tercer Mundo Editores, Bogotá, 1998. The value for income elasticity comes from El Desarrollo Agropecuario en Colombia. Informe Final. Misión de Estudios del Sector Agropecuario, DNP-MADR, Mayo de 1990.

Even though these factors are highly influential in determining food demand, particularly in terms of its volume, other variables have proven to be important in shaping the demand pattern and in enhancing food demand. Relative prices, for instance, are efficacious in modifying food demand through income and substitution effects. As shown in Chapter 4, during the period 1991-1997 food prices were increasing, at the consumer level, at a lower rate than other goods. Such a trend clearly favors demand for food, especially among low-income households.

The increasing engagement of women in the labor market is another variable with important effects on food demand. In the context of a highly urban population, greater participation rates for women mean higher disposable income per household and changing consumption habits. Women's participation rate in the mid 70s were around 35%, then, in the middle 80s it has reached approximately 42%, and during the second half of the 90s, up to 1997, it ranged from almost 47% to near 50%. The net effect of these changes, although varying according to the socioeconomic level of the household, is towards increasing demand for more convenient goods. Lifestyle changes associated to the need for commuting to work, tend to reduce the time devoted to food preparation enhancing the demand for value added, easier to prepare, food products (generating incentives for industrializing the food sector).

Urbanization of the population is an important source of changing lifestyles. With a transition from a 70% rural population in the 1940s to a 30% in the 1980s, Colombia has experienced a significant recomposition in food demand patterns. One of the most interesting is the increase in the demand for "food away from home". As will be shown later, this type of demand has diversified and attracted a higher share of household expenditures. In the same vein, with the urbanization of population the demand for marketing services has become more important. As known, the effect of income growth on demand for marketing services for food, depends upon the rate of urbanization of population, the income elasticity of demand for food, the marketing margin, and the rate of growth of per capita income. For countries experiencing the process of demographic transition, as is still the case of Colombia, the resulting income elasticity of demand for marketing services is considerably higher than the income elasticity of demand for food. It can be estimated that the former may be about 0.3 to 0.5 points above the latter. The important expansion of supermarket chains and the recent appearance of hypermarkets, along with the declining share of public retail markets in Colombian cities is a good demonstration of the dynamic demand for marketing services in the country.

Other food demand determining factors that have arisen, mostly in developed countries, are of less importance in the case of Colombia. Preferences for public services related with health and safety issues, environmentally friendly products, and labeling and regulation are still weak as forces shaping food demand at the aggregate level and new related business activities are incipient.

From the consumer's point of view, food consumption is divided in two major categories depending on where the food is prepared. The first category, "food at home", include all the purchases of products (raw or

semiprocessed) to be prepared at home. Given the variety of products and types of differentiated consumption styles, it can be further divided in the following subcategories: to prepare from scratch, and convenient food. The second category, "food away from home", consists of all the purchases of products already prepared either for consumption in the outlet or to "carry out". The most common subcategories in the case of Colombia are fast foods and restaurants and other minor expenses (coffee, pastry, and the like).

Food to prepare from scratch is either characteristic of low income or high-income households. Being the cheapest way of securing food, low-income households rely heavily on purchases of raw products, with less value-added, and use relatively big amounts of housework in having food prepared. This type of food consumption pattern has also been found associated with lower female labor force participation rates and bigger household sizes. On the other hand, high income households with manifest preferences for fresh food due to health or environmental considerations tend to make use of this kind of food consumption. In this case the housework is done by wage labor and often use is made of specialty products

Convenient food is expected to be, with the passage of time, the most popular type of food consumption pattern. Households fitting one or more of the following characteristics are expected to be consumers of convenience food: working women, one-head households, single households, elderly people, and children alone at home. The rise of convenient food will accelerate the process of industrialization of the agricultural sector and, as in other cases, will be the most important value-added food by volume of consumption and an important factor in slowing the decreasing rate of food expenditures.

To illustrate the evolution of the demand for food in Colombia, a comparison is made between the composition of the baskets of products used domestically for calculating the consumer price index. The core of the comparison covers the 1978 basket and the 1988 basket (both built based upon consumer surveys conducted a year or two before the issuing of the respective basket). A couple of warnings should be made, though. First, the scope of the surveys differs. The one corresponding to 1978 included the main seven Colombian cities, while the second one covered fifteen cities, among which the former seven. Second, there is no rural coverage. As a consequence, the consumption pattern is urban and changes arising from the comparison between the two baskets are influenced also by regional factors stemming from the broadening of the sample. In spite of these considerations, as will be seen, the resulting consumption pattern has a very good fit with the one expected from the forces depicted above.

The first conclusion attained is that the importance of food within consumption has declined. In 1978 food accounted for 48.9% of household's expenses, while in 1988 it accounted for 34.84%, being the only main consumption group to show this behavior. The second conclusion is that important changes in the composition of food demand occurred during this time. In Table 10, below, the composition of food expenditures is presented for the two baskets. The main changes may be summarized as follows. There is an important decline in cereals and plantain and tubers share, products that are mostly staples. There are

significant increases in vegetables, and beef and other meats (which are either more healthy or protein rich products). Fruits; dairy, oils and eggs; and other products remain relatively stable. Finally, in 1988 a new product group, food away from home, becomes important enough to be included in the basket.

Table 10. Composition of Food Demand According to the Consumer Price Index's Basket. Colombia 1978 - 1988

Product Group	1978		1988	
	Percentage on CPI	Percentage on Food	Percentage on CPI	Percentage on Food
Cereals	9.0	18.3	4.9	14.1
Plantain and Tubers	6.6	13.5	2.6	7.5
Vegetables	3.1	6.4	3.0	8.6
Fruits	2.3	4.6	1.9	5.6
Beef and other meat	11.5	23.6	9.7	27.7
Dairy, oils, and eggs	9.6	19.7	6.5	18.8
Other products	6.8	13.9	4.8	13.9
Food away from home			1.4	3.9
Total Food	48.90	100.0	34.8	100.0

Source: DANE (Colombian National Statistics Department)

These changes can also be appreciated from the standpoint of the number and type of products included within each group. From a total of twenty cereal products included in the 1978's basket, only 6 were included in 1988. Basic products such as maize were excluded while maize flour was included. In the case of plantain and tubers, there was a diminution from a total of thirteen products to six. Here, changes point towards the elimination of the distinction among product qualities, a fact that may be regarded as an indication of certain homogenization of products and of the diminishing importance of quality considerations for basic products.

Vegetables is a group that experiences an increase in the number of products. From seventeen in 1978 it reaches 20 in 1988, with the addition of newly available products such as cauliflower and some elaborate products such as vegetables mix. Fruits is another group that shows an increase in the number of products, coming from thirteen in 1978 to seventeen. The case of beef and other meats is similar to that of plantain and tubers. The number of products diminishes, mainly due to the elimination of quality distinctions, but, unlike the latter, here poultry and some more processed products are included. In the group of dairy, oils, and eggs, there is a diminution from ten to seven products. Animal and vegetable fats were excluded as more refined products entered into the group.

The group other products diminishes from nineteen to eleven items. In this case, again, quality or variety distinctions are eliminated while other elaborated products such as dehydrated soups are included. Finally, the inclusion of the group food away from home carries on the distinction among food in restaurants, fast food (mostly hamburgers), and minor items (such as coffee).

Even though a new basket of products is currently being determined, it is not possible to extent the comparison due to the fact that weights have not been assigned yet to products. However, it is of interest to

mention a few product changes that help signaling the trend the Colombian food consumption pattern is following. With the inclusion of some precooked flours, the group cereals goes up by one item. The group plantain and tubers diminishes in two items. The vegetables group also goes up by one item and now comprises some canned products. Fruits diminishes to six items but includes at least a canned item. Beef and other meats diminishes in one item, but now includes products such as chicken parts. Dairy, oils, and eggs diminishes to six items. Other products increases to twelve items and includes fruit juices and distilled water. Finally, food away from home increases to five items and distinguishes between hot and cold fast food.

The trend of the consumption pattern towards a more diversified and a more value-added composition, is consistent with the recent evolution of the agroindustrial sector in Colombia. Table 11 shows data on the share of this sector within the manufacturing sector for variables such as raw materials consumption, gross production, value added, and employment. From there it is clear that the agroindustrial sector has maintained and slightly increased its share, implying that it has been at least as dynamic as the rest of the manufacturing sector. The two more dynamic agroindustrial subsectors are food products manufacturing and animal feed manufacturing.

These two subsectors, however, are comparatively less capital intensive than the other two, less dynamic subsectors (drinks manufacturing and tobacco manufacturing). The average share within the agroindustrial sector of the former two in raw materials consumption is 68.6% and 17.8%, in gross production is 60.1% and 16.0%, in value added is 48.7% and 13.0%, and in employment is 67.4% and 11.7%. On the other hand, the respective shares for the two less dynamic subsectors are: in raw materials consumption 12.4% and 1.2%, in gross production 21.8% and 2%, in value added 34.9% and 3.4%, and in employment 19.5% and 1.4%¹⁰.

Table 11. Share of the Agroindustrial Sector within the Manufacturing Sector in Colombia. 1990 – 1996

Variable / Subsector	Average Share	Share's Growth Rate
Raw Materials Consumption		
Food Products Manufacturing	24.6	0.9
Animal Feed Manufacturing	6.4	2.5
Drinks Manufacturing	4.5	1.1
Tobacco Manufacturing	0.4	-8.4
Total Agroindustry	35.9	1.1
Gross Production		
Food Products Manufacturing	19.6	1.8
Animal Feed Manufacturing	5.3	2.1
Drinks Manufacturing	7.1	-1.3
Tobacco Manufacturing	0.7	-16.9
Total Agroindustry	32.7	0.7

¹⁰ These data comes from Uribe (98).

Value Added		
Food Products Manufacturing	14.7	4.3
Animal Feed Manufacturing	3.9	1.2
Drinks Manufacturing	9.4	-4.2
Tobacco Manufacturing	1.0	-22.4
Total Agroindustry	29.0	-0.4
Employment		
Food Products Manufacturing	15.0	2.2
Animal Feed Manufacturing	2.7	3.9
Drinks Manufacturing	4.3	-1.9
Tobacco Manufacturing	0.3	-10.9
Total Agroindustry	22.3	1.7

Source: Taken from Uribe (98)

6. Analysis of Changes Recorded in Employment and Social Conditions of the Agricultural Sector

This Chapter attempts to provide an overview of key areas of the evolution of social conditions in the Colombian agricultural sector between 1991 and 1997. It focuses, first, on poverty related issues. Then it draws on employment and income generation. Afterwards, income distribution topics are dealt with. Finally, some aspects of the impact of economic reform on employment and income are covered.

6.1 The Evolution of Rural Poverty

According to May (95), between 1978 and 1992 poverty in Colombia¹¹ decreased by 6%, coming down from 24% of total population to 18%. In spite of this, due to population growth the number of poor people remained relatively stable (5.9 million in 1978 and 5.8 in 1992). This diminution was attained during the period 1978-1991, while in 1992 the poverty level increased as a consequence of the sharp rise in rural poverty between 1991 and 1992, caused by the so called 1992 crisis of the agricultural sector. The causes of the 1992 crisis have been the core of a tough debate among agricultural analysts. It is agreed, however, that the confluence of a broad set of factors determined the advent of the crisis. Falling international prices, adverse weather conditions, sectoral policy changes, the opening up of the economy, and the increase in rural violence are among the top intervening factors.

Until 1988, poverty reduction benefited both the urban and rural sectors chiefly due to an important reduction in income distribution inequality. Improvements in resource allocation for enhancing agricultural productivity

¹¹ Defined as the percentage of population attaining income levels below the minimum necessary for acquiring the basket of food products that grants an adequate nutritional level.

and human capital were among the main sources of this outcome¹². From 1988 on, the incidence of urban poverty remained stable around 8% while that of rural poverty decreased until 1991 (to 29%) and then increased by 2% in 1992. At the time, 70% of poor people inhabited in rural areas, amounting to 4.3 million, representing more than 31% of total rural population, and their income was 43% below the poverty line. In comparison with other Latin American economies, the incidence of poverty in Colombia is similar to those of Jamaica, Venezuela, and Chile, and lower than other countries' in the region. However, rural poverty tends to be worse than in most other Latin American cases, indicating that rural development in Colombia is lagging behind the region's average.

As for the factors explaining household's poverty level, it has been found that poverty tends to diminish with education and age of the household's head (and his/her wife/husband) and to increase with the number of children and the fact of having a woman as head. The marginal effect of these variables is, however, different between urban and rural households. The marginal effect of the head's educational level in reducing the likelihood of being poor is more than twice among rural households, while that of the head's age is less than half. On the other hand, the likelihood of being poor increases more than twice in rural households, as compared with urban ones, when an additional child is born, and increases almost three times more when a woman is the household's head.

Estimations provided by Ocampo et al (98) indicate that between 1978 and 1991 the incidence of poverty in rural areas has increased from 28.2% to 32.4%. A difference with May's that is perhaps due to measurement procedures. According to this study, from 1991 on there is a decrease in rural poverty levels that dropped to 24.7% in 1995. The driving force behind these changes is income distribution. During the first period, an increasing concentration of income in better-off households is supposed to have caused the deterioration in social conditions in rural areas. On the other hand, the effect of sectoral growth is deemed to have been positive in rural poverty reduction generating a decrease of about 3.8%, an effect that was more than offset by worsening income distribution. During the second period (1991-1995) the situation is the opposite. Improvements in income distribution would have caused an important reduction in poverty levels, more than offsetting the perverse effect arising from sectoral growth.

Data provided by López (98) tend to confirm the findings of May with respect to the deterioration of social conditions between 1991 and 1992 and those of Ocampo for the period 1991-1995. Even though in this case, again, there is no coincidence in the calculated figures, López estimated that from 1991 to 1995 there is a diminution of rural poverty levels. López' estimations situate the incidence of rural poverty in 1991 at the 25% level, worsening to 38.5% in 1992, and then improving to 19.4% in 1995.

¹² May (95)

However, López did not extend the analysis carried on by Ocampo and therefore it is not possible to confirm the role the latter attributed to income distribution. In López' view, it is the dynamics of sectoral growth that is responsible for the improvement in rural poverty until 1995 and the sluggish sectoral growth the cause of the increase that rural poverty experienced from that year to 1997, a time at which it reached 36.6% (a level that is similar to those at the end of the 1970s). In terms of the characteristics of rural households, López shows that unemployment rates, employment in the primary sector, and employment under the categories of self-employed and family employee without wage are the most importantly associated with the incidence of poverty.

6.2 Employment and Income Generation

As a consequence of the diminution in population growth and of rural to urban areas migration, rural population growth in Colombia between 1985 and 1993¹³ was 1.18% per year. As part of the demographic transition process, the share of women in rural population is slightly higher than that of men and the share of population under thirty years of age has diminished from 66% in 1988 to 62% in 1995. During this time period, also, the educational level of the rural population has increased. The percentage of rural population having completed primary education rose from 15% to 19%, that with full high school education rose from 3% to 6%, and that with some college education rose from 1% to 2%. In spite of these increases, rural population's educational level lags behind the corresponding to urban population and is considered to be quite low¹⁴.

Rural population's participation rates during 1988-1995 remained stable at the 55% level. This stability hidden two minor but important changes. First, male's participation rates dropped from 80% to 77%. Second, female's participation rates increased from 29% to 32%. These figures, although biased due to the fact that women's participation rates are systematically understated in rural households surveys¹⁵, are important in that they underline the increasingly more evident involvement of women in the rural labor market and the potential that the female labor force represents for the development of the rural sector. Additionally, it has been found that participation rates are higher for those that have completed any educational level while, at the same time, have diminished for those that have not completed them. This is regarded as a positive change, in as much as it may indicate that young people have been quitting working in order to finish their education.

The share of rural employment in total employment slightly diminished between 1988 and 1995, from 40.2% to 38.9%. It has been estimated that during this period, rural employment has increased at an annual average rate of 1.5%, a level high enough to modestly augment the number of people employed (Leibovich, 97).

¹³ This period corresponds to the two latest population censuses.

¹⁴ Figures come from Leibovich (97).

According to López (98), during the 1990s rural employment has presented just minor variations, coming down by 1.2% between 1991 and 1997. Estimations by Balcázar et al (98) tend to support López' point. Their calculations show a tiny decrease in rural employment between 1991 and 1995. While agricultural employment went down to 3.05 million employees (260.000 less than in 1991), rural non-agricultural employment increased by 257.000 employees.

The decrease in agricultural employment is the result of different changes in the composition of employment. As mentioned earlier, due to economic reform and other macroeconomic and exogenous factors the planted area devoted to temporary crops (mostly for importables) diminished from 1992 on, while that devoted to perennials (especially exportables) increased, with the noticeable exception of coffee. As a result, from 1991 to 1996 the equivalent to some 120.000 jobs were lost in the temporary crops subsector and, meanwhile, 131.000 new jobs were created in the perennials subsector. This means that the net decrease in agricultural employment during this period is entirely due to a less dynamic employment generation process in the coffee sector¹⁶.

It is worth mentioning other characteristics of the evolution of rural employment during this period¹⁷. Even though the participation rates for women have increased, rural employment continues to be predominantly male based. The share of rural employees under the age of 19 decreased from 20% to 17%. A similar situation is true with respect to the population at the lowest educational level (no formal education at all and incomplete primary education), that went down from 62% to 51%. On the other hand, there is an increase in the share of rural employees under the category of wage-workers, coming up to 16% from 12% in 1988. Finally, there is an important decrease in agricultural employment. It represented 61% of total rural employment in 1988 and has dropped to 55% in 1995.

López examined the evolution of agricultural employment's share during the period 1988-1997, finding that, although there are some fluctuations, there is a clear tendency towards the diminution of its importance. From 61.2% in 1988, the share of agricultural employment reaches the lowest level in 1994 at 53.9% and then increases to 56.1% in 1997¹⁸. Meanwhile, rural employment in the service sector started from 26.4% in 1988, moving to a highest of 33.1% in 1994, and then decreasing to 32.3% in 1997 (the share of the manufacturing sector remained stable around a little more than 10%).

Several studies have pointed out the increasing importance of the service sector in rural employment. Reyes and Martínez (93), Leibovich (97), and López (98) confirm this fact for different time periods. López

¹⁵ It has been estimated that taking into account the report on "secondary activities" performed by women, would increase their participation rate in 1995 from 32% to 48% (Presidencia de la República, 1997).

¹⁶ Balcázar et al argue that in 1997 the coffee sector generated 137.400 jobs less than in 1991.

¹⁷ These observations come from Leibovich (97) and, therefore, refer to the period 1988-1995.

¹⁸ López' figure for 1995 is 54.7%

extended the scope of the analysis and found that service sector employment has increased not only among rural population that inhabits small urban areas but also among people living in the countryside. He also identifies a distinctive demand profile for agricultural and non-agricultural workers. Agricultural employment is increasingly masculine (89.7% of agricultural employment), of older age (41.6% is above 40 years old), and less educated (20.9% corresponds to workers with no formal education). In contrast, the service sector tends to increasingly hire women (52.8% in commerce services and 60.7% in other services), and, in all cases, more educated workers (the percentage of workers with high school level, completed or not, is considerably higher).

Besides, wages are higher in the non-agricultural sector, the lowest difference corresponding to commerce whose average salaries are just 10% above those of the agricultural sector. This, of course, creates incentives for rural workers to switch from agricultural to non-agricultural jobs. However, relatively old, uneducated male workers find it difficult to succeed, reinforcing the pattern that is seemingly leading to low human capital endowments in the agricultural sector. Furthermore, López argues that agricultural employment is weak in the sense that fluctuations in sectoral GDP directly impinge upon workers' income. This is due to the interaction between a relatively stable rural labor supply and the existence of rural labor markets largely characterized by flex prices (wages). Self-employed tend to be the most affected by these conditions (wage-workers in "modern" agriculture benefit from minimum wage legislation) and their share within remunerated agricultural employment has increased from 30.3% in 1991 to 38.7% in 1997. Because of these reasons, it has been argued that the growing importance of the service sector in rural employment is not the result of a cycle in rural labor markets but a structural trend.

As in other sectors of Colombian economy, rural unemployment has been increasing since 1994; although, as expected, it has been systematically below that in urban areas. Between 1988 and 1993 it was slightly above 4%, then, in 1994 and 1995 increased to below 6%, and reached 6.5% in 1996 and 1997. Unemployment has affected mostly female (partly due to their increased participation rate), young, relatively educated workers (Leibovich, 1997). This profile of the rural unemployed suggests a lack of dynamism in service sector employment generation. In fact, López (98) found that 77% of unemployed were looking for a job in the service sector, which has been badly affected by the recent crisis of the Colombian economy.

Regarding income generation, Jaramillo and Nupia (96) found that, in the short run, agricultural prices are the main force determining rural wages. This implies that, agricultural subsectors behave differently according to the way their corresponding prices are determined. Not only particular supply and demand conditions but also the influence of the behavior of macroeconomic variables (such as the exchange rate) impinge upon rural income.

According to Leibovich (97), rural households' real income between 1988 and 1995 reached a peak in 1991¹⁹. Then, as a consequence of the 1992 agricultural crisis, dropped around 33% to improve later on in 1993 and 1994 to 1991's levels²⁰, to drop again in 1995 by 20%. Rural income peaks for the age group between 30 and 49 years old, shows a positive correlation with education and labor positions such as owners, wage workers, and employees, and is higher in the energy, construction, financial services, and commerce sectors.

The impact of education in income generation is low for rural men and higher and increasing for women. Experience, measured as age, has little positive impact for both men and women, being higher for the latter. Higher working hours lead to higher income for men and women, and living in the countryside means lower income levels than living in urban areas. Finally, being wage-workers, as opposite to being self-employed, implies significantly higher income levels.

6.3 Income Distribution

Calculations by Ocampo et al (98), indicate that the period 1978-1991 showed an important deterioration in rural income distribution while that of urban areas improved (although not in the biggest cities). Worsening income distribution in rural areas concentrated during 1978-1988 and more than offset the positive behavior of urban areas'. The period 1991-1995, on the other hand, showed the opposite behavior. Aggregated data on income distribution show practically no change between 1991 and 1995. However, important changes occurred. Income concentration increased in urban areas, bringing the Gini coefficient up by 6 percentage points in big cities and by 4 percentage points for the urban aggregate. Rural areas' income distribution considerably ameliorated as expressed by the decrease in the Gini coefficient by 13 percentage points. In spite of this, the gap between urban and rural income increased. Rural per capita income moved from a level equivalent to 68% of urban income in 1991 to a level of 41% in 1995.

As mentioned in the previous section, income distribution has played an important role in determining rural poverty. Leibovich and Rodriguez (97) found that income concentration, as measured by the Gini coefficient, decreased from 0.613 in 1988 to 0.484 in 1995. Although, by international standards rural income concentration is high. If only wage-originated income is taken into account, concentration diminishes from 0.469 to 0.448 during the same time period. This result indicates that wage-originated income is less concentrated than total income and that changes in rural income distribution has been mainly driven by modifications in income generated in other than wage sources.

¹⁹ Excluding sources such as rents or dividends.

²⁰ A finding that supports the hypothesis that in the 1992 crisis the main influencing factors were temporary rather than structural.

An attempt to decompose the evolution of income concentration (for wages-originated income only) between socio-demographic factors and labor market factors, shows that income distribution slightly improved during 1988-1992 and then improved again during 1992-1995²¹. The first of these effects is deemed to be caused by positive labor market changes that generated an improvement in income distribution that was below the one that was caused by a positive evolution of socio-demographic variables. The second is supposed to respond, again, to positive changes in both sets of factors.

Improvements in education, lowering participation rates for young people, and the relative aging of rural population, are among the causes of the positive evolution of income distribution from the socio-demographic side. On the other hand, the positive effect of factors linked to the labor market seems to be determined mainly by the drop in income suffered by higher income households during the period.

Finally, research conducted by the Social Mission (Perfetti and Guerra, 1995; Vélez, 1995) has shown that a set of “Rural Special Programs” has had a positive but modest impact on income distribution²². Governmental spending in these programs is considered to be among the most progressive but its effect is limited by institutional weaknesses (especially because of the transition to a more decentralized management scheme) and lowering budget allocation.

6.4 The Effect of Economic Reform

Estimations on the impact of economic reform on income and income distribution, with reference to the rural sector have been made by Fedesarrollo²³ (reported by Lora and Herrera, 1993, and May, 1995), Ocampo et al (98), and Cárdenas et al (98). Following, a brief overview of the results of these studies is provided. The presentation is based upon Fedesarrollo’s research, as presented by May (95), and is complemented with findings from the other two studies.

Observation of the behavior of some key economic indicators and simulation carried out by means of a computable general equilibrium model allows the following characterization of the initial impact of economic reform on the rural sector. A growing gap between domestic and international interest rates between 1990 and 1991 generated massive capital inflows to the country, endangering the effect of a restrictive monetary policy aimed at controlling inflation. As a result, the balance of payments strengthened, national reserves increased and

²¹ Leibovich (98).

²² Programs covered include The Rural Cofinancing Fund, the National Rehabilitation Plan, the Land Reform Program, and the Rural Bank.

²³ A Colombian economic think-tank.

the real exchange rate decreased, appreciating the peso. In response, and attempting to correct the foreign sector imbalance, the government accelerated trade reform and uncertainty about the exchange rate stability and the pace of reforms induced sluggish growth in private consumption, investment, and imports. Economic growth was low (2.1%) and the impact on the inflation rate was modest (coming down from 32% in December 1990 to 27% in 1991).

The macroeconomic program implemented in 1992 was targeted towards consolidating trade reform, bringing down inflation, and reducing interest rates. Peso appreciation during that year was just 2%, inducing a sharp rise in imports while exports remained stable, and the current account surplus came down to 2% of GDP. This new environment induced an important rise in aggregated demand. Private consumption grew 4%, private investment 27.5%, imports 29.4%, government consumption 12.4%, and governmental investment 7.4%. While GDP grew at 3.5%, agricultural GDP shrunk 2.6% (excluding coffee) and the manufacturing sector grew less than 1% (excluding coffee processing).

Changes in relative prices, largely the result of trade reform, declining international prices for agricultural products, and peso appreciation (11% during 1990-1992), are the root cause of the decline of the agricultural sector. Additionally, the dismantling of price supports for agricultural products helped the reduction of agricultural prices by an estimated 13% between 1990 and 1992, as compared to the implicit GDP deflator. Notwithstanding, rural employment grew at an annual rate of 4.7% and unemployment decreased from 5.5% in 1990 to 4.4% in 1992. However, rural wages decreased by 22% broadening the gap with urban income. Income for the poorest 40% of rural population decreased 14.7% while that of urban population (for the same income group) grew by 10.6%.

Simulations carried out to isolate the impact of different areas of economic reform on the above-depicted situation provide the necessary insight to evaluate them. The results for trade reform indicate that it increased income for both urban and rural areas. Furthermore, it benefited the poorest rural people the most: the poorest 20% of rural population attained an income rise of 3.4%. Even though agricultural prices decreased, relative prices moved in favor of the rural sector generating an increase in labor demand and in rural wages (by 7.4%).

Fiscal reform, which among other effects increased taxation on capital gains, generated reductions in urban and rural income. In rural areas, the diminution in income impacted wages the most, as compared to capital gains. However, this differential impact did not have a major impact on income distribution and all rural population experienced an income decrease of about 0.8% (lower than that suffered in urban areas). Minimum wage policy tended to increase informal and to decrease formal employment. Additionally, agricultural prices

rose less than urban goods and services but, nonetheless, led to a contraction in demand for agricultural products that induced a price decrease of about 1.8%, and a rural income diminution of 2%.

Changes in agricultural prices, comprising both international and domestic prices, depressed rural income in general, having the highest impact on capital gains (-6.6%) as opposed to wages (-3.6%). A difference that seems to be due to falling international prices for coffee and importables. The drop in coffee prices appears to be responsible for capital gains shrinkage, while that of importables apparently affected rural wages the most. The effect of these factors led to a 5.5% decrease in real income for the poorest 40% of rural population.

Now, the compound effect of these four factors explains just part of the fall in agricultural prices and income. As mentioned, agricultural prices fall by 13.3% (for tradables the figure is 16%) while the four factors account for only 8.4%. On the other hand, it is estimated that rural income drooped by 14.7% and the explanatory power of these variables is just 5%. Changes in sectoral policy, particularly the dismantling of price supports, helped by falling international prices, account for the 10% drop in real income for the poorest 40% of rural population. Although there is evidence that price supports and domestic marketing intervention was inefficient and costly (with important leakage to higher income rural population), it is deemed that the government understated the impact of sectoral policy reform on the rural poor.

From a different perspective, Cárdenas et al (98) found that there is a positive correlation between the level of the inflation rate and income concentration. They also found that unemployment is positively linked with income concentration and that both variables (inflation and unemployment) have an influence on income concentration even in the short run. Growth in the manufacturing sector shows a positive association with better income distribution and the same is true, at a bigger scale, for agricultural growth. The latter having a positive and long-lasting impact on both rural and urban income distribution²⁴. Additionally, growth in sectors that are mainly non-tradables, such as construction and services, tends to have a negative impact on income distribution. The opposite is true with respect to the exchange rate: peso depreciation generates improvements in income distribution.

The worsening in income distribution that the authors found for the 1990s, appears to be linked to increasing inequality within groups that are educationally homogeneous. This would mean that an important share of changes in income distribution might be explained by means of macro variables. Furthermore, it suggests that economic reform is not responsible for the regressive changes registered in income distribution and that their main cause should be associated with macroeconomic instability.

²⁴ By means of shock-response models, the authors estimate that achieving manufacturing growth rates higher than usual by one standard deviation, has a positive impact on income distribution whose effects last for a year and then disappear. On the contrary, the same change in agricultural growth generates a slightly higher positive impact on income distribution that, after experiencing some reduction, lasts forever.

7. Concluding Remarks

The effect of economic reform, or of macro policy, on the generation of incentives for economic agents within the agricultural sector and on rural income and income distribution, provides the opening and ending topics of this survey. Although a mere coincidence, it is a coincidence that is helpful for pointing out the enormous importance of macro policy in determining the outcomes and prospects of the agricultural sector. Given this, and the complexity of the interaction between macro and sectoral policy, it is not surprising the obscurity that prevails in evaluating the results of Colombian sectoral policy.

If the peso appreciation, characteristic of most of the 1990s, reflected a departure of the RER with respect to the equilibrium RER, then macro policy generated a biased incentive for modifying the structure of agricultural production. On the contrary, if it reflected a move towards a new equilibrium RER, changes depicted in the structure and composition of agricultural production correspond to a needed long-term adjustment. Since no study of those surveyed here covers the topic, this remains as an open question.

The evolution of production costs appears to signal an incentive to shift from labor intensive to machinery intensive crops, particularly in cases where imported machinery is used. Since prices of non-tradables increased faster than those of tradables, the incentive may have been ameliorated for the former (depending on how the behavior of non-tradables' prices compare to the weight and behavior of labor costs). Changes in planted areas initially confirm this hypothesis. However, there is the need to analyze the composition of planted areas within non-tradables to confirm that there is no shift towards machinery intensive crops. On the other hand, the role of land rents is unknown. It has been argued that the use of land property as a means for unproductively increasing the value of private assets (under conditions of low property taxes, relatively high inflation rates, and the use of illegally acquired capital for buying rural property), creates negative incentives for agricultural production. If true, most probably land rents must have negatively affected tradables production since the use of rented land is more common in this case than in the case of non-tradables production.

Elucidating the extent to which the evolution of factor and inputs' prices is truly reflecting their relative scarcity is vital for agricultural policy. If there are valid economic reasons for a shift from labor to machinery intensive agricultural production, policy should aim at removing institutional distortions that prevent farmers from shifting. If there are not, policy must be directed to removing incentives that distort relative prices in the first place. Further research is needed to help clarify this issue.

The above mentioned issues clearly impinge upon the deterioration of the agricultural trade balance. The latter appears to be consistent not only with domestic price incentives but also with the behavior of international prices. Appreciation of the peso led to growing prices for non-tradables, slow growing prices for

importables, and exerted downward pressure on exportables' prices. The RER clearly had an anti-export bias and diversely affected the structure of production costs. In this context, the continued concentration of Colombian agricultural exports in a few products and markets is worrisome.

Before a growing and increasingly diversified demand for food, a stagnant agricultural sector signals either the presence of some kind of a transitional period or the effect of structural restrictions to sectoral development (or maybe both). At this point, the role of technology innovation and transfer ought to be significant. The survey does not cover this important area and, as a consequence, the main characteristics of the relationship between technology and the evolution of the agricultural sector during the 1990s can not be addressed here.

Changes in the structure of rural employment are an interesting and important issue. First observed towards the end of the 1980s, the importance of agricultural employment has been decreasing while that of the services sector's grows. During the second half of the 1990s, studies show that this is true not only in the case of rural population living in small towns but also for that in the countryside. Furthermore, there seems to be a link between the prevalence of poverty and agricultural employment, a fact that is believed to be associated with the weakness of agricultural employment (both in terms of income generated, salaries or returns, and permanence).

Shifts in agricultural production, up and down, along with distributional impacts in the rural sector have been identified as one of the main causes of rural poverty behavior. As expected, agricultural growth leads to poverty alleviation and the same can be said about income distribution improvements. While these two forces have not always acted in the same direction, yielding as a result different net outcomes, the evolution of key socio-demographic variables (such as participation rates, education, and so on) appears to have positively affected income distribution and the prospects for poverty alleviation.

In spite of the findings surveyed here, there is a large number of open questions. The relationship between certain types of crops or other agricultural activities with poverty prevalence, for instance, is unknown. The same can be said about the different types of productive organization and, at a regional level, the structure of employment. Moreover, it seems that testing for the statistical significance of some of the reported changes in poverty, income distribution measurement, and employment may prove worth doing.

Beyond providing a broad overview of some of the key developments in Colombian agriculture during the 1990s, the hope is that this survey will be successful in raising questions about the recent dynamics of this sector. The aim of these concluding remarks is just beginning doing that.

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