

ISSUES ON DEMAND.

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INTRODUCTION

The main purpose of this paper is to explore some issues on demand and industrial growth. Was demand an important factor in the explanation of economic growth? Most of the Latin American economic literature assigns great importance to the evolution of commodities--prices and quantities-, and presumably the idea behind is that larger exports bring additional demand into the economy creating incentives for additional production. There is also the complementary idea that higher commodity exports--total exports in general- will bring foreign exchange into the economy which in turn is required when purchases of capital goods and raw materials are required.

The first Section of this Chapter explores one issue which has originated important discussions among colombian historians and which is central for the following Sections. How segmented were the markets?. If those firms located in Medellin (Bogota) sold all their production in Medellin or in Antioquia, we should give more weight to policies which created demand in Antioquia. The main conclusion of the Section is that, even at the beginning of our period, firms were selling at least 50% of their production in other departments, -and not only in the neighboring ones-. This could be predicted even if we did not have information of the size of the regional markets. As shown in the same Section, the market of Antioquia was even comparable with that one of Cundinamarca, and even less with the "natural" market surrounding Bogota. As a first conclusion, then, what is relevant for us is the national market, even since the 20s.

Section II is related with savings and investment in Colombia. It shows, basically, that the evolution of the current deficit was an important factor in stabilizing total savings, mainly because the foreign sector -foreign savings- was highly unstable in the period. But it also shows that private savings were much more stable than both public and foreign savings. They were also more important. But the private sector was also more important in relation to investment. In this area, what the statistics show is that the government did not played an stabilizing role, both private and public investment moving with the cycle.

Section III tries to study possible relations between demand and production, and shows two important aspects of production: first, that most variables related with production (GNP, aggregated industrial production and sectorial industrial production) tend to move together¹. Second, it also shows that the sum of the current account and the fiscal deficit predicts well the evolution of production -at the different levels-, the only possible exception being the production of tobacco. Because high power money is closely associated in our countries with the corrected current account and with the corrected public deficit, we also observe a close association between money supply and production. This last issue, however, needs future work: it is necessary to give empirical meaning to the relation mentioned before². Also, we will analyze the line of causality between money and production with some standard time series methodologies available³.

¹ But those first results could hide the fact that industrial growth was much higher than the average for the whole economy and that should be explained.

² See R. Barro " ", in H. Gómez (et.al), (Eds), *Lecturas sobre Moneda y Banca*, Bogotá, Fedesarrollo; also, J.J. Echavarría, "Colombia 1970-85. Management and Consequences of Two large External Shocks" *Working Paper No. 20*, Overseas Development Institute, July, 1987

³ Different papers in the book edited by K. Brunner on the Depression of the 30s bring that analysis into the discussion. See K. Brunner (Ed), *The Great Depression Revisited*, Boston, 1981. See in particular the papers by Brunner, Temin and Roberts

Finally, Section IV discusses more deeply and carefully the issue of the fiscal deficits. There is an extensive literature trying to analyze the fiscal stance of the government. Deficits are produced automatically during depressions mainly because the close relation between taxes and national income. They should be compared at a given level of employment if something meaningful is to be said on government policy. There are other possible corrections to the deficit advocated this days when "ultra-rationality" of the consumer seems to be assumed⁴. We discuss some additional corrections for the effects of inflation and devaluation of the exchange rate.

⁴ H.H. Buiters, "Measurement of the public sector deficit and its implications for policy evaluation and design", *IMF Staff Papers*, June, 1983

,i.I. REGIONAL OR NATIONAL MARKETS.

Were firms using the national market since the "beginnings" of the industrialization process?. What was the size of the different regional markets?. Those are the two questions we want to address in this Section. The discussion on those topics is related, first, with the issue of accumulation of the capital required to create the first industrial plants. *Ceteris paribus*, the richer the region, the more likely some people will accumulated the required money. Second, it is related to the issue of demand. If Antioquia's market was much larger than other "natural" markets of the country, it is easier to understand why Antioquia's industry was born earlier.

Third, the size of the market is important in our discussion of economic policy. If markets were very segmented we should assign more weight to policies with larger relative impact on that particular region we are interested in -e.g. Antioquia, or Cundinamarca-.

On the first issue -required capital- Safford and Lopez Toro⁵ seem to assume that both conditions, the distribution of income (1) and the size of the market (2) were conducive to capital accumulation. According to Safford, Antioquia had but 8% of the population and 40% or more of exports of the country at the end of the colonial period. Moreover, being gold -money- a large proportion of Antioquia's exports, it yielded a wage, price and profit structure conducive to the formation of large holdings of wealth. On coffee, the census of 1932 showed that Antioquia produced -and exported- 46.9% of the total for the country. Safford and Lopez Toro seem also to believe that the size of the market was larger in Antioquia, both in absolute and per-capita terms.

McGreevy brings some interesting points to the discussion. He accepts the thesis of the larger size of Antioquias market, and he quotes the results of the Le Bret mission which showed that Antioquia had the largest income per capita.

⁵ F.Safford "Significaci3n de los Antioqueños en el desarrollo Econ3mico Colombiano", *Anuario Colombiano de Historia Social y de la Cultura*, V(1967), pp.49-6; A. Lopez Toro, *Migraci3n y Cambio Social en Antioquia en el Siglo XIX*, Bogot3a, CEDE, Universidad de los Andes, 1970..

Fortunately, on the issue of demand and the size of the markets, we have the information provided by T.Hoffman to the American Government. The author did a very specific work, trying to see where the american exporters could sell which goods, and in which markets, in Colombia⁶. The main results are shown in Table 1

⁶ H.T. Hoffman "Marketing Areas in Colombia", US.Department of Commerce, Bureau of Foreign and Domestic Commerce, *International Reference Service*, SEPT, 1945

TABLE 1

THE SIZE OF ANTIOQUIA'S MARKET. PROXIES" FOR REGIONAL INCOME

I. ABSOLUTE VARIABLES (Partic. % in Total)	Railways (Chiles)		Highways (Chiles)		Autobus. Autobuses		Trucks Telephones		Elect. Radios Power		Imports		Exports		Production		Indust. Es. in Indust	
	1942	1942	1942	1942	1942	1942	1942	1942	1942	1942	1943	1943	1943	1943	1942	1942	1942	1942
Antioquia	11.17	18.43	13.36	23.53	18.29	19.34	42.87	11.11	21.29	17.93	28.34	4.98	1.17	58.73	18.59	22.94	22.94	22.94
Caribbean Marketing Area:																		
Atlantico	16.83	18.38	23.39	28.68	21.88	21.89	5.21	22.72	23.93	14.31	4.98	1.17	38.74	18.59	22.94	22.94	22.94	22.94
Bolivar	8.88	1.44	11.21	3.77	5.67	9.84	3.16	18.34	18.34	1.62	4.98	1.17	12.44	18.59	22.94	22.94	22.94	22.94
Magdalena	4.62	2.51	6.34	6.27	3.93	3.46	8.88	3.38	3.38	1.35	8.88	1.17	3.96	18.59	22.94	22.94	22.94	22.94
Norte de Santander	5.66	4.81	1.36	2.29	2.52	1.91	8.88	8.88	8.88	8.15	3.46	1.17	8.44	18.59	22.94	22.94	22.94	22.94
Santander (Southern part)	1.98	4.91	2.28	3.51	5.26	4.61	8.88	8.88	1.18	6.48	3.46	1.17	5.51	18.59	22.94	22.94	22.94	22.94
Cauca Valley Marketing Area	3.77	4.63	2.19	2.76	3.78	3.76	8.88	8.88	8.97	4.71	1.52	8.26	7.77	18.59	22.94	22.94	22.94	22.94
Caldas	34.84	39.34	21.15	21.78	22.78	21.12	3.44	24.44	15.83	42.44	48.97	32.77	24.95	18.59	22.94	22.94	22.94	22.94
Cauca	12.26	6.93	7.11	7.73	7.17	18.27	1.72	1.72	3.11	31.14	38.43	8.65	16.04	18.59	22.94	22.94	22.94	22.94
Nariño	4.85	4.85	1.65	1.38	2.55	8.96	8.96	8.96	8.15	1.59	1.82	7.23	2.47	18.59	22.94	22.94	22.94	22.94
Valle del Cauca	3.38	6.13	1.59	2.95	2.98	8.96	8.96	8.96	8.49	8.94	8.41	6.45	3.46	18.59	22.94	22.94	22.94	22.94
Chocó	14.43	11.36	18.94	9.66	9.93	9.84	8.88	8.88	12.82	7.93	8.39	8.61	8.98	18.59	22.94	22.94	22.94	22.94
Bogotá Marketing Area:																		
Boyacá	38.76	48.38	42.85	34.21	45.69	37.85	13.27	41.67	38.81	25.16	25.71	6.71	24.52	18.59	22.94	22.94	22.94	22.94
Cundinamarca	5.23	7.49	1.74	1.71	6.78	1.63	8.88	8.88	8.85	8.81	8.88	8.88	15.27	18.59	22.94	22.94	22.94	22.94
Huila	19.99	12.99	34.78	28.93	27.31	33.17	13.27	8.88	8.11	13.57	15.92	8.73	2.26	18.59	22.94	22.94	22.94	22.94
Santander (Southern part)	2.12	7.78	8.78	4.56	8.84	8.88	8.88	8.88	8.11	4.71	1.52	8.26	1.34	18.59	22.94	22.94	22.94	22.94
Tolima	1.51	4.63	2.28	2.73	3.71	1.25	8.88	8.88	8.97	6.18	7.58	5.68	4.38	18.59	22.94	22.94	22.94	22.94
Intendencia of Meta	9.98	5.47	2.42	3.78	4.97	1.61	8.88	8.88	8.66	8.84	8.88	8.88	8.88	18.59	22.94	22.94	22.94	22.94
Condensaria del Cauca	8.88	8.45	8.82	8.17	8.25	8.88	8.88	8.88	8.82	8.84	8.88	8.88	8.88	18.59	22.94	22.94	22.94	22.94
Other Areas:																		
	8.88	8.63	8.85	8.88	8.16	8.88	8.88	8.88	8.14	8.16	8.88	8.88	8.88	18.59	22.94	22.94	22.94	22.94
TOTAL	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88	188.88
Percentage	2121	18594	17454	3622	8496	46728	211479	188888	63990848	135088	188645468	28913901	1415	76266987				

II. PER OPTIA

	Railways (Chiles)	Highways (Chiles)	Automov. Autobuses	Trucks Telephones	Elect. Power	Radios \$	Imports US\$	Exports US\$	Production US\$	Indust. Es. in Indust \$	K Invested in Indust US\$
Antioquia	8.84	8.89	8.83	8.36	4.11	783.87	882.89	885.68	483.44	688.51	8.85
Caribbean Marketing Area:											
Atlantico	8.83	8.87	8.81	8.17	8.21	337.87	388.14	84.88	4.11	319.89	8.83
Bolivar	8.11	1.46	8.16	3.15	5.75	11494.43	1518.78	12.66	4.23	9114.65	8.89
Magdalena	8.01	8.01	8.01	8.07	8.88	128.71	73.43	8.88	3.94	179.38	8.82
Norte de Santander	8.02	8.01	8.08	8.82	8.88	8.79	8.98	8.88	4.44	52.43	8.83
Santander (Southern part)	8.06	8.05	8.02	8.26	8.88	111.62	977.84	118.26	8.88	168.42	8.85
	8.88	8.86	8.82	8.28	8.88	131.89	961.31	246.76	8.67	177.68	8.88
Cauca Valley Marketing Area	8.86	8.87	8.81	8.18	8.15	244.19	975.32	985.31	125.98	316.82	8.84
Caldas	8.14	8.24	8.85	8.93	8.81	595.88	7549.83	7492.56	388.49	694.47	8.13
Cauca	8.84	8.82	8.88	8.82	8.19	11.13	161.44	157.49	129.76	81.94	8.83
Nariño	8.86	8.82	8.81	8.84	8.88	29.16	182.38	35.88	116.75	75.81	8.84
Valle del Cauca	8.15	8.24	8.84	8.32	8.88	1248.49	1226.81	1833.32	21.86	1464.43	8.89
Chocó	8.81	8.88	8.88	8.81	8.11	6.75	64.11	8.88	111.93	8.88	8.88
Bogota Marketing Area:											
Boyaca	8.83	8.86	8.81	8.14	8.25	251.21	242.63	199.48	18.81	171.95	8.82
Cundinamarca	8.83	8.81	8.88	8.83	8.88	1.85	8.31	8.88	8.88	39.83	8.83
Huila	8.15	8.67	8.88	1.78	3.35	3411.64	1889.85	1759.32	8.67	1988.88	8.17
Santander (Southern part)	8.88	8.82	8.82	8.88	8.88	11.58	115.19	97.45	19.19	38.41	8.82
Tolima	8.88	8.86	8.88	8.88	8.88	131.89	961.31	246.76	8.67	54.71	8.84
Intendencia of Meta	8.87	8.85	8.82	8.88	8.88	62.17	889.97	688.84	133.98	298.85	8.85
Condensaria del Cauca	8.88	8.88	8.88	8.88	8.88	8.86	1.54	8.88	8.88	8.88	8.88
	8.88	8.88	8.88	8.88	8.88	8.83	1.12	8.88	8.83	8.88	8.88
Other Areas:											
	8.88	8.88	8.88	8.88	8.88	8.68	1.18	8.88	8.76	1.86	8.88
TOTAL	8.82	8.84	8.81	8.11	8.35	198.97	284.49	228.82	47.55	173.48	8.82

Source: U.S. Department of Commerce, H.T. Hoffman (1940), pp. 2-8

Electrical Power: U.S. Tariff Commission, (1949), p. 57

The figures for Electrical Power only include electric plants (188) with a potential of 1888-2888 horsepower.

Hoffman considers 5 important "natural" regional markets in Colombia, with transport costs and geographical divisions determining each market. One important aspect of Table 1 is that the Antioquia's Market corresponded only to the department of Antioquia, while the "Bogota Market" included the departments of Boyaca, Cundinamarca, Huila, Santander, Tolima, the Intendencia of Meta and the Comisaria of Caqueta. It is also clear from the Table that the "Bogota" market was larger than the Antioquia's market for all variables of Table 1 except for "gold production" and "electric power", not the best two variables if we want to consider purchasing capacity. Even when compared only with the department of Cundinamarca, it is clear that there are not very important differences, being Antioquia's market smaller even for such variables as miles of highways and railways, number of automoviles, trucks and telephones; also in "total imports", but this variable is likely to present many problems⁷. Electrical Power, the other variable for which Antioquia has a clear leading is more related with the development of industry that directly with demand. Number of industrial establishments and Capital Invested in Industry are also more related with industrial production than

⁷. Imports to Bogota are imports that are later on distributed to the whole country.

with demand as such. The results are even less impressive for Antioquia when we compare variables in per-capita terms.

As a first conclusion from the analysis, it is clear that Antioquia's market was not as important as has been generally said, at least not during our period of analysis. Of course, that does not mean that some variables like gold exports were not important for capital accumulation in some hands; but looking just at demand for manufactured products, it is clear that the Cundinamarca's market was much more important. How to explain, then, that the production in Medellin was so dynamic in relative terms, being even larger than production in Bogota?.

The explanation is relatively simply. The importance of the different markets is one of the relevant aspects but not the most important one, since firms sold their goods in a national market, not in the regions only.

A study done by the Contraloria General de la Republica in 1923 shows that the textile firms sold nearly 55% of total production outside Antioquia (50% for Coltejer). The figures for firms in other sectors were: Coltabaco: 50%; Beer and Beverages: 49%; in Cement there was no plant in Antioquia at that time.

But we have more information available on the topic. According to Propaganda Commercial, in 1922 Coltabaco had plants in Bogota and Medellin, Barranquilla and Manizales, and distribution agencies in Cali. Textiles de Bello (Cia. Antioquena de Tejidos) had "agencies" in Bogota, manizales and cali, Rosellon had agencies in Bogota, Girardot, Honda, Cali and Manizales; Coltejer had agencies in "all the important plazas del pais". In the Sector of Chocolates, Chocolate Cruz Roja, later Nacional de Chocolates, had "10 plants in the principal colombian cities" and some similar was announced by Vidriera de Caldas in the glass sector.

To finish with this issue, in Antioquia Industrial, 1931, it says that Fabricato operates in the markets of Antioquia, Caldas, Valle, Tolima, Huila, Cundinamarca, Boyaca, Santander del Norte y del Sur, Bolivar and Magdalena. Textiles de Bello announced that its products were consumed in larger amounts in the Departments of Antioquia, Caldas, Cundinamarca, Boyaca, Valle and Cauca. Coltejer worked with the markets of Antioquia, Caldas, Cundinamarca, Bolivar, Santander del Sur, Tolima. In beer, Cerveceria Union sold products in Antioquia, part of Santander del Sur, and Caldas⁸. In Chocolates, Nacional de Chocolates had sucursales in Medellin, Bogota, Barranquilla, Bucaramanga, Cali, Manizales, Armenia, Pereira, Ibague, Salamina, Rionegro and Sonson; and agencies in Jerico, Yarumal, Libano, Fresno, Tunja, Chiquinquira and Socorro.

⁸ It is worth noticing that this is the only case in Antioquia in which the firm does not sell in Bogota or Cundinamarca. That area belonged to Bavaria and Germania.

Even in metalmechanics we have something like a national market instead of a regional one. Talleres Apolo sold in "Antioquia and other departments" Cia.Colombiana de Tabaco worked in the whole country ; Vidriera de Caldas specially in Antioquia, Caldas, Tolima, Santander and la Costa Atlantica. In processed food, and this is the only case we have so far, Noel sold biscuits in Antioquia, Caldas, Tolima, Santander del Norte y del Sur, Magdalena, Atlantico y Bolivar.

There is no doubt, after all that information available that firms operated in a national market since very early in the process of industrialization. That also means that in this papers is not advisable to give more importance to regional variables than to "national" variables when studying demand or macroeconomic policy in general.

I. SAVINGS AND INVESTMENT IN COLOMBIA.

A. GOVERNMENT SAVINGS AS A STABILIZING ELEMENT.

An important role played by economic policy could be that one associated with savings and investment. Government savings could either increase total savings needed for long run accumulation, or move in the opposite direction of private savings stabilizing total savings. A similar analysis could be done with public investment.

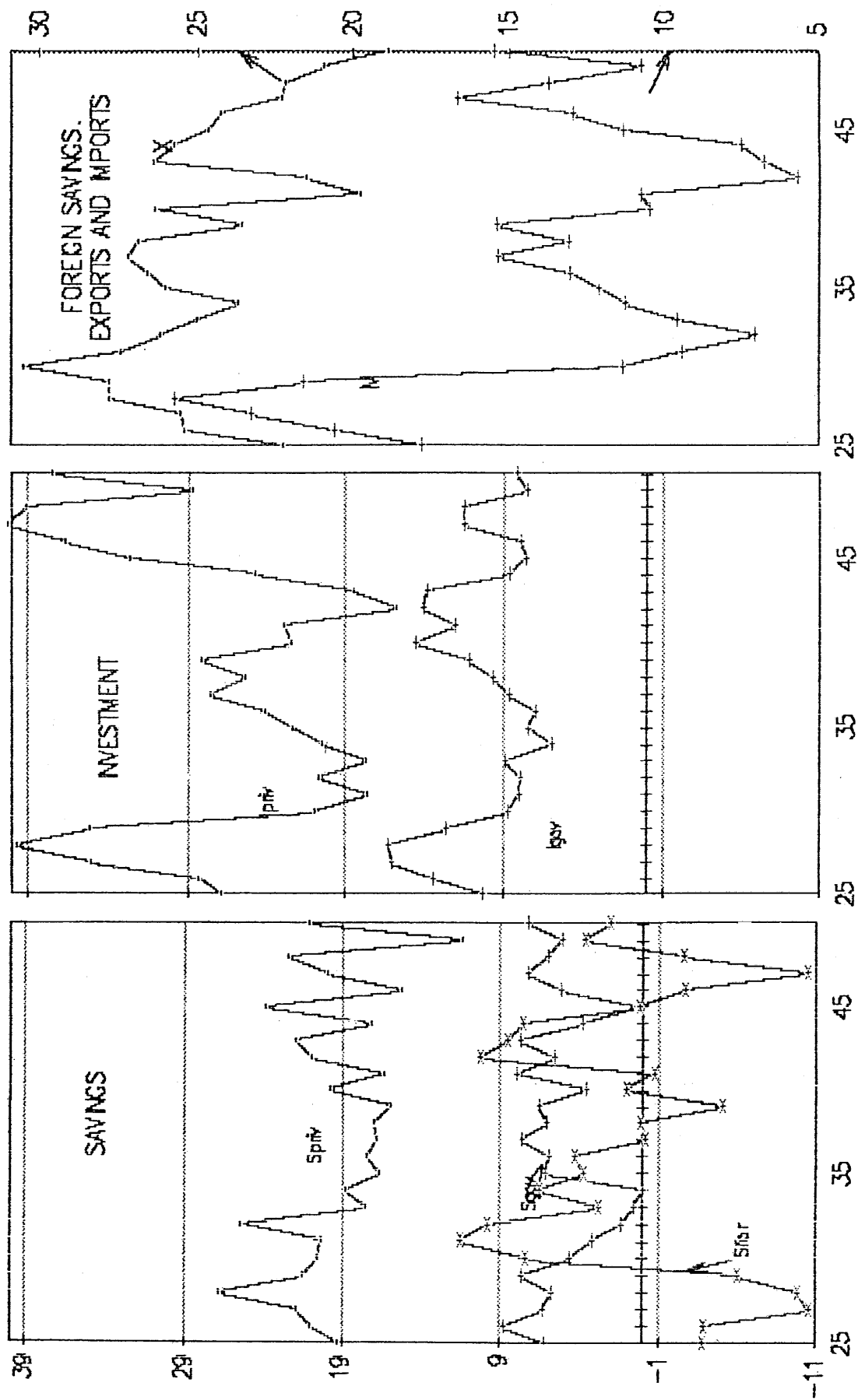
Graph 1 presents the evolution of savings and investment in colombia. The first part of the Graph brings the evolution of private savings, public savings⁹ and Foreign Savings¹⁰. The figures are percentages of GNP.

⁹ $S_{gov} = (T - G - TR)$ where in this case government expenditure includes both current expenditure and investment.

¹⁰ $S_{for} = -CA$ where CA: Current Account of the Balance of Payments.

GRAPH 1

SAVINGS AND INVESTMENT IN COLOMBIA 1925-50 % of GDP



First thing we should notice is that private savings is always much larger than either public savings (Sgov) or Foreign Savings (Sfor). Also, there is a negative long run trend for private savings, at least if we take as our base years 1928/29.

As should be expected, foreign savings were the most unstable of the three (coefficient of variation -CV- of 0.17 for 1925-50), with large drops (surpluses in the current account) in 1926-29 and during the second world war, and less in 1938-39, and peaks during the depression and in the years previous to the war, when foreign exchange was very scarce in the country.

The behavior of foreign savings is partially due to the evolution of exports and imports, and also to the evolution of the other items of the current account, mainly transport costs and the service of the foreign debt. The third part of the Graphic shows the evolution of exports and imports. It indicates, first, that the economy was highly open in 1925-50. The relation between exports and GNP was always larger than 20% (30% in 1929/30), and the relation between imports and GNP representing 13% of GNP on average for the period. Both variables decrease through time however, and the relations are much lower in 1945-50 than in 1925-30. Exports decrease slowly through time, imports decrease abruptly between 1929 and 1931, and remain low -with high variations- in the following decades.

The most important role played by public savings was to compensate the large oscillations in foreign savings¹¹ making total savings more stable. But we must recognize that it was not very well synchronized or that it worked all the time. At best, the compensatory element was present in the first part of the 30s and during the War. But it was not important in the second half of the 20s or in the years previous to the War, when current account of the balance of payments also presented large oscillations.

In relation with investment, public and private investment moved together between 1925 and 1941/42, reinforcing each other. However, after those years private investment increased dramatically and public investment remained fairly constant. As to the levels, we should say that both, savings and investment presented very large levels in the period, compared with future decades. More than 50% of income was invested in 1928/29 and in 1946/50. Even in those years of relatively low dynamism (e.g. the first part of the 30s), ratios were always superior to 25%.

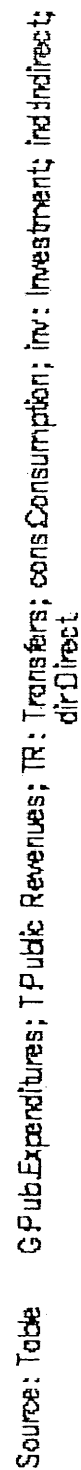
¹¹ The coefficient of variations -CV- is 6.50 for Sfor, and 0.90 for Sfor+Sgov.

B. THE COMPONENTS OF PUBLIC SAVINGS.

raph 2 shows the evolution of government expenditures and revenues both for the central government and for the "consolidated" -includes Departments and Municipalities, a more appropriate name could be "National"- . We should have worked only with this "Consolidated" figures, but they are "budget" figures which do not correspond, ex-post, with the real figures observed after additions are made both to expenditures and to revenues. That is why we also bring the variables for the Central Government.

Public savings decreased during the depression years due mainly to the behavior of government current expenditure, since total revenues remained relatively stable as a proportion of National Income. Transfers are also included in Public savings and their evolution is similar to Government current expenditures with peaks in the depression years.

COMPONENTS OF GOVERNMENT EXPENDITURES AND TAXES. (% of Gross National income)



Finally, we must notice that the composition of taxes changed markedly during the period. The importance of indirect taxes present a negative long run trend, direct taxes were non existent before the reforms of 1935, they are equivalent to indirect taxes in the final years of our period.

II. SOURCES OF DEMAND.

In this section we want to investigate the influence of the different sources of demand on aggregate and sectorial production. Demand could come from the external sector (higher exports or lower imports), or from the public sector (Government Expenditures (+) -Current and Investment-, Transfers (+) and Taxes (-)).

Chu (1979) shows, using Chenery's methodology on sources of demand, that import substitution was the main source of growth in the period. The other two sources, domestic and foreign -exports- were not as important. But that does not help us too much in answering our questions on economic policy. We are mainly interested in the effect of government expenditures and taxes on demand and growth.

In this section we want to look at the relations between those variables without using any implicit model of growth. The latin american tradition will give importance to the evolution of commodities in economic growth, and the methodology proposed should through some light on the effect of demand policies. The results should only be taken as preliminary since more robust conclusions need a formal model of growth.

Table 2 presents correlations between some of the variables we want to analyze, and helps us as a first approximation to the analysis of their evolution. Table jj presents more formal results based in regression analysis.

A. CORRELATION AMONG VARIABLES.

Variables (1)-(11), (20)-(22) of Table 2 are generally associated with economic policy -or its absence- and growth: public expenditures - consolidated and current- and taxes, the amount of pesos paid domestically to buy the coffee crop; variables related to the external sector; money supply; and relative prices.

TABLE 2

CORRELATION COEFFICIENTS FOR SOME VARIABLES RELATED WITH DEMAND AND INDUSTRIAL PRODUCTION

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(1) Fiscal Def. Current	1.00	-0.39	-0.44	0.09	-0.38	-0.77	-0.01	0.26	0.46	-0.48	1.932	-0.22	-0.02	0.03	0.490	0.351	0.22	0.467	-0.174	-0.206	-0.563	-1.831
(2) Fiscal Deficit, Total	-0.39	1.00	-0.15	-0.60	0.09	0.46	0.21	0.16	0.14	0.03	0.07	0.26	0.27	0.28	0.28	0.35	0.22	0.21	0.24	0.36	0.00	0.06
(3) Gov. Current Expenditure	-0.44	-0.15	1.00	0.31	-0.53	0.512	0.28	-0.29	0.00	0.24	1.678	-0.32	-0.723	1.128	0.474	1.278	1.734	-0.765	-0.953	-1.126	-0.537	1.647
(4) Gov. Total Expenditure	0.09	0.31	0.09	0.04	0.04	0.28	0.01	-0.19	0.26	-0.26	2.045	1.476	1.607	2.132	1.405	1.132	0.310	1.036	1.477	1.065	0.04	0.92
(5) Transfers - Public	-0.38	-0.09	-0.53	0.04	1.00	0.735	0.11	-0.26	-0.47	0.38	3.018	2.611	2.804	3.283	2.678	2.283	0.713	2.774	1.857	-0.522	-0.748	-2.283
(6) Public Revenues	-0.44	-0.46	0.35	0.20	0.37	1.000	0.09	0.11	0.42	-0.31	4.930	6.055	6.058	7.073	6.063	6.063	0.263	7.411	6.698	0.03	-0.493	-0.973
(7) Coffee Sales	-0.01	-0.21	0.20	0.01	0.11	0.912	1.00	-0.45	0.11	0.12	-0.318	-0.202	-0.251	-0.362	-0.208	-0.206	-0.469	-0.288	-0.321	0.40	0.03	0.231
(8) Exports	0.26	-0.16	0.00	0.26	-0.47	4.195	0.11	1.00	0.16	-0.516	0.105	0.205	0.239	0.266	0.278	0.206	0.313	1.974	0.283	-0.221	0.40	0.03
(9) Imports	-0.48	-0.03	0.24	-0.26	0.38	-0.956	0.12	0.24	-0.24	-0.516	0.105	0.205	0.239	0.266	0.278	0.206	0.313	1.974	0.283	-0.221	0.40	0.03
(10) Current Account	0.15	-0.07	0.17	0.20	0.38	-0.956	0.12	0.24	-0.24	-0.516	0.105	0.205	0.239	0.266	0.278	0.206	0.313	1.974	0.283	-0.221	0.40	0.03
(11) Money Supply	0.42	-0.26	0.06	0.15	0.26	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(12) Gross Domestic Product	0.44	-0.27	0.07	0.16	0.29	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(13) Industrial Production	0.38	-0.21	0.11	0.21	0.33	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(14) Ind. Production, Final Goods	0.45	-0.23	0.05	0.15	0.27	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(15) Ind. Production, Beverages	0.48	-0.23	0.13	0.17	0.38	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(16) Ind. Production, Textiles	0.45	-0.21	0.08	0.18	0.28	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(17) Ind. Production, Cement	0.49	-0.24	0.04	0.15	0.18	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(18) Ind. Production, Cement	0.49	-0.24	0.04	0.15	0.18	0.800	-0.38	0.33	0.28	0.29	7.357	1.000	0.743	0.961	0.997	0.997	0.997	0.997	0.997	0.997	0.997	0.997
(19) Relat. Prices Cement-Food	-0.28	0.36	-0.11	0.11	-0.22	-0.610	0.19	-0.22	0.15	0.13	0.025	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698
(20) Relat. Prices Textiles-Food	-0.563	0.00	0.367	0.04	0.23	-0.973	0.02	-0.40	-0.43	0.33	0.025	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698
(21) Relat. Prices Tobacco-Food	-0.19	0.06	0.16	0.04	-0.23	-0.973	0.02	-0.40	-0.43	0.33	0.025	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698	-0.698

1-tailed Signif: * - .01 level - .001

Source:

On the other hand, we have different categories of production: GNP, Total Industrial Production, Intermediate and Final Industrial Goods. We also have production for the specific sectors we are dealing with: beverages, tobacco, textiles, cement. Statistics for the sector of processed food were not as complete though we should include them later on.

The first important conclusion from our Table jj is that there is a close correlation between almost all the statistics related with production. Thus, looking at Column 12, we see that coefficients are highly significant (**, meaning a significance level of 0.001) for rows (13)-(19). Even for Tobacco, the sector which growth is less associated with GNP growth, the correspondent correlation coefficient is higher than 0.8. What this means is that years of large GNP growth were also years of large industrial growth. Unfortunately, it could also mean that in order to explain industrial growth we have also to explain global growth in the colombian economy.

We must also say, however, that the correlation is not so close once we consider, first, that the sub-period of highest industrial growth was 1932-38 when GNP was not growing fast; on the other side, GNP grew fast in the 20s, when industry did not grow at all. Another point worth of mentioning is that the rates of growth of industry and of the economy as a whole are significantly different: in per-capita terms, the whole economy grew at an annual rate of 1.6% a year, industry at a rate - per-capita- of 6% a year.

1. Fiscal Variables.

Public revenues (6) are closely associated with almost any of the variables of production, but the "sign" is the opposite of what we should expect from the demand side. On other words, taxes should play a negative role on production because they decrease dispossable income. The result obtained indicates that taxes are closely associated with GNP and GNP with production. Thus, when GNP grows industry and taxes grow.

Aggregate industrial production is not related to any of our policy variables on demand. Also, there are no important relations for the more disaggregated levels of production, the only exception being tobacco and cement production which are related with the <Current> Deficit¹².

2. The External Sector.

Neither exports nor imports are associated with any other variable considered in Table 2. The only exception will be the positive relation between aggregated imports and tobacco production. Again, the sign is opposite of what should be expected. Neither was the evolution of the current account - negatively associated with the evolution of imports - an important factor in the explanation of industrial or aggregated growth. Finally, the results do not improve when we consider domestic coffee sales as a proxy for demand.

¹² All variables are in constant Col \$ of 1950 and in per-capita terms. Also, each variable was in index form, with 1935 as 100.

But the evolution of real money supply was closely associated with production both aggregate and industrial. This, again, indicates that we have to go deeper in our study of the causes of demand, since, by definition, high power money is closely identified with both, the current account and the fiscal deficit¹³. Also, it is very likely that "causality" runs from fiscal deficits and current account towards money than the opposite.

¹³ See J.J. Echavarría J.J., "Colombia 1970-85. Management and Consequences of Two large External Shocks" *Working Paper No. 20*, Overseas Development Institute, July, 1987

As a first conclusion, then, the results observed by studying simple correlations between variables were rather poor and do not lead to simple hypothesis on growth, neither on fiscal policies nor on the foreign sector. If there is any relation between demand and growth it will be associated to the variables which determine money supply in the less developed countries, mainly the <corrected> fiscal deficit and the <corrected> current account. It could be that, or simply that money supply was important in the determination of aggregate demand. This opens the door to a large debate into which we will not go now. For future research, however, we should explore the relation between money, the current account and the fiscal deficits as in Echavarria (1986) for the Colombian economy in 1970-85. Also, it is important to establish how "endogenous" was money creation in the period, and for that there are standard statistical exercises which should be explored soon.

B. REGRESSIONS AND CAUSALITY.

Even though we do not have a formal model of the economy which takes account of the different iterations among variables, there are at least two problems involved with the description of correlation coefficients. First, regression analysis is more powerful when we consider causality because it fixes the other variables when asking for the effect of one of them on growth. Second, and this is a very important problem we have to face in this kind of analysis, simultaneity is always present and the parameters of ordinary least squares are biased.

Table 3 presents the regressions results trying to determine the influence of "demand" on production. As "proxies" for demand we considered two variables: a. The sum of the Current Deficit and the Current Account of the Balance of Payments; b. The sum of the Total Deficit -includes public investment- and the Current Account. Relative prices were also included in some regressions. As dependent variables we considered GNP, Manufactured Goods -total and final-, and sectorial production: beverages and beer, cement, tobacco and textiles.

We run two type of regressions: simple Ordinary Least Square regressions and with Instrumental Variables. Autocorrelation was always corrected, and that means that the instruments utilized were the lagged -1 year- dependent and independent variables in the case of Instrumental Variables, in order to avoid possible biases.

Regressions (33)-(36) are useful to start our analysis, because the dependent variable is "Total Manufactured Goods". The results indicate that our demand variables predict well what happened with production, with both methodologies of regression ($R^2=0.96$; $R^2_{adj}=0.96$ for regression (33); the "t" coefficients are significant at the 1% level in both OLS and IV methodologies; R^2 and R^2_{adj} are not included in the regressions estimated with IVs because they do not mean anything).

Regressions (33)-(36) also show that relative prices do not predict well industrial production, but there are so much problems involved with that variable that we should not put too much attention to it now¹⁴.

¹⁴ The relative prices used in that case were those of Textiles vs Food, based on the importance of textiles in the whole manufactured sector. In the case of cement and tobacco we used the relative prices of cement and tobacco. Other prices could be important also, and that is why we do not want to put too much attention into that variable in this

As we saw in the analysis of correlation of last Section, there is a close correlation between the different kinds of production, and we should expect that if our "proxy" for demand predicts well what happened with industrial production, it should also predict well other variables related with production in Table 3.

Thus, "demand" also predicts well the evolution of "Final Goods" -regressions (25)-(32), both for OLS and for IVs. The other important point we should observe is that the total deficit is a better "proxy" of demand than the "current" deficit. This result is also encouraging since public investment also represents demand for industrial good. The "signs" are also correct¹⁵.

Considering now the different sub-sectors:

"Demand" is important for cement, textiles and beer; much less for tobacco.

exercise which is just preliminary as we said before. Thus, the relative price of domestic vs international price could be also important.

¹⁵ They are negative for the total deficit and positive for the current deficit just because the figures used for all the series were index numbers (1935=100). In the case of the total deficit the base year, 1935, was negative.

III. CROWDING OUT

It was clear from the last Section that demand had an important influence on aggregate growth in general and on industrial growth in particular. The variable used as a "proxy" for demand, the sum of the current account and the public deficit predicted rather well the evolution of industrial production.

Of course, government deficits are not the only way in which fiscal policy affects aggregate demand. Changes in the tax rates that provide incentives or disincentives to different kinds of spending have been and can continue to be at least as important. But we did not consider those fiscal incentives in order to focus on the direct demand effects of government expenditure and taxes. But there could be further effects not considered in our variables of the last Section. In particular, though the present year industrial production could be growing with demand, future growth could be hampered as an effect of lower private investment. We are talking here, of course, of new ideas on the so called "crowding out" effect. More specifically, the paper examines whether the power of such policies is reduced or eliminated by the way in which consumers react to the policies themselves or to the resulting change in government debt.

The early keynesian analysis was based on the extreme assumption that fiscal policies affect consumption only through their impact on current disposable income. This view implied powerful and predictable effects of tax reductions, transfers and deficit-financed government spending. This idea has been modified in two important ways. First, it is now recognized that the extent of the fiscal stimulus is limited by the monetary feed backs through interest rates, reduced real money balances and changes in portfolio composition. It is unlikely that domestic interest rates were completely determined internally, but some effect should be present. Second, it is widely recognized today that one of the crucial parameters in determining the effect of a fiscal or monetary policy is how consumer see that policy : transitory or permanent. Finally, there is a new-old argument on crowding out which considers debt and taxes to be equivalent. Friedman has said, for example, a that the fiscal burden should not be measured by the amount of taxes society pays, but by the amount and size of fiscal expenditure. The extra-resources needed to finance the deficit are going to be paid by someone someday. This hypothesis could be labelled the "pre-ricardian" hypothesis which basically says that debt and taxes are equivalent in terms of aggregate demand. Of course,

there could be other kinds of crowding out when we are in an open economy.

Formally, we could present the discussion on "crowding out" in the following terms:¹⁶

From the basic identity :

$$S_p + S_g + S_f = I \quad (1)$$

where:

I: Private Investment

S_p: Private Savings

S_g: Public Sector Savings (T-Gc-TR)

T: Public Revenues

Gc: Current Expenditure

TR: Transfers

S_f: Foreign Savings (-CA)

CA: Current Account of the Balance of Payments¹⁷

¹⁶ See W.H. Buiter, "Measurement of the public sector deficit and its implications for policy evaluation and design", *IMF Staff Papers*, June, 1983.

¹⁷ The demonstration is straightforward:

From $C + I + G + X - M = C + S_p + (T - TR)$
we have: $I = (T - G - TR) + S_p + (M - X)$

From formula (1) there are three alternatives when government expenditures (G) increase or, even more general, when S decreases:

a. Conventional Crowding-Out: I decreases

Higher government expenditures increase the interest rate and decrease private investment.

b. Monetary Approach Crowding Out: S_f increases.

The whole effect of government deficits is felt of changes in the international reserves of the country.

c. keynesian traditional approach: S_p increases because national income also increases

Higher government expenditures imply reductions in private consumption for a constant level of national income. Multiplier effects and second round income effects could imply, however, that aggregate consumption turns out to be larger than before the expansion in government expenditure.

d. Finally, the "pre-ricardian" crowding out: S_p increases even for a constant level of national income.

The consumer will see the larger government expenditure as future taxes and will automatically reduce consumption since the present value of his disposable income has decreased.

The results of Table 4¹⁸ seem to show that the last type of crowding out was not important in our period, since consumption -and savings- did not change as a result of larger government expenditures -lower taxes-, except through the traditional keynesian mechanism of income variations. Only permanent disposable income had an important effect on consumption¹⁹.

¹⁸ Based on M. Feldstein, "Government Deficit and Aggregate Demand", *Journal of Monetary Economics*, Jan, 1982, pp.1-20

¹⁹ We still have to work more on the empirical estimations of the consumption function since the R^2 are still very low, and the variables used for wealth are not significant. We should also try year to year income, not only permanent, since Cuddington (1986), for example, found very important transitory effects on consumption for the period 1950-85. See J.T.Cuddington, "Commodity Booms, Macroeconomic Stabilization and Trade Reform in Colombia" (mimeo), 1986

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What else could we say on the relation between S_g , S_p , S_f and i ? The results the regressions between the variables just mentioned are really poor. The only significant correlation present is that one between private investment and the current account of the balance of payments, indicating that investment was constrained by the availability of foreign exchange in the period.

¹⁸ Based on M. Feldstein, "Government Deficit and Aggregate Demand", *Journal of Monetary Economics*, jan, 1982, pp.1-20

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TABLE 4

EFFECTS OF GOVERNMENT EXPENDITURE, TRANSFERS AND TAXES ON PRIVATE CONSUMPTION

PRIVATE CONSUMPTION

VS	Constant	Yd	Yn	G	T	TR	W1	W2	M2	R2	adj.R2	DW
(1)	-10.92 (0.1) 0.9	0.91 (1.0) 0.4		-0.25 (0.1) 0.9	0.42 (0.6) 0.5	-0.09 (0.1) 0.9	0.20 (0.4) 0.7			0.72		2.00
(2)	-0.9 (0.0) 1.0	1.2 (2.2) 0.0		-0.5 (0.5) 0.6	0.4 (0.6) 0.6	0.0 (0.0) 1.0	0.1 (0.4) 0.7		-0.1 (0.6) 0.6	0.8	0.6	2.0
(3)	12.2 (0.2) 0.9		1.3 (1.7) 0.1	-0.8 (0.7) 0.5	0.3 (0.4) 0.7	0.2 (0.3) 0.8	0.1 (0.2) 0.9			0.7		1.9
(4)	11.6 (0.2) 0.9		1.3 (2.5) 0.0	-0.8 (0.8) 0.5	0.3 (0.4) 0.7	0.2 (0.4) 0.7	0.0 (0.2) 0.9		0.0 (0.2) 0.8	0.7	0.6	2.0
(5)	-15.4 (0.1) 0.9	0.9 (0.8) 0.4		-0.3 (0.2) 0.9	0.5 (0.6) 0.5	0.0 (0.0) 1.0		0.2 (0.4) 0.7		0.7		2.0
(6)	-7.6 (0.1) 0.9	1.1 (2.1) 0.1		-0.4 (0.5) 0.6	0.4 (0.6) 0.6	0.0 (0.1) 0.9		0.1 (0.5) 0.6	-0.1 (0.6) 0.5	0.8	0.6	2.1
(7)	9.8 (0.1) 0.9		1.2 (1.4) 0.2	-0.8 (0.8) 0.4	0.4 (0.4) 0.7	0.2 (0.4) 0.7		0.1 (0.2) 0.9		0.7		1.9
(8)	7.0 (0.1) 0.9		1.3 (2.5) 0.0	-0.8 (0.9) 0.4	0.3 (0.4) 0.7	0.2 (0.5) 0.7		0.1 (0.2) 0.8	0.0 (0.3) 0.8	0.8	0.6	2.0

(d. Proxy for Disposable Income -see below-

Yn. National Income

G. Total Government Expenditure. Includes Public Investment. Includes Departments and Municipalities

T. Total Revenues. Includes non Tax revenues. It also includes Departments and Municipalities

TR. Public Transfers.

W1. First Proxy for Real Wealth. W1=Public Domestic Debt

W2. Second Proxy for Wealth. W2=Public Domestic Debt+Private Sector Deposits in the Central Bank

Sources. Table

Notes and Methodology.

Every variable is real-C\$ of 1950- and per-capita. Also, it has been converted to an index with base 1935

All regressions were run using Instrumental Variables to avoid problems of simultaneity

What else could we say on the relation between S_g , S_p , S_f and i ?. The results the regressions between the variables just mentioned are really poor. The only significant correlation present is that one between private investment and the current account of the balance of payments, indicating that investment was constrained by the availability of foreign exchange in the period.

We must conclude this Section saying that there are no additional "crowding out" effects which could change the results of the previous Section on the influence on deficits (and the external sector) on production and growth.

IV. CORRECTING THE DEFICIT.

A. BUDGET LEGISLATION AND PROCEDURE²⁰.

The colombian budget system in the period was based in The original Kemmerer's budget law of 1923, on its revision (also by Kemmerer) of 1931, on several changes but mainly those of 1945 and, finally, on Decree No. 164 of january 24, 1950.

The two Kemmerer Missions tried to assure a balanced budget: the executive, when submitting his budget to Congress, must tie expenditures to estimated revenues -borrowing excluded-.

²⁰ Based on L. Currie, *The Basis of a Development Program for Colombia*, IBRD, John Hopkins Press, 1951, pp. 267-270

It was clear in both reforms -1923 and 1931- that a balance budget should be assured. Accordingly, it was provided that the Executive when submitting his budget to Congress must hold expenditures within the limits of estimated revenue, other than borrowing. Throughout the following discussion, the term "revenue" is defined to include tax yield, fees, proceeds from public enterprises, etc, but to exclude borrowing. Only expenditures on public services which were self-liquidating (in the sense of allowing a fee income sufficient to service the debt incurred) were exempted from this rule. Next, it was provided that revenues -except for new sources- should be estimated to equal the average yield for the three preceding years. This was to prevent willful overestimation of yield. In order to prevent the budgetary balance from being upset by Congress, the law forbade Congress to increase expenditures above the proposed total without also providing for new revenue. Congress was, however, to be permitted to change expenditure items within the limits of the proposed total. In order to assure that the budgetary balance should not be upset in the process of budget execution, the law provided that the administration may not make expenditures in excess of those provided in the budget.

As may be expected, these over rigid rules were not adhered to and had to be amended. Kemmerer's revision of 1931 aimed at introducing some flexibility. The new law permitted the government to make additional expenditures in excess of appropriations if this appeared necessary while Congress was not in session. Such additional expenditures, however, were subject to the limitations that new provisions for revenue must be made at the same time. With unfortunate lack of clarity the Act referred to the requirement for new revenue as "nuevo ingreso" without making it clear whether the term "ingreso" was to include borrowing or only revenues as defined above. While the former interpretation came to be adopted, it is evident that the narrow interpretation of revenue was Kemmerer's intention in the 1931 Act. It did not in any way relax the basic requirement that the Government should present a balanced budget. Indeed, the 1923 provision that strictly self-liquidating public works might be loan finances was dropped in the 1931 law. Nor was there any relaxation of the estimating formula.

A further liberalization was introduced by the law of 1944 which abandoned the rigid formula for yield estimating. The government was then free to base estimates upon its appraisal of economic conditions, as long as there was an adequate explanation of the estimate. Congress, similarly, assumed the right to revise such estimates. Notwithstanding these adjustments, budget law and practice remained highly unsatisfactory if budget balances were going to be achieved. Notwithstanding the seemingly clear and still applicable requirement of the 1931 law that proposed expenditures should not exceed estimated revenues, the administration has consistently included provision for loan finance as well as revenues the budget proposal. Also, in contradiction to the intent of the 1931 Act, the Executive showed an increasing tendency to undertake additional (extra-budgetary) expenditures on the basis of loan finance. Much of this tendency to resort to additional credit, in turn, may be traced to the provision of the law which holds that congress may shift expenditure items but not increase the total. To circumvent this provision, Congress adopted the practice of substituting non-essential expenditure items for essential items proposed by the government. As a result, the government had to undertake these essential expenditures, which had

been dropped from the budget, as the basis of special credit. In recent years additional expenditures of this kind rose to nearly 40% of appropriations, this resulting in a severe distortion of the whole budgeting process. The liberalization of the estimating procedure provided for in the 1945 law also led to abuse on the part of Congress. Congress frequently raised yield estimates without justification, merely to permit raising the overall level of appropriation within the limitations imposed by the law.. Recently, the general rule that the proposed budget must be balanced has been dropped..

From that quotation from the Informe Currie, it was clear that though Kemmerer tried to impose severe restrictions on the budget, the rule was always violated ex-post. Fiscal Balance was the doctrine 21, but government expenditures were always required. Rich people did not want to pay taxes and chronic deficits were present²²

²¹ Esteban Jaramillo, in his *Tratado...on Public Finances* (p. 10), writes :En la economia privada el individuo debe proponerse amoldar sus gastos a sus entradas; y en la economia public el Estado debe, por lo general, acomodar las entradas del Tesoro a los gastos necesarios. But balance is always the rule. See E. Jaramillo, *Tratado de Hacienda Pública*, 4th ed.

²² On the history of colombian taxes and revenues see M. Deas, "The Fiscal Problems of Nineteenth-Century Colombia", *Journal of Latin American Studies*, 14, 2, pp.287-328 and J. Bernal, "Las Finanzas del Sector Pùblico Central en los Años Veinte y Treinta en Colombia", *Coyuntura Económica*, june, 1984

B. CORRECTING THE DEFICIT

In the final chapter of his book on the period 1919-1939 A.Lewis considers that economic policy was completely inefficient in the United States and England. What must be explained, the author argues, is how the capitalist system stagnated for more than 10 years -until the end of the Second World War- despite the huge fiscal deficits observed.

C.Brown (19) showed that the deficits observed were due not to expansionary economic policy but to automatic forces operating in the economy. In particular, if taxes responded to income, as they did, and income was decreasing abruptly, it was only logical to expect automatic deficits during depression years. Taking that factor on account, Brown showed that, instead of being expansionary, economic policies were contractionary during the depression²³. The alternative proposed by Brown was to evaluate the change in the budget surplus (deficits) occurring at an income level corresponding to full employment.

²³ See A.Blinder and R.Solow, "Analytical Foundations of Fiscal Policy", in Blinder et.al, *The Economics of Public Finances*, Washington, The Brookings Institution, 1974

Sometimes, and that is our case in this Section, we are interested in the discretionary policy followed by the government, and not in the fiscal deficit (superavit) as such, a combination of discretionary and automatic elements. We require some of deciding whether a given fiscal change is exerting an expansionary or contractionary influence and whether such influence can be categorized as strong or weak.

The results presented in Table 5 and in Graphs 3 and 4 pretend to throw light on the difficult issue of fiscal stance. Table 5 presents a first approximation to revenues and expenditures elasticities using data for the 25 years of the period. Works done elsewhere on this issue are much more sophisticated. On the one hand, they try to measure "high employment" income starting from a measure of unemployment and of the unemployment rate which will correspond to the high employment level estimated. Second, on measuring elasticities many studies work with complete and sophisticated models for the whole economy²⁵.

The first columns of Table 5 bring long run elasticities for government expenditures, both current and investment. We also included (G2) an estimate for the long run elasticities for the national government -includes departments and municipalities- which basically tries to correct the data for the departments and municipalities²⁶.

²⁵ OECD calculates long run elasticities from the INTERLINK model with its separate sub-models for the different countries. Other studies on tax elasticities require much more information than what was available for our period.

²⁶ The problem with the data for the departments and municipalities, both for government expenditures and revenues, is that they are budget data, meaning that "gastos" and "ingresos" extraordinarios are not included. It is clear from the data on the central government that those extraordinary expenditures and taxes were very important, mainly in the years of the depression of the 30s. Thus G2 and T2 in Table 5 assume that the relation between ordinary and extraordinary expenditures and taxes is similar for the central government and for the departments and municipalities.

TABLE 5

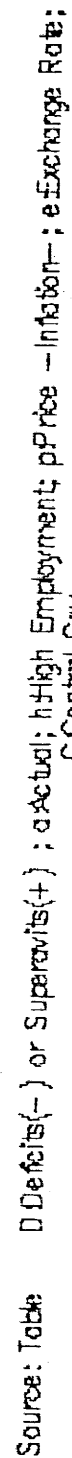
HOME ELASTICITIES OF EXPENDITURES AND TAXES

	GDP	GC	Gnw	G	G2	TR	GdC	GmC	TRC	Tbot	T2bot	Tdr	Tind	Tobr	TbotC	TdrC	TindC	TotC
Constant		1.53	0.59	1.69	3.27	-1.37	-6.69	-6.69	14.67	0.34	1.69	-6.24	2.25	5.34	-4.99	-24.23	2.64	3.93
Income Elasticity		0.51	0.56	0.56	0.37	0.72	1.30	1.57	-1.08	0.72	0.56	1.36	0.40	-0.01	1.25	3.40	0.28	0.62
R ²		0.45	0.67	0.29	0.21	0.72	0.38	0.64	0.63	0.57	0.59	0.92	0.55	0.67	0.23	0.74	0.43	0.25
Adj R ²		0.76	0.58	0.75	0.39	0.69	0.59	0.58	0.75	0.88	0.81	0.96	0.58	0.68	0.91	0.96	0.25	0.87
DJ		0.73	0.54	0.73	0.33	0.66	0.55	0.54	0.73	0.86	0.79	0.96	0.54	0.56	0.90	0.96	0.18	-0.92
DU		1.98	1.71	1.44	1.53	1.34	2.11	1.85	1.96	1.83	1.84	1.63	2.18	1.42	1.93	1.53	1.93	1.73

G: Government Expenditures; T: Taxes or Revenues; TR: Transfers; TRC: Transfers on the debit; C: Central Government; inv: Investment; c: Current consumption;
 2: Assuming that the relation between budget and effective expenditures and taxes is similar for the central government and for the "Consolidated".

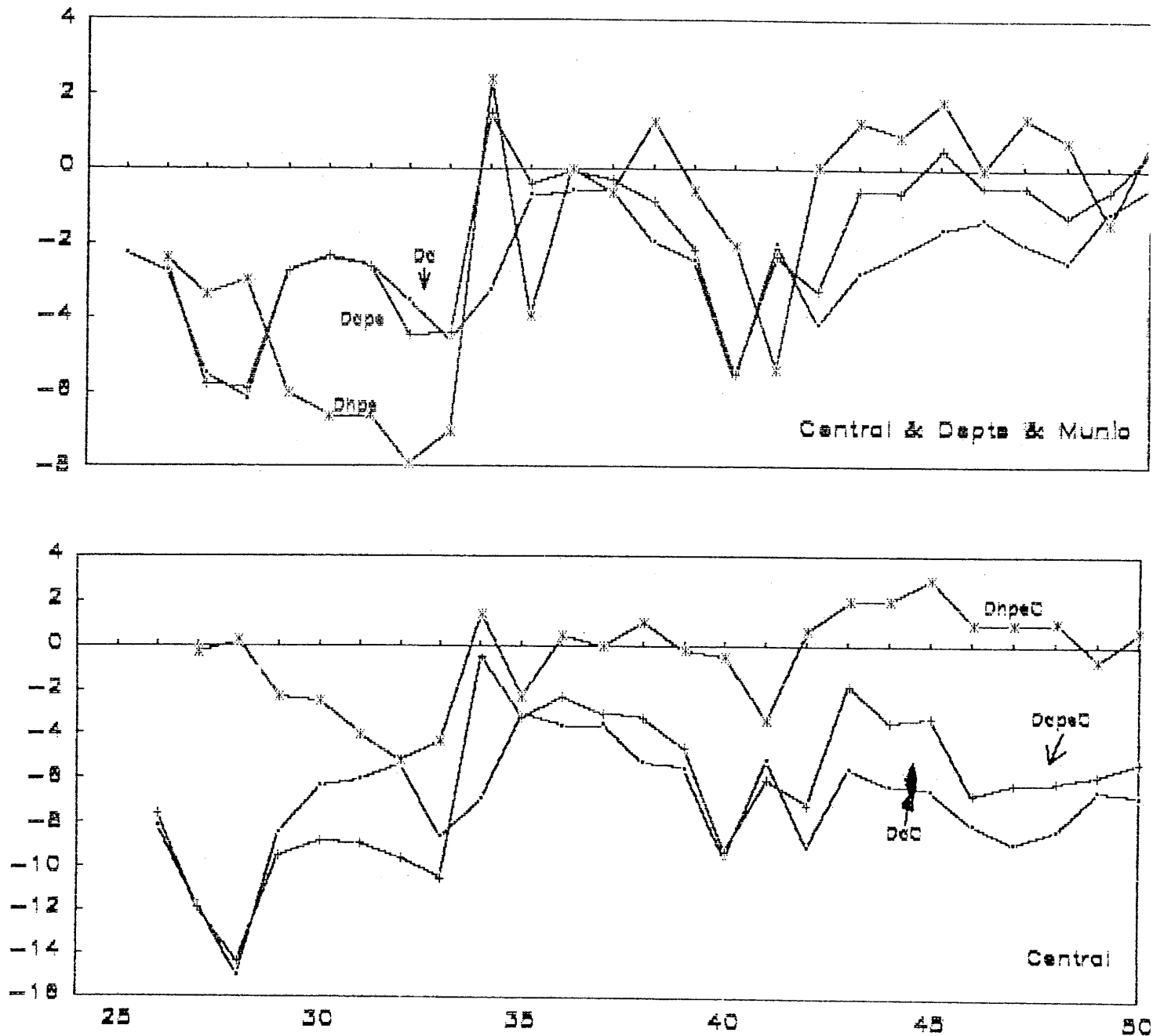
Source: Cepal Annex, 1986 and author's calculations

ADJUSTING THE DEFICITS(-) OR SURPLAVITS(+).



GRAPH 4

ACTUAL AND ADJUSTED DEFICITS(-) OR SUPERAVITS(+)



Sources: Table . D: Public Deficit ($G+TR-T$), where G and T: Public Expenditures (Includes Investment) and Revenues; a: Actual; h: High Employment; p: inflation; e: Exchange Rate

Long run income elasticity of expenditure oscillates between 0.3 and 0.5 for national expenditures, though figures are much higher for the central government. The results on taxes also seem relatively plausible, oscillating between 0.7 and 1. However this aggregate figure is the combination of a very high income elasticity for income -direct in general- taxes and a low income elasticity for indirect taxes.

Using those elasticities we estimated the high employment deficits or superavits presented in Graph 3. The two Graphs on the left present a comparison between both estimates. The other two Graphs also corrects for inflation and the devaluation of the real exchange rate.

Since figures for the central government are much more reliable than for the aggregate, we should start with the lower side of the two graphs on the left. The results indicate, basically, that most of the variations observed in the deficits(-) or superavits (+) were due to automatic movements of G and T. In fact, if income would have been stable all the time, deficits would have been substantially lower than observed, which agrees with what we just said in the sense that fiscal balance was the goal of most policy makers of the period. Oscillations in the budget were not so much due to fiscal policy as to movements in aggregate income.

There is a second important point related with our initial results on the subject. If we construct an index with the relation between DhC and DaC ²⁷, we will get very different results from other authors with important contributions in the area.

Ocampo, for example, considers that there were three sub-periods in the years of the Depression in Colombia. An initial period which he calls of orthodox management, previous to 1931; an heterodox period following that year.

²⁷ (DaC/DhC) it will be large when a truly expansionary policy was followed.

Our results, however, indicate that the large deficits observed after 1931 were mainly due to the cycle. From the ration (DaC/DhC) we could say:

-they were only two short periods for which economic policy was not closely associated with a balanced "high employment" budget: 1927-1928 (very expansionary), and 1945-46 (very contractionist). Actual -observed- deficits and superavits were more associated with automatic movements during the cycle than with anything else.

-The pattern observed is just opposite to what Ocampo describes. From an expansionary policy in 1927-28 we go into more and more restrictive policies year by year starting in 1930. If there was any compensatory policy it was followed in 1929-30.

-There is no important change in policies in 1932, and that invalidates both Ocampo's comments on the subject but also Urrutia's who considers that the War with Peru meant keynesianism before Keynes in our country.

-The figures for the consolidated or national government do not present the large differences we observed in the case of the central government and that is something we have to analyze deeper in the near future.

Graph 4 brings together the observed deficit (D_a), and the corrected deficits: (D_{hpe}) and (D_{ape}) now including corrections for high employment, prices and exchange rate. The Graph in the top includes Departments and Municipalities, the Graph in the bottom is only for the Central Government.

-our new results confirm the previous ones in the sense that the corrected deficits were much lower than the observed ones, and that the most expansionary policies were followed during the 20s, not during the 30s as an antycyclical mechanism.

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TABLE A1 Cont.....

cont....
1A, 1928-1938
FIGS ON DRY-WEIGHT PRODUCTION,
% of 1938 unless otherwise specified

GDP DEFLATOR (1958=100)		CONSOI. PUBLIC TRANSFERS 1/		CONSOL. PUBLIC REVENUES			CENTRAL GOV. EXPENDITURES			CENTRAL GOV. REVENUES			DOMESTIC PUBLIC DEBT		FOREIGN PUBLIC DEBT		IN Interm. Goods							
		\$/US\$	Total	Subsidies	Debt Service	Total	Taxes	Direct	Indirect	Total	Transfers	Direct	Indirect	Total	Cent. Gov	Total		Total	Cent. Gov	Total				
C27	C28	C29	C30	C31	C32	C33	C34	C35	C36	C37	C38	C39	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49	C50	
25	29.8	1.8158	22.3	5.2	16.4	166.1	5.2	169.8	NA	NA	NA	69.7	155.2	4.2	109.3	41.7	44.6	53.8	57.7	108.3	12.3	12.3	12.3	12.3
26	33.7	1.8178	36.8	5.2	31.2	178.8	6.1	172.7	288.8	288.8	288.8	181.1	165.1	5.8	113.2	47.8	34.3	45.3	43.8	141.4	13.7	13.7	13.7	13.7
27	32.5	1.8242	18.2	7.8	18.8	206.3	7.8	199.3	299.7	299.7	299.7	29.1	194.7	5.8	131.7	57.2	36.5	48.2	48.2	253.6	13.8	13.8	13.8	13.8
28	36.2	1.8318	17.9	7.7	18.2	218.2	12.3	197.8	318.8	318.8	318.8	34.1	207.3	11.1	131.1	65.1	44.6	59.8	114.8	368.3	14.6	14.6	14.6	14.6
29	32.5	1.8335	54.6	9.5	45.1	251.8	15.9	236.9	233.4	233.4	233.4	46.3	231.5	11.4	149.4	78.7	56.8	74.9	219.4	407.8	15.5	15.5	15.5	15.5
30	23.8	1.8338	74.8	19.8	54.1	454.2	22.5	431.7	244.5	244.5	244.5	112.3	191.3	15.9	186.6	68.9	81.1	106.9	298.3	531.1	14.2	14.2	14.2	14.2
31	28.8	1.8338	181.8	14.1	86.9	479.8	24.2	454.6	242.8	242.8	242.8	44.4	218.1	13.6	118.1	78.4	297.3	399.9	695.4	13.9	13.9	13.9	13.9	
32	17.5	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	57.4	221.8	13.4	163.4	44.2	297.3	469.7	835.6	18.7	18.7	18.7	18.7	
33	18	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	78.9	217.2	11.6	146.1	59.6	329.1	436.2	618.1	19.8	19.8	19.8	19.8	
34	25.9	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	94.3	238.6	28.4	161.4	48.8	296.8	398.8	573.8	22.8	22.8	22.8	22.8	
35	26.4	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	118.1	266.9	51.3	166.9	68.3	296.8	398.8	573.8	24.8	24.8	24.8	24.8	
36	28.2	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	146.2	311.3	65.2	198.1	99.8	296.8	398.8	573.8	26.2	26.2	26.2	26.2	
37	31.7	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	169.6	275.8	75.8	137.3	34.7	296.8	398.8	573.8	28.9	28.9	28.9	28.9	
38	32.8	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	183.8	304.4	75.8	137.3	34.7	296.8	398.8	573.8	31.4	31.4	31.4	31.4	
39	33.3	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	199.3	321.5	75.8	137.3	34.7	296.8	398.8	573.8	32.1	32.1	32.1	32.1	
40	32	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	219.9	346.9	75.8	137.3	34.7	296.8	398.8	573.8	34.7	34.7	34.7	34.7	
41	35	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	243.9	376.6	94.8	121.6	83.9	376.6	398.8	573.8	37.6	37.6	37.6	37.6	
42	41.4	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	269.4	406.4	94.8	121.6	83.9	376.6	398.8	573.8	40.6	40.6	40.6	40.6	
43	47.6	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	292.6	436.6	116.2	118.2	96.5	429.1	398.8	573.8	43.6	43.6	43.6	43.6	
44	57	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	319.9	469.9	116.2	118.2	96.5	429.1	398.8	573.8	46.9	46.9	46.9	46.9	
45	61.9	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	349.6	506.8	116.2	118.2	96.5	429.1	398.8	573.8	49.7	49.7	49.7	49.7	
46	71.8	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	367.5	524.8	116.2	118.2	96.5	429.1	398.8	573.8	52.9	52.9	52.9	52.9	
47	81.8	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	383.8	548.8	116.2	118.2	96.5	429.1	398.8	573.8	59.9	59.9	59.9	59.9	
48	88.1	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	407.2	568.8	116.2	118.2	96.5	429.1	398.8	573.8	69.5	69.5	69.5	69.5	
49	100	1.8442	128.1	17.9	118.2	478.7	13.7	462.4	242.8	242.8	242.8	457.2	608.8	116.2	118.2	96.5	429.1	398.8	573.8	100.0	100.0	100.0	100.0	

Gross Domestic Product; GDI: Gross Domestic Income

AL PRODUCTION, INDEX, 1938=100	1	2	3	4	5	6	7	8	9	10
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TABLE A1 Cont.

COLOMBIA, 1928-1958
STATISTICS ON DEMAND AND PRODUCTION.
Millions of C\$ of 1958 unless otherwise specified

INDUSTRIAL PRODUCTION, INDEX, 1953=100									
Total	Intern. Goods	Final Goods	Process. Beer and Food Beverages	Textiles	Non-Met. Minerals	COFFEE		Value of Exports	RELATIVE PRICES (1953=100)
						Exports 68 lbs Bags /68 k.Bag/88 k.Bag	Domestic Prices C\$/ US\$/		
	C50	C51	C52	C53	C54	C55	C56	C57	C58
1925	12.3	11.7	12.4	29.3	4.5	52.8	7.3	4.2	60
1926	13.7	12.8	14.1	32.6	5.3	56.4	7.9	5.6	NA
1927	13.7	13.8	13.9	33.8	6.6	59.8	8.8	7.6	NA
1928	14.0	12.8	14.4	35.1	8.2	58.4	5.4	11.8	NA
1929	14.6	11.5	15.2	36.4	6.9	58.3	7.3	5.8	24.75
1930	14.2	13.4	13.2	37.7	5.8	58.3	9.0	4.8	26.26
1931	13.9	11.8	13.2	37.7	5.8	58.3	18.1	4.6	22.65
1932	15.9	16.1	14.6	43.7	4.9	58.5	18.1	4.6	26.85
1933	18.7	16.3	19.1	44.1	12.8	58.5	15.1	8.8	28.24
1934	19.8	15.9	28.5	43.6	15.8	58.1	16.4	12.6	32.63
1935	22.0	17.2	22.9	44.4	16.4	57.7	28.8	13.3	38.68
1936	24.8	16.9	25.3	49.8	19.8	59.4	21.9	16.6	34.22
1937	26.2	21.4	29.2	48.5	28.3	43.5	27.6	22.9	27.85
1938	29.2	24.8	29.6	46.2	24.7	48.6	38.4	23.1	92.7
1939	34.5	28.9	35.3	46.2	24.7	48.6	37.8	31.5	102.7
1940	32.1	31.4	32.2	46.3	23.4	49.8	29.8	28.7	94.4
1941	39.8	34.6	39.7	49.3	26.7	44.6	62.1	33.1	NA
1942	41.2	34.7	42.2	58.1	29.6	46.8	57.5	38.9	68.6
1943	42.8	38.5	42.5	49.4	29.6	52.3	57.5	37.9	57.5
1944	47.3	41.2	48.2	56.4	38.4	55.7	61.7	43.8	53.3
1945	48.9	46.4	49.3	56.5	44.4	54.6	56.6	44.9	66.4
1946	55.8	46.7	56.7	62.4	47.6	62.3	71.3	49.6	88.1
1947	59.5	52.9	68.4	66.6	51.8	78.4	66.7	51.7	54.66
1948	63.9	59.9	64.6	71.8	56.1	78.9	68.8	58.4	34.78
1949	69.5	64.6	78.5	73.7	78.6	78.4	78.3	64.1	35.78
1950	79.7	76.5	88.2	88.9	79.1	89.4	88.6	77.7	43.54

GDP: Gross Domestic Product; GDI: Gross Domestic Income

CHAPTER II. THE ENTREPRENEUR. ISSUES ON COLOMBIAN
INDUSTRIALISTS AND MANAGERS

JUAN JOSE ECHAVARRIA

FEDESARROLLO

CHAPTER II. THE ENTREPRENEUR. ISSUES ON COLOMBIAN INDUSTRIALISTS AND MANAGERS

JUAN JOSE ECHAVARRIA

INTRODUCTION

Different schools have emphasized distinct roles for the entrepreneur-capitalist¹: his role as saver and investor; his role in controlling the economic surplus in the hands of "nationals"; his importance as an agent of change and modernization, etc. The entrepreneur main function is to invest and "innovate", and most of the time he needs his personal savings or the savings of the community through credit. When credit markets are not well developed, savings -by him or by his friends- becomes a crucial variable.

¹ For different definitions and meanings of the term "entrepreneur" see Section I below

There are two main issues we want to explore in this Chapter. First we want to consider if the entrepreneur can be considered an additional source of economic growth. Entrepreneurs and growth generally come together making the topic an elusive one. We will base our analysis in the consideration of the role given to the entrepreneur by the different social sciences, and on developed countries historical experiences. Only some marginal remarks will be made on the differences between DC's and LDC's based mainly on the analysis of Patterns of Growth we advanced in Chapter I.

The review of the literature will suggest that the role of the entrepreneur as an additional factor in economic growth is much less prominent than originally thought. At least that is the case of today's developed countries². The case of today's less developed countries is more difficult to analyze with different elements pointing in different directions³.

² At least when comparing with England and North America. The analysis of other "latecomers" is more difficult to analyze since credit, the state or ideology were new and important elements. See Gerschenkron A, *Economic Backwardness in Historical Perspective. A Book of Essays*; Cambridge, Massachusetts, Harvard University Press, 1962.

³ As we will see below, some of these elements could be analyzed dividing them in consumer and producer. On the consumer side there are three elements to analyze. First, he does not have to create new markets since he mainly substitutes imports. Second, the opposite face of the same coin, he confronts foreign competition. Finally, in order to protect himself against foreign competition he relies much more on the State: the level of tariff and non-tariff protection present today in the LDC's is much higher than that one in the DC's³.

In the technology-production side the balance seems to be against -more difficult for- the LDC's entrepreneur. The amount of capital needed today to create a firm or enterprise is much larger than in the developed countries at the beginning of their industrialization process, and the technological complexities are not very different: appropriate technology is available and proven for our entrepreneur most of the time, but technology was not an important obstacle in the XVIII and XIX century.

Section II asks entirely different questions and is much more related to Colombia. Even if it were not causally important, it is clear that the entrepreneur comes simultaneously with economic growth. What were the conditions for the appearance of the colombian entrepreneur?. how dynamic he was?; were there important differences among different groups of managers-entrepreneurs?. With this discussion we close the Chapter. The analysis of the entrepreneur, his formation and behavior is specially interesting and rewarding in the case of Colombia as a particular group inside the country, the Antioqueños, attracted the attention of some leading experts in the field more than twenty years ago. E.Hagen⁴ considered this group as one of the important examples of his thesis of deprivation as a pre-requisite of leadership and entrepreneurship.⁵ Hagen ideas on the Antioqueños have been totally and successfully demolished by the work of foreigners (Safford, Twinam, Brew) and nationals (specially Lopez Toro)⁶, but no doubt his polemic arguments were responsible for those other researchers coming into the field. With so many previous studies it could seem pedantic to try to bring additional light

⁴ E.Hagen, *On the Theory of Social Change*, Mass, MIT Press, 1962. ; he also considers the case of anglo-saxon virtues in England, the Tokugawa in Japan, two indonesian towns, and Burma.

⁵ He also considers the case of anglo-saxon virtues in England, the Tokugawa in Japan, two indonesian towns, and Burma.

⁶ R. Brew, *El Desarrollo Economico de Antioquia*, Bogotia, Banco de la Republica, 1977; F.Safford, *The Ideal of the Practical. Colombia's Struggle to Form a Technical Elite*, Austin & London, University of Texas Press, 1976; A.Lopez Toro, *Migración y Cambio Social en Antioquia en el*

on the issue. However, we claim that new materials are available which make worthwhile the try.

A. THE ENTREPRENEUR IN THE SOCIAL SCIENCES. LESS IMPORTANT THAN ORIGINALLY THOUGHT.

1. ON THE CONCEPT OF THE ENTREPRENEUR.

In this Section we will ask ourselves how important is the entrepreneur as an *additional* factor in the explanation of growth. We start with a summary of Schumpeter's ideas on the issue and consider later some evidence on today's *industrialized countries*. Our main conclusion will follow North⁷:

"...productivity changes stemming from technological innovations, are, in part at least, a nearly autonomous response to successful expansion of industries in an acquisitive society under competitive market conditions...The role of entrepreneur and innovator is an important one, but I would downgrade its significance for the study of growth in economics which: 1.Followed in the process of industrial development and 2.Were acquisitive oriented under competitive market conditions" .

⁷ North D.C, *The Economic Growth of the United States 1790-1860*, New York, 1961, p.8

Schumpeter's *Theory of Economic Development*⁸ seems to be the logical place to start our discussion on the role of the entrepreneur. His "captain of industry"⁹ has as its first function to carry out *new combinations*¹⁰, and shows *initiative, authority and foresight*¹¹. His behavior is mainly determined by extra-economic factors¹²; and in nine cases out of ten supernormal intelligence and energy account for industrial success¹³. The entrepreneur does not adapt to consumer's tastes because he modifies -creates- them.

Does such a man exist at all? The constraints are even stronger since Schumpeter's entrepreneur will behave as such very few times in his life:

⁸ Schumpeter J.A, *The Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Cambridge, Massachusetts, Harvard University Press, 1968.

⁹ The closest definition to what he meant by an entrepreneur; preferable to the "financier", "promotor", "capitalist", "shareholder", or "risktaker"

¹⁰ Ibid, p.

¹¹ Ibid, p. 74

¹² "The dream and the will to found a private kingdom, usually, though not necessarily, also a dynasty... what may be attained by industrial or commercial success is still the nearest approach to medieval lordship possible to modern man. Its fascination is specially strong for people who have no other chance of achieving social distinction. 2. There is the will to conquer: the impulse to fight, to prove oneself superior to others, to succeed for the sake, not for the fruits of success, but of success itself; 3. Finally, there is the joy of creating, of getting things done, or simply of exercising one's energy and ingenuity" Ibid, p.93

¹³ J.Schumpeter, 1962, *Capitalism, Socialism and Democracy*, New York and Evanston, p.

"everyone is an entrepreneur only when he actually carries out new combinations, and loses that character as soon as he has build up his business, when he settles down to running it as other people run their business. This is the rule, of course, and hence it is just as rare for anyone to remain an entrepreneur throughout the decades of this active life as it is for a businessman never to have a moment in which he is an entrepreneur, to however modest a degree".¹⁴

¹⁴ Ibid, p. 78

As we said before, and for multiple reasons there is not much use for those concepts in our analysis of the colombian entrepreneur¹⁵. Schumpeter was trying to explain the largest transformations in the history of capitalism¹⁶, not the "normal" times and many of the definitions involved are entirely tautological -though still usefull-¹⁷. Second, in order to confirm or reject some of the hypothesis involved we will need a group of biographers experts on psicoanalysis¹⁸. Finally, his definition of new combinations is so general that practically every person dealing with production and profits will somehow be an entrepreneur. The five functions established by Schumpeter are: The introduction and creation of a new good (1); a new method of production (2); or a new market (3); the opening of a particular source of supply (4) and the carrying out of a new organisation -e.g the creation of a monopoly- (5).

¹⁵ The concept of economic development Shumpeter uses is also problematic for our purposes, since it is not necessarily tied to growth, not because the usual issue of the distribution of the benefits, but because his same concept of development is, by definition, tied to "new combinations": for Schumpeter, "nor will the mere growth of the economy, as shown by the growth of population and wealth, be designated here as a process of development. For it calls no qualititative new phenomena, but only processes of adaptation of the same kind as the changes in the natural data" He also considers that, "by development...we shall understand only such changes in economic life as are not forced upon it from without but arise by its own initiative, from within"; Ibid, p.63 and p.78

¹⁶ The industrial revolution in England, the rise of the railroads or of the automovile, etc; certainly those were not normal times in the development of today's industrialized countries

¹⁷ The entrepreneur carries out new combinations, and economic development occurs when there are new combinations taking place. Ergo, the entrepreneur produces economic development. But the concepts involved are usefull, e.g in understanding why the industrial revolution in England is correctly called a revolution. British annual rate of growth of industrial output has been estimated at less than 2% before 1780, 3%-4% in 1780 -1792; 2%-3% in 1792-1818. See P.H Wilken, *Entrepreneurship. A Comparative and Historical Study*, Norwood, New Jersey, Ablex Publishing Corporation, 1979 , p.

¹⁸ P. Kilby P, *Entrepreneurship and Economic Development*, New York, The Free Press, 1971; P.H.Wilken, *Entrepreneurship. A Comparative and Historical Study*, Norwood, New Jersey, Ablex Publishing Corporation, 1979

Deliberately we chose the less operational concepts. He has other ideas which are much more relevant for our purposes. The importance given to credit as opposed to private savings¹⁹; his suggestions on new combinations arising mostly from new firms²⁰, the entrepreneurs coming from all strata of society²¹, and the important distinction between the entrepreneur proper, the capitalist and the administrator are interesting in themselves, and worthwhile considering²². Finally, his suggestion that the entrepreneur act as a deviant generating economic resistance in the groups threatened by the new combinations is also interesting.

¹⁹ Though not necessarily for the reasons he had in mind. According to his views, credit will be needed for the undertaking of new combinations, savings for old combinations. This assumes an economy at full employment, a characteristic of the "circular flow of income".

²⁰ p. : "it is not the owner of stage-coaches who builds railways". This fact creates even more discontinuities in the growth process Schumpeter is trying to describe

²¹ Gerschenkron, 'Discussion', *American Economic Review*, pp.93-, May, 1968, supplement, p.97

²² Development occurring in spurts and through "creative destruction" are also interesting in themselves and useful for us.

Not many important developments have taken place since Schumpeter's 1934 book, as will be shown in broad terms in the following paragraphs. The term *entrepreneur* was first coined by an economist²³ but orthodox economic theory does not have much to say on the issue, mainly because the same method of minimization-maximization precludes "clever rules, ingenious schemes, brilliant innovations, or charisma"²⁴. The entrepreneur, somehow, acts as a monopoly and economic theory is even weaker in that area. Also, the entrepreneur has not yet been defined in an empirically meaningful manner and we cannot tell whether countries really lack entrepreneurs as persons with specific traits, or whether those who do exist are prevented from functioning properly. Maybe both are true, but the economist is more inclined to the second hypothesis because it is more operational²⁵.

To accept that most firms do not operate on the production possibility curve and that there is a large unexplained "residual" in the relation between inputs and output seem to suggest but not necessarily bring us closer to a meaningful concept of the entrepreneur²⁶. On the whole, Veblen's complain on economic theory seems to be valid today:

²³ For Cantillon, the entrepreneur buys factor services at "certain" prices with a view to selling the product at uncertain prices in the future. Thus, the entrepreneur unique function was the bearing of noninsurable risk. But through time the concept was less and less meaningful as a separate concept. Thus, few decades later, J.B. Say merged risk with bringing together the factors of production and the provision of continuing management, and for Smith the notion disappears altogether. Smith's capitalist's primary role was to provide capital for use by his workers and accumulate. See Kilby, 1971, p.2

²⁴ Baumol, 1968, p.67. Minimization-Maximization of something different from profits (e.g. sales) will not help, and even if time is introduced in the analysis the problem remains. Game theory does not seem to be very relevant for the issue either.

²⁵ E.Domar, 'Discussion', *American Economic Review*, may, 1968, supplement, p.93.

²⁶ The existence of that large residual is irrelevant for the discussion, because economists have been unable to determine how to allocate that "residual" between entrepreneurs and the rest of possible factors. Entrepreneurs could not count at all and the whole residual could be due to managers,

"a lighting calculator of pleasures and pains, who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift him about the area, but leave him intact. He has neither antecedent nor consequent. He is an isolated, definitive human datum, in stable equilibrium except for the buffets of impinging forces that displace him in one direction or another. Self-imposed in elemental space, he spins symmetrically about his own spiritual axis until the parallelogram of forces bears down upon him, whereupon he follows the line of the resultant. When the force of the impact is spent, he comes to rest, a self-contained globule of desire as before. He is not a prime mover. He is not the seat of a process of living, except in the sense that he is subject to a series of permutations enforced upon him by circumstances external and alien to him"²⁷

engineers, and ordinary workmen. See E.Domar, 'Discussion', *American Economic Review*, May, 1968, supplement, pp. 93. Solow showed that only 12.5% of growth in labor productivity could be attributed to additional capital in the United States (1909-49) but Jorgenson and Griliches have challenged those results. Baumol does not seem very convincing in arguing that "Jorgenson and Griliches results do not necessarily imply any denigration of the entrepreneur. They argue merely that entrepreneurship and innovation have achieved growth in outputs *only with the aid of* corresponding increases in input quantities (my underlining)"

See W.J. Baumol, 'Entrepreneurship in Economic Theory', *American Economic Review*, May, 1968, supplement, pp. 66, fn.p.66; D.W Jorgenson and L.Griliches, "The Explanation of Productivity Change", *Review of Economic Studies*, July, 1967, pp.249-83; R.M Solow, "Technical Change and the Aggregate Production Function", *Review of Economic Studies*, Aug, 1957, pp.320

²⁷ Veblen T.B, 'Economics and Evolution', *The Place of Science in Modern Civilization*, New York, 1919. Quoted by Baumol, Op.Cit, pp.67, fn. 1

After the important contributions of Parsons and Weber the sociological analysis of the entrepreneur has degenerated into sociology of behavior. After reading McClelland and Hagen²⁸ theories of deprivation of status and child-rearing, one can not but agree with Gerschenkron's that "probably the best that has come out from these very ingenious but exquisitely nonoperational speculations is the admission that 'toilet training of infants is no longer to be regarded as the almost absolute key' to the pertinent problems'"²⁹.

Economic historians have said relevant things on the issue but paradoxically their findings seem to down-play the role of the entrepreneur in the development of today's industrialized countries. It is not coincidence that some prominent economic historians like D. North and D.S.Landes who themselves started as entrepreneurial historians totally abandoned the concept in later work³⁰. Their position seems to be summarized in our quote of North at the beginning of this Section.

²⁸ Though Hagen was an economist

²⁹ Gerschenkron, 'Discussion', *American Economic Review*, pp.93-, may, 1968, supplement, p.96

³⁰ D.S Landes "Technological Change and Development in Western Europe, 1750-1914", in H.J. Habakkuk & M.Postan (Eds.), *The Cambridge Economic History of Europe* (2nd ed.), (Vol 6,1), Cambridge University Press, 1965; D.S Landes *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750*. D.C. North *The Economic Growth of the United States 1790-1860*, New York, 1961

Second, reviewing what economic historians have said on the determinants of economic growth in 6 industrialized countries -Great Britain, France, Prussia-Germany, Japan, The United States and Russia- Wilken³¹ concludes that in these societies any independent causal effect that it had on industrial growth was really quite *limited*³². The entrepreneur had *little* causal significance in Great Britain during the first industrial revolution where opportunities were quite favorable. It had limited significance in France where the rate of industrial growth was approximately as much lower than the British rate as the opportunity conditions in France were also less favourable³³. The entrepreneur was not very important in the experience of the United States though more important in the cases of Germany, Japan and Russia.

³¹ P.H. Wilken, *Entrepreneurship. A Comparative and Historical Study*, Norwood, New Jersey, Ablex Publishing Corporation, 1979

³² Ibid, p.254

³³ In early works Landes gave a negative role to the French entrepreneur considering rich people's ties with the "old regime". But his comparison between France and the United States does not seem correct and when comparing France with Germany his arguments become much weaker. See D.S Landes, "French Entrepreneurship and Industrial Growth in the Nineteenth Century", *The Journal of Economic History*, 1949, 9, pp.45-61; for a discussion on Landes see A. Gerschenkron, *Economic Backwardness in Historical Perspective. A Book of Essays*; Cambridge, Massachusetts, Harvard University Press, 1962

2. THE ENTREPRENEUR IN THE UNDERDEVELOPED COUNTRIES. MORE OR LESS NEEDED?.

From our previous review we could tentatively conclude that the entrepreneur was not extremely important as an *additional factor* to capitalist development in most of today classic examples of industrialization. What could we say in relation to underdeveloped countries?. Our discussion will only touch some issues which we consider are important at a general level. There is no available literature which allow us to examine historical examples thoroughly.

Though we will have more to say on the issue of the functions of the entrepreneur, when comparing the demand for entrepreneurs in developed and underdeveloped countries we could start with Schumpeter's more operational definition of the meaning of entrepreneur, always in relation to his definition of *new combinations*:

"1. The introduction of a new good -that is one with which consumers are not yet familiar- or of a new quality of a good; 2. The introduction of a new method of production, that is one not yet tested by experience in the branch of manufacture concerned, which need by no means be founded upon a discovery scientifically new, and can also exist in a new way of handling a commodity commercially; 3. The opening of a new market, that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before. 4. The conquest of a new source of supply of raw materials or half-manufactured goods, again irrespective of whether this source already exists or whether it has first to be created. 5. The carrying out of the new organisation of any industry, like the creation of a monopoly position (for example through trustification) or the breaking up of a monopoly position".³⁴.

This initial classification is useful to our purposes of contrasting the functions of the entrepreneur in the developed and underdeveloped countries though we will have more to say on the issue below. The role of the entrepreneur is *less important* in our countries in some of the 5 points quoted above.

³⁴ Schumpeter J.A, *The Theory of Economic Development. An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*, Cambridge, Massachusetts, Harvard University Press, 1968, p.66

To start with, our entrepreneur does not have to be really concerned with the introduction of a new good, because the close association between industrialization and import substitution in our countries. We could say that the market already existed when some domestic entrepreneur decided to substitute imported goods for national production. The modifications made should be minor any how³⁵. As a counterpart he faces external competition, something the entrepreneur the British industrial revolution did not have to face ³⁶. But large tariffs are generally provided by the State to help him overcome such difficulties. Nothing like the modern state of the developed and underdeveloped countries did exist at the time of the beginning of industrialization of the countries we are considering³⁷. The entrepreneur of the british industrial revolution had to combine two or more of the roles of capitalis, inventor, innovator and manager so that his success demanded wide ability. This does not seem to be the case in our countries.

³⁵ But, exactly for the same arguments, the domestic entrepreneur faces external competition, something that the entrepreneur of the british industrial revolution did not have to face. But that was just the case of Britain, not of the other late comers.

³⁶ But that is not the case for the other late-comers.

³⁷ Little, Scitovsky and Scott, 19.., p.

Also, and much more fundamental, one of the important advantages of the late-comers, to use Gerschenkron terminology is that technological innovations are already there and proved. Technical innovations are not important compared with the very risky and involving process of the introduction of new products in the developed countries. Some effort has to be made to adapt the product to the conditions of the national market³⁸ but minor ones anyhow, compared with the developed countries for which Research and Development expenditures are a substantial part of the whole issue of competition and survival. But we could be making the wrong comparison since what we are really interesting in is in the comparison between underdeveloped countries today and developed countries at the time they had their "take offs" into industrialization. Maybe the contrast is not as marked. It is no coincidence that in England, in the cotton industry, two of the leading innovators, Arkwright and Cartwright, were an uneducated barber and horsedealer (the first) and an Anglican clergyman (the second)³⁹. In the case of the United States, the very detailed study of Strassman on textiles, machine-tool, electrical and metallurgical industries concludes that the risks of technological innovation were not really very great.

³⁸ Katz, 197

³⁹ P.H. Wilken P.H., *Entrepreneurship. A Comparative and Historical Study*, Norwood, New Jersey, Ablex Publishing Corporation, 1979, p. 91

There is just one issue which seems to point out in the contrary direction -more difficult to do it in the underdeveloped countries- and it is related to the fact that capital requirements are much higher today than in the past. This, obviously, tends to make more difficult to create a new plant. In late eighteenth-century, England, the amount of investment required to start a plant was equivalent to four months wages; in early nineteenth century France it was six to eight times the average monthly wage. The figure is 220-350 months today⁴⁰.

On balance, then, we could say that most of the topics considered tend to point out in one direction: the role played by the entrepreneur in our underdeveloped countries seem to be much less demanded than in the developed countries during their process of industrialization. And we already saw that even in the today developed countries that role was not a very important one. There is, however, another line of issues which could bring new light on the role played by the entrepreneur; the characteristics of the arguments will be much more relevant in the underdeveloped countries.

ECONOMIC THEORY, THE ENTREPRENEUR AND UNDERDEVELOPED COUNTRIES.

⁴⁰ P. Bairoch, *Industrial Revolution and Underdevelopment*, 197

The received neo-classical theory does not allow for the entrepreneur not only because the tools of maximization and minimization employed, but also because there is no uncertainty, risk and market imperfections. When it handles risk it does it in probabilistic terms, not a very useful treatment for our purpose⁴¹.

But risk and imperfections are important, and in some areas much more important than in developed countries: contracts for labor are incomplete, the production function is not completely specified or known, and not all factors of production are marketed⁴²; the last two points are specially relevant for us. The production function is incomplete, and firms become valuable storehouses of detailed experience and knowledge, with a recognizable slack -part of it motivational- in the firm. It is also clear that not all inputs are marketed or badly marketed: management and market knowledge are not marketed, and the capacity to obtain finance depends on family connections rather than on the willingness to pay interests; political contacts may be fundamental -even more than in the developed countries- to obtain economic objectives, etc; ⁴³

⁴¹ Keynes himself considered that the concept of risk, in probabilistic sense, was not very relevant for the analysis of everyday economic problems. See.. *The Years of High Theory*.

⁴² Leibenstein H, "Entrepreneurship and Development", *American Economic Review*, May, 1968, supplement, p.72. What follows is based on that article.

⁴³ Ibid. p.74.

Entrepreneurs are gap-fillers and input-completers, and among his functions are: "search and discover economic opportunities, evaluate economic opportunities, marshal the financial resources necessary for the enterprise, make time-binding arrangements, take ultimate responsibility for management, be the ultimate uncertainty and/or risk bearer, provide and be responsible for the motivational system within the firm, search and discover new economic information, translate new information into new markets, techniques, and goods, and provide leadership for the work group...In a word of perfect markets...each of these characteristics would be marketed as a specific service" ⁴⁴ ...and there would be no room for the entrepreneur; only for the rutinary manager.

ver si puede desarrollarse mejor este punto utilizando la classification de funciones de Kilby.

AFTER ALL WHAT?. SOME -FEW-PROMISING IDEAS.

I think that, on the whole, our previous arguments tend to advice us that much emphasis on the role of the entrepreneur and on the entrepreneur himself as a contributing factor to growth is not recommended. Does it mean that the whole issue should be abandoned altogether?. Not really.

⁴⁴ Ibid, p.74

Gerschenkron⁴⁵ suggest that studies in entrepreneurial history should ask economically significant questions and in this way try to integrate entrepreneurial research with the main body of economic thought. So far this is too general. But consider some of the examples he gives: "we should study the long run effects of the business cycle upon those attitudes of capitalists; variations in the behavior of generations of entrepreneurs depending on whether their formative years of business experience fell into periods of depressions or upswings..some additional light could thus be shed on the mysterious and elusive problem of long waves; or ... "what happened to time horizons of entrepreneurs when the industrialist replaced the trader as a dominant figure on the economic scene..Similarly, a comparative study of time horizons of investment bankers and industrialists would be very much in order..."much more could be done concerning the interrelationship between changing standards of commercial honesty and modern economic development. Attitudes to obsolescence and changes".

⁴⁵ Gerschenkron, 'Discussion', *American Economic Review*, pp.93-, may, 1968, supplement, pp.96-98, p.

In the latin american scenario it seems advisable to follow Gerschenkron global advice and to tie the study of the entrepreneur to two particular issues: 1. The influence of commodities and its characteristics; 2. To accept that even if the entrepreneur is not very important for long run economic growth, it could play a very important role in periods of crisis, shocks and recessions. Periods of crisis are particularly interesting periods if we want to analyze the role of economic agents in the functioning of the economy. We still have to explore deeper this ideas, but we should mention that both have been explored for concrete historical examples by some writers on the economic history of Latin America. Specially valuable seem to be the works of Cardoso⁴⁶

⁴⁶ See, among others, F.H.Cardoso and E.Falleto, *Dependencia y Desarrollo en America Latina*, Siglo XXI Editores, 1967; F.H.Cardoso, "As Condições Sociais da Industrialização de São Paulo", *Revista Brasiliense*, march-abril, 1960, pp.31-46; F.H.Cardoso, "The Industrial Elite", in S.Lipset and A. Solari, *Elites in Latin America*, New York, Oxford University Press, 1967; F.H.Cardoso, *El Empresario Industrial en America Latina*, Brazil, E.CN 12/6423 Add 2, Santiago, 1963; F.H.Cardoso, *Empresario Industrial e Desenvolvimento Economico no Brasil*, 1972; F.H.Cardoso, *Empresario Industrial e Desenvolvimento Economico*, São Paulo, 1964; R.Thorp and J.Bertram, *Growth and Policy in an Open Economy*, London, Macmillan, 1978

B. COLOMBIA.

A. THE RECEIVED TRADITION AND SOME REMAINING PROBLEMS.

No doubt E.Hagen main contribution was to bring *other* researchers into the field. His general arguments are "very ingenious but exquisitely nonoperational..." to use the sentence we quoted from Gerschenkron in Section I, and his empirical works in other countries subject to valid criticism⁴⁷. Many problems remain with his treatment of social values as a decisive variable.

⁴⁷ As *one* example of the non-operational content of his work, the period needed to create entrepreneurial attitudes varies from 80 to 200 years. On the second point -reliability of his work- the figures he utilized to prove his general hypothesis for the particular case of the british entrepreneur are entirely biased. See P.H.Wilken, *Entrepreneurship. A Comparative and Historical Study*, Norwood, New Jersey, Ablex Publishing Corporation, 1979, p.

Social *disapproval* is crucial in his framework but it could be the opposite, and "at times it even appears as though social *approval* were regarded as a prerequisite for successful entrepreneurship"⁴⁸ Even more important, social disapproval-approval- could need to be reinforced by the sanctions of the state in order to have any real influence; and the later may or may not reflect the dominant value system. Perhaps the system of social values is not taken too seriously; maybe behind the articulately expressed but ineffectual value system lay another, an actually operational system⁴⁹. Finally, the direction of the causality could be the opposite: despised because they were rich and entrepreneurial⁵⁰.

Hagen controversial general hypothesis on the formation of the entrepreneur and empirical case studies attracted many foreign and nationals into the area. A partial agreement has been reached for the case of the antioqueño entrepreneur and some of the main conclusions follow. They are based mainly in Brew and Twinam's work which include Safford and López Toro among others:

⁴⁸ Berschenkron, 'Discussion', *American Economic Review*, pp.93-, may, 1968, supplement, pp.96-98

⁴⁹ Ibid, p.62

⁵⁰ This is Brew's argument for the case of the antioqueños. See R.Brew, *El Desarrollo Económico de Antioquia*, Bogotá, Banco de la República, 1977, p.

Brew argues that so many variables were involved in the formation of the antioqueño that no lesson can be derived on how to promote a similar process in a different country. The modern world is too different and what happened in Antioquia was really an historical accident⁵¹.

The antioqueños who later on (XX century) would invest in modern industry emerged as a group in 1790-1850⁵² and at the end of the period they took economic and political control in the region⁵³. Mining was the central activity in the determination of entrepreneurship: many characteristics of small size gold production are common to modern industry risks, hiring of "free" labour, etc; and, even more important, the production of gold-money dramatically promoted regional and international trade, the monetization of the economy, and profits for certain families. We could say, then, that mining and its sub-product commerce were the principal economic activities involved in the creation of entrepreneurship in Antioquia⁵⁴. Those families founded banks later on, invested in land and created the coffee industry: "La acumulación de gran parte del capital y la creación del mercado internacional pertenecen a la era del café, pero los empresarios fueron producto de la minería"⁵⁵.

⁵¹ R.Brew, *El Desarrollo Económico de Antioquia*, Bogotá, Banco de la República, 1977, p.415-416.

⁵² Ibid, p.35

⁵³ Twinam shows a very close association between the political and economic elites in Antioquia in 1780-1810. See A.Twinam, "Comercio y Comerciantes en Antioquia" in FAES, *Los Estudios Regionales en Colombia. El Caso de Antioquia*, Medellín, FAES, 1982.

⁵⁴ Ibid, p.39

⁵⁵ Ibid, p.35

A relative consensus has been reached on the antioqueño entrepreneur but it is also evident that attention has not been given to other regions. The industrial owner-manager in Bogotá is only mentioned when contrasts between Antioquia and other regions are established, and it is always assumed - implicitly or explicitly- that bogotanos behaved as especulators investing most of their capital in land, not in industry⁵⁸. The exception to the rule is the study by A.Lipman ⁵⁹. But many problems remain even with the received tradition on the antioqueños, some related with to the general arguments, some to the information and sources utilized.

-Problems with the general arguments:

The entrepreneur always appears *simultaneously* with production and growth no matter how "atypical" is that country or entrepreneur from the general rule or theory⁶⁰. If so, why should we expend so much effort clarifying the debate on the colombian entrepreneur?. This argument is somehow related to the issue of causality we touch and there is not an easy answer.

⁵⁸ Something as vague as the "modo de ser antioqueño" explains the difference. See A.Twinam, "Comercio y Comerciantes en Antioquia" in FAES, Los Estudios Regionales en Colombia. El Caso de Antioquia, Medellín, FAES, 1982p. 130

⁵⁹ A summary S.M Davis and L.M. Goodman, *Workers and Managers in Latin America*, Lexington mass, Toronto, London, D.C Heath and Company, 1972 p.63

⁶⁰ Some authors even oppose the "mainstream" entrepreneur with the "marginal" entrepreneur. See P.Kilby, op.cit, p.

Second, one feels when reading the literature on Antioqueños that many of the arguments given could be *logically* reversed. Some particular examples follow:

Brew argues that the *large instability* brought about by the hyperinflation/hyperdevaluation at the end of the Century allowed accumulation of financial capital and future investment. Was it? Where are the losers in this story? One could argue that modern growth would have taken place even before, if was instability and hyperinflation were not present.

A large and cohesive family appears as a possitive factor in the creation of investment and entrepreneurship in Antioquia but the opposite has also been argued for other countries where nepotism limits change and growth⁶¹. The complete story could be a mix of both arguments: the type of family present in Antioquia enabled the creation of the first firms when risk was the crucial factor, but that same family structure limited growth later on.

⁶¹ See, for example, T.C.Cochran, "Role and Sanction in American Entrepreneurial History" in Harvard University Research Center in Entrepreneurial History, *Change and the Entrepreneur*, Cambridge, Harvard University.

The existence of *family banks* is considered another important *positive* factor; Schumpeter emphasys in credit comes again to our minds. But the other side of the coin could also be present. According to Cameron⁶² the close link between banks and industry often led british business to failures with credit overextension and the absense of limited liability.

Problems with the Information.

Sufficient research has been done on the conditions allowing the rise of a very dynamic group of people which later on created modern industry in Colombia. Most of the study covers the XIX century for obvious reasons, but it is time to study more carefully this century. In fact, it is paradoxical that more effort was not done on this century before the research on the XIX centurv.

⁶² R. Cameron R, *Banking in the Early Stages of Industrialization*, New York Oxford, 1967; also, P.H.Wilken, *Entrepreneurship. A Comparative and Historical Study*, Norwood, New Jersey, Ablex Publishing Corporation, 1979. p.89).

At this moment it is not well known who were the owners-managers in industry and how static was the picture. Were there important changes in ownership during the first half of the XX century?. After reading carefully the books of Twinam, Safford and Brew -among others- one ends up with the impression that they are really considering two or three families⁶³. Even more, when it is argued that the Colombian elite intervened in all spheres of economic activity they must be really refering to one of them. We will show later on that the Ospina family was very influential in the creation of the first modern textile plant in Colombia, but later on left the industrial sector. They were managers but not managers, owners, or even 'captains of industry' to use Schumpeter's terminology.

Most works in the field also concluded that, in order to avoid risks and uncertainty they had very diversified portfolios. Sure. That seems the case for many large fortunes in many countries. A related but much more important question will be to establish how important were the different activities. An entirely different conclusion on those rich people will be reached if they had 90% of their assets in land and 10% in industry than if the opposite were the case.

⁶³ I have in mind Ospinas (including Vázquez) and Restrepo.

Finally, it has not been established how they interacted with the state in this XX century. From Twinam findings on the Colonial times -showing a close association between economic influence and political power- it is established that, somehow, they behaved exactly like that later on. Did Twinam results for the colonial times remain valid for the 30s and 40s?

2. FURTHER RESEARCH INTO SOME OF THE MAIN ISSUES.

We will try to answer some of the questions raised before. Many problems still remain but we hope some further insight will be reached.

a. New or Old?

It is *a priori* difficult to accept the generalized idea that it took almost one century to form a group of dynamic industrial owners and that they kept political and economic power in that long period. The colombian economy was highly unstable during the second part of the XIX century, and and there were difficult crisis in 1904, 1920-21 and 1930s in the XX century; new fortunes must have been formed and old fortunes vanished⁶⁴. That happened in Bogotá⁶⁵, and was also the experience in the developed countries and in other regions of latin america⁶⁶. Was Colombia so atypical?. If the picture given by Brew and other authors is wrong a very important part of the entrepreneurial history of the country has been lost with important methodological and empirical consequences⁶⁷ .

⁶⁴ True, Antioquia was less affected by civil wars than other regions of the country, but this should not modify the general picture substantially. It is also known that some of the largest fortunes at the time of independence (Santamarías, Arrublas and Montoyas) were badly hit in the second part of the XIX century -Montoya's were in bankruptcy in 1858- and their money never reached modern industry. See R. Brew, *El Desarrollo Económico de Antioquia*, Bogotá, Banco de la República, 1977 p.39

⁶⁵ Villegas and Yufis consider that a new generation started with Reyes at the beginning of the XX century and took political and economic control pretty fast.

⁶⁶ In Chile the powerful landowners were very flexibly admitting in their ranks newcomers and foreigners (and people who came in general from activities of lower importance like commerce and miners); in Brasil Dean gives a very rich and dynamic picture of the creation of the elite. For Europe Pirenne argues that "...to everyone of the successive periods which can be distinguished in our economic history there corresponds a clearly distinct entrepreneurial class. Put in another way, the group of entrepreneurs existing in a given period did not emerge from the group of entrepreneurs of the preceding period". With Schumpeter, "it is not the owner of state-coaches who builds railways". See P.Mantoux, 1928, P.Bairoch, *Industrial Revolution and Underdevelopment*, 197, See G.Palma, 1979, (jj), p.207 and 210; W.Dean, *The Industrialization of Sao Paulo 1880-1945*, Austin & London, Institute of Latin American Studies, University of Texas Press, 1969; .

⁶⁷ We should try to set up some hypothesis regarding the characteristic or components that give rise to an entrepreneur and then test these hypotheses against both successes and failures. Otherwise we will continue repeating Schumpeter's tautology that an innovator is one who successfully innovates. See E.Domar, 'Discussion', *American Economic Review*, may, 1968, supplement, pp. 93

Who were the large owners of industry?. Our sample includes two firms in the beer sector; 2 in processed food, 5 in textiles and 2 firms in cement⁶⁸. They represent the large bulk of modern industry in Colombia at the time⁶⁹. The information is contained in Table A-1.

None of the largest shareholders in industry⁷⁰ in 1930-34 corresponds to those families who controlled econic and political power in Antioquia-Colombia before 1850. Angel, Mora, and Restrepos -from Bogotá- are not mentioned in the traditional textbooks in the field, and the Echavarrias do not correspond to the general picture⁷¹. Additionally, many of the most important shareholders in the following periods have never being included in any serious analysis of the colombian elite⁷². Even more significative for our purposes, the largest owners in 1925-29 were not the largest owners in the other sub-periods⁷³. The results do not change when we consider last names as a group instead of individuals⁷⁴.

68 Bavaria, and Cervceria Union in the beer sector, National de Chocolates and Noel in processed food, Fabricato, Tejicondor, Coltejer, Rosellon and Tejidos de Bello in Textiles and Cementos Argos and Cementos Samper in Cement.

69 See J.J. Echavarría, Concentración de la Propiedad y de la Producción Industrial. 1920-50.

70 The amount of money invested in industry was calculated from the total assets of the firms and from the participation of each of the largest 10 owners in each firm.

71 "de los primeros industriales unicamente los Echavarrias fueron hombres nuevos en el mundo comercial del Siglo XIX aunque su ascenso siguió el mismo patron de movilidad social, ...no fueron conocidos sino a mediados del siglo y no llegaron a ser prominentes en el mundo de los negocios sino desde la decada de 1880" (my underlining). See Brew R, El Desarrollo Economico de Antioquia, Bogotá, Banco de la República, 1977. It is somehow unfair to say that Restrepos of Bogotá were not considered by most textbooks since those works dealt mainly with the Antioqueños. They lived in Bogotá in the 30s and 40s, but they -or their parents were born in Antioquia-.

72 R.Piedrahita and C.Arango in Medellín, J.Latief and A.Serna in Bogotá.

73 The correlation coefficient between the ranking for K2529, K3034, K3539 and K4045 is almost null.

74 For that we added the assets of all the people with the same last name for each sub-period. The coefficient of correlation -for the rankings- is 0.10 (and negative) in all cases. In some cases we had special care: for the Angel family we included the shares owned by Almacenes Ancla among others. For Restrepos those from Bogotá from those in Medellín.

Our empirical conclusion in the area is, then, that most previous writings give a picture which is extremely static; almost a caricature. We will examine some of the stories of those *new* people below to complement the picture. The most important industrial managers-owners have not been considered in any of the books on the colombian entrepreneur.

2. Social Origin and Asset Diversification.

Angel, Mora, Echavarrias and Restrepos-Bogotá- made their fortunes in commerce, not in mining. Even more important, Angel and Mora did not accumulated their fortunes in Medellín but in small towns. Angel arrived to Medellín when he was already rich, and Mora made his fortune in commerce in Barranquilla.

As important as that, there is a close association between commerce and industry in a different way. "Long Distance" merchants importing merchandises from abroad ended up investing in similar areas in industry. Some cases: the Pombo family in Bogotá imported clothing and ended up creating-investing in Alicachín; that was also the story for Restrepos in Medellín (Textiles de Bello in 1903) and Echavarrías (Coltejer in 1907 and Fabricato in 1922); that was also the case for Mora (imported cement from Denmark, later on created Cementos Argos). In this sense the story is very similar to that one of Brasil where importers created industry. Dean gives some of the reasons for that⁷⁵

⁷⁵ W. Dean, *The Industrialization of Sao Paulo 1880-1945*, Austin & London, Institute of Latin American Studies, University of Texas Press, 1969, pp. . Among them, the most important seems to be the knowledge of the domestic market acquired when selling the product domestically..

How important was coffee?. According to Brew and the other authors coffee was not important in creating entrepreneurs but entrepreneurs formed in minning and commerce built the coffee business later on. What is interesting is that this seems to be correct but for the wrong reasons. The best example given by different authors on the issue is the Ospina family. But we already saw that the Ospinas were not in industry after some "coqueteos" with it at the beginning of the XX century. Angel is never considered, but he was one of the largest shareholders in industry, particularly after the recession of 1920-21. As we said, Angel got his money mainly in transport and commerce in some towns of Antioquia, not in Medellin. However, later on when he arrived to Medellin he really started the whole business of "modern" coffee exports in Colombia. His relation with coffee did not last much⁷⁶ but was important in the formation of his fortune.

But that seems to be the only important case and some qualitative material helps us in making sure this was the case. Pepe Sierra, the richest person for which we could get "hijuelas" always considered coffee as "negocio de pobres"⁷⁷, and E. Restrepo writes to a correspondent in V.V Holland Import in the same lines in 1921⁷⁸.

⁷⁶ Angel is not in coffee business when the FNC is created. It seems he decided to quit that business after the recession of 1920-21

⁷⁷ Pepe Sierra. *Un Campesino Millionario*. p.

⁷⁸ " Tengo la pena de decirles que tanto la casa extinguida como la nuestra, no se han ocupado, ni se ocuparan en el negocio del cafe, en ninguna forma, pero en atencion a la valiosa recomendacion voy a dar a ustedes los datos mas importantes que he logrado recoger sobre el cafe"... "las principales casas de comercio de esta plaza no se ocupan del negocio del cafe. Son las de segunda categoria las que se dedican a este ramo y aun cuando su capital es relativametine corto son estimadas y agasajadas por los importadores de los Estados Unidos que en su mayor parte son tostadores. y por las casas de consignacion de este pais a quien envian el fruto. Uno de es exportadores que figura en la lista que le doy en

That does not mean, of course, that Restrepo and other merchants, particularly those 'long run' merchants never tried to do business with coffee. They tried, but other business, among them industry, land and "money lending" were more profitable. Very few of the industrialists considered in our list had anything important to do with coffee, and even if it is true that many of them appear sometimes with "trillas de cafe", interviews with the families allowed us to conclude that they were always very minor and secondary business. This marks an important difference with Brasil where after some decades there was a merge between importers-industrialists and coffee planters⁷⁹. Finally from Columns 22-28 of Table A-1 it is clear that industrialists were not coffee producers, and in those cases in which they appear exporting coffee, they rank only as small-medium exporters compared with the large exporters of the country. The exercise is more meaningful after 1930 when the international firms in coffee abandon exports from Colombia to the United States and Europe.

seguida, me dijo que una sociedad en Nueva York le ha abierto un credito por US\$75000 para que compre cafe y se lo mande con frecuencia" May 15. Archivo de Carmen Restrepo.

⁷⁹ W. Dean, *The Industrialization of Sao Paulo 1880-1945*, Austin & London, Institute of Latin American Studies, University, p.

Additional information on the importance of the different economic activities is given in Tables 1A and 2, based in a joint paper by the author ^{oo}. More than 3000 "registros de creación de empresas" were processed; only for Bogotá but one could argue that the situation should not be extremely different in other large colombian cities at the time. . The other important shortcoming of the exercise is that it does not keep track of additional investment in the same firm through time; only the *initial* investment when the firm was founded.

^{oo} 2. Payares and J.J.Echavarría, Análisis de la Creación de Diferentes "empresas" en Bogotá. 1892-1930, (mimeo), 1985.

TABLE 1A

NEW INVESTMENTS IN BOGOTA BY SECTOR. 1892-1933

(% unless otherwise specified) K1

	1892-1903	1904-08	1912-19	1920-23	1924-29	1930-33	1892-1933
PROCESSED FOOD	0.0	4.0	0.8	1.0	2.3	6.4	2.2
BEER AND BEVERAGES	0.5	7.0	1.4	0.2	0.6	1.0	2.7
BANK AND INSURANCE	0.3	2.3	2.5	40.5	3.0	0.1	11.3
MINING	27.4	0.3	1.1	0.2	2.7	17.0	4.3
WORKSHOPS AND FOUNDRIES	0.0	0.0	0.0	0.1	0.0	0.0	0.0
PRINTING	0.0	0.0	0.7	0.3	2.3	0.9	0.6
APPAREL AND SHOES	0.3	0.2	1.4	0.7	2.0	5.1	0.9
TOBACCO	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COFFEE	0.1	0.0	0.4	40.2	1.1	5.0	10.1
TRANSPORT	1.0	1.0	0.3	2.9	5.3	0.8	2.1
COMMERCE	44.8	5.4	28.6	3.4	18.6	8.3	14.5
AGRO-INDUSTRY	2.9	47.5	30.2	1.3	12.3	8.5	22.4
CEMENT AND CONSTRUCTION	0.0	1.3	0.1	0.0	5.2	0.0	1.3
MATCHES AND CIGARRETES	0.0	0.4	0.0	0.0	1.0	12.1	0.6
ELECTRICITY-GAS	0.0	0.7	8.3	0.1	0.1	0.0	1.4
SOAP-CANDLES	0.2	0.1	0.4	0.6	0.7	0.0	0.4
DRUGSTORES	0.1	8.7	1.2	0.3	0.6	2.1	3.2
LAND AND CONSTRUCTION	0.0	1.9	0.7	1.6	35.9	20.2	7.6
HILLS	0.0	1.9	1.7	0.9	1.0	0.0	1.2
HOTELS AND SERVICES	2.4	3.7	0.4	0.3	2.1	2.5	2.0
26	1.1	0.0	0.1	0.0	0.2	0.0	0.2
OIL	0.0	0.0	0.0	0.4	0.0	0.5	0.1
GLASS	0.0	0.0	0.0	0.1	0.1	0.0	0.0
29	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SUGAR	0.0	0.0	0.1	2.8	0.0	0.0	0.7
LIQUORS AND RENTS	0.0	0.9	4.7	0.0	0.1	0.9	0.9
FOREIGN COMMERCE	17.5	10.1	14.0	1.6	2.2	6.5	8.0
34	0.0	1.6	0.3	0.2	0.1	0.0	0.6
TEXTILES	0.0	0.0	0.0	0.1	0.3	1.4	0.1
OTHER INDUSTRIAL ACTIV.	0.0	0.0	0.3	0.1	0.4	0.0	0.1
OTHERS	1.3	0.3	0.2	0.1	0.0	0.7	0.3
TOTAL (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
INVESTMENT PER YEAR (1924-29=100)	29.40	245.62	56.53	240.35	100.00	26.99	73.26

Source: Payares and Echavarría (1984)

TABLE 2

NAME OF THE FIRM	CAPITAL IN \$	SECTOR	YEAR	NAME OF THE FIRM	CAPITAL IN \$	SECTOR	YEAR
I.1922-1903							
GUILLEMO TORRES Y CIA	12000000	12	1903	GUILLEMO TORRES Y CIA	12000000	12	1903
CIA EXPLOT. DE ESMERAL. OF LA MANCHA....	10000004	4	1903	CIA NACIONAL DE TRAFICO	11904000	11	1903
FRAN Y CIA	20000004	33	1903	RICARDO DEER Y CIA.	10400000	12	1903
QUINTERO ULPIANO Y CELSO N. QUINTERO	16000000	12	1903	CIA EXPLOT. DE ESMERAL. DE LA MANCHA....	10000004	4	1903
SABRAL Y CIA	9200000	33	1903	BANCO NUMERO UNO	8000000	3	1903
ESTIVEL Y CIA	8000000	25	1903	BOLSA DE BOGOTA	4000000	23	1903
	ERR			FRAN Y CIA	20000004	33	1903
PERILLA Y CIA	8000004	1	1903	GALVIS BENJUMER Y CIA	17200000	12	1903
ABRUJO Y ROA	8000000	33	1903	QUINTERO ULPIANO Y CELSO N. QUINTERO	1000000	12	1903
HERNANDEZ DE TORO Y CIA	8000000	12	1903	PELO PABLO SANCHEZ U Y CIA	1000000	11	1903
II.1904-1908							
CIA DEL VAPOR	34300015	13	1907	GUN CLUB	1.3E+08	25	1908
CIA DEL VAPOR	7840015	13	1907	KIPS Y MALDONADO	80000000	20	1908
RECA BLANCA	6144000	2	1906	PAEZ Y LOZANO	80000000	33	1908
GERERED VALENCIA Y CIA.	5410000	20	1904	CIA ELECTRIC Y BENEFICIO DEL CAFE	66450000	17	1908
ARELLA Y MONTOYA Y CIA.	5400005	19	1905	CIA DEL VAPOR	34300015	13	1907
CIA COOP. DE LECHE	4420004	1	1908	SINDICATO NUMERO DE CONDOTO	21500000	4	1907
FERRO FERRO Y CIA.	3000000	13	1904	PLAZA DE TOROS DE ESPANA CIRCO ESPANA	20470000	25	1906
INERCO CONTROL DE BOGOTA S.A.	2547200	3	1908	ORULLA Y CIA	9302451	12	1906
RUJA Y URIBE B	2322000	19	1904	JOVE Y CIA	8707004	12	1904
CHAS J. Y FREZ	2040005	22	1906	CIA. DEL VAPOR	7040015	13	1907
III.1912-1919							
UNRA S. E. HIJOS	9672000	13	1915	UNRA S. E. HIJOS	3.0E+08	13	1915
RUBIANO HERNANDES	2395902	12	1914	RUBIANO HERNANDES	1.2E+08	12	1914
CIA ELECTRIC HERNANDES VILLA	2232000	17	1915	RUBIANO Y VILLAVES	70810029	12	1915
SUAZ Y FERNANDEZ	2120000	13	1913	CIA GANDERA DE LA COSTA	65600000	13	1913
CRISTO Y ESCOLLON	1600000	33	1913	BAPTISTE Y CIA	55900005	12	1914
CRISTO Y ESCOLLON	1600000	33	1913	PIETRO RUBIO Y CIA	42600000	13	1914
GOERLEZ Y FORERO CIA	1600000	12	1913	M. NAVAS Y CIA	40000000	12	1912
M.J. VIDAL Y CIA	1500000	33	1913	S. GARCIALES Y CIA	30018400	12	1913
CIA ELEC. HERNANDES VILLA	1400000	17	1915	HOLLMAN Y CIA	3001779	12	1913
MOTORA & CIA	1194000	2	1913	CIA MINERA DE LA VETRA	24300000	4	1912
IV.1920-1923							
BANCO DE LA REPUBLICA	33200000	3	1923	BANCO DE LA REPUBLICA	33200000	3	1923
JUNGUITO HERNANDES	33200000	10	1923	JUNGUITO HERNANDES	33200000	10	1923
INGENIA CENTRAL SAN ANTONIO	2202000	31	1922	INGENIA CENTRAL SAN ANTONIO	2202000	31	1922
CIA COLOMBIANA DE TRANSPORTES	1520000	11	1921	CIA COLOMBIANA DE TRANSPORTES	1520000	11	1921
CIA DE TRANSPORTES TERRESTRES	663993.4	11	1923	CIA DE TRANSPORTES TERRESTRES	663993.4	11	1923
CIA DE CHOCOLATES SANTA FE	645400	1	1922	CIA DE CHOCOLATES SANTA FE	645400	1	1922
HOTEL FITZ	541900	25	1923	HOTEL FITZ	541900	25	1923
EMP. COLOMBIANA DE CURTIDOS	512200	7	1921	EMP. COLOMBIANA DE CURTIDOS	512200	7	1921
LEO G. KOPP Y CIA	504019.3	33	1923	LEO G. KOPP Y CIA	504019.3	33	1923
CIA MOLINERA DE LA VICTORIA	400400	22	1922	CIA MOLINERA DE LA VICTORIA	400400	22	1922
V.1924-1929							
CIA DE CONSTRUCCION	10612000	20	1929	CIA DE CONSTRUCCION	10612000	20	1929
CIA DE LA TRINIDAD TERRENOS BALDIOS	2942240	20	1927	CIA DE LA TRINIDAD TERRENOS BALDIOS	2942240	20	1927
CIA DE CEMENTOS PORTLAND DIAMANTE	2336500	15	1927	CIA DE CEMENTOS PORTLAND DIAMANTE	2336500	15	1927
CIA CIBIANA DE RUTAS AEREAS	1895000	11	1929	CIA CIBIANA DE RUTAS AEREAS	1895000	11	1929
ANDRES FORBIO HERNANDES	1629300	12	1924	ANDRES FORBIO HERNANDES	1629300	12	1924
URBANIZACIONES Y CONSTRUCCIONES BOGOTA	1509458	20	1928	URBANIZACIONES Y CONSTRUCCIONES BOGOTA	1509458	20	1928
CANACHO ROLDAN Y CIA	1500000	12	1928	CANACHO ROLDAN Y CIA	1500000	12	1928
CIA FRUTERA COLOMBIANA	1465000	13	1926	CIA FRUTERA COLOMBIANA	1465000	13	1926
ECHEVERY HERNANDES Y CIA	1200000	12	1928	ECHEVERY HERNANDES Y CIA	1200000	12	1928
CIA CIBIANA DE INTIGRACION Y COLONIZACION	1104000	20	1927	CIA CIBIANA DE INTIGRACION Y COLONIZACION	1104000	20	1927
VI.1930-1933							
SOC. URBANIZADORA DE LAS MERCEDES	1169901	20	1930	SOC. URBANIZADORA DE LAS MERCEDES	1169901	20	1930
CIA FOSFORERA CIBINA S. R.	903100	16	1933	CIA FOSFORERA CIBINA S. R.	903100	16	1933
ANIBAL Y ADOLFO ANGEL EXP. DEL CAFE	463330	10	1930	ANIBAL Y ADOLFO ANGEL EXP. DEL CAFE	463330	10	1930
URBANIZACIONES LA NGOLENA ESPINOSA PONCE	426334.5	20	1933	URBANIZACIONES LA NGOLENA ESPINOSA PONCE	426333.5	20	1933
FACCINI Y GARCIA	223200	1	1932	FACCINI Y GARCIA	223200	1	1932
JUAN MEDINA R. Y CIA MOLINO	213200	1	1931	JUAN MEDINA R. Y CIA MOLINO	213200	1	1931
FOA DE EMPRESES CUNDINAMARCA	213200	7	1931	FOA DE EMPRESES CUNDINAMARCA	213200	7	1931

Source: Payares and Echeverria, 1982.

Large investment "booms" took place in 1904-08 and 1920-23, the depression of 1930-33 hit economic activity very hard and new investments were at its lowest point ever. The last column of the Table shows that commerce -both foreign and domestic⁸¹ was, by far, the most important activity of the period together with agro-industry. Bank and insurance represented 11% of total new investment in 1892-1933 followed by coffee (10%) and land and construction (8%). This gives a clear picture of the type of economy we were dealing with; agriculture still represented more than 70% of total national production, but urban investment took place mostly in urban activities. Coffee was much less important than many other activities, and just because the very large investment in coffee by "Junguito Hermanos" in 1920-23⁸². The participation of coffee in total new investment was systematically less than 5% in the different sub-periods considered. The relative weight of "modern" industry in the period is negligible looking at the percentages for processed food, beer and beverages, matches and cigarretes, soap-candles, and textiles is negligible.

⁸¹ The information does not really allow us to differentiate as carefully as required domestic from long distance merchants. They should be considered together until we have better information.

⁸² See Table 2. Period IV. 1920-23

Considering sub-periods again, it is striking to observe the large unstability of the different activities. Commerce, for example explains 61% of total new investments in 1892-1903 and 5% in 1920-23. This is, no doubt, due to the characteristics of the variable analyzed, but also to the large unstability of the colombian economy of the period. And the period 1903-1933 was more stable than the second part of the XIX century.

Table 2 presents the 10 largest "business" created in different sub-periods. On the whole they tend to confirm what we found before on the different weight for the sectors⁸³. But we can also look more carefully now the size of "modern" industry in that time and, in general, we can say that it was small when compared with other business. Only one firm among the ten largest in 1904-08 (beer: Rosa Blanca); 2 firms in 1920-23 (Food: Cia. de Chocolates Santa Fe, and Leather: Empresa Colombiana de Curtidos); 1 firm in 1924-29 (Cement: Cia. de Cementos Portland Diamante); and 1 firm in 1930-33 (Matches: Cia. Fosforera Colombiana S.A). Industrial Firms were small in general terms.

3. The Antioqueños. How ^{different} Dynamic?

⁸³ Sectors considered in the table:

- 1: Food
- 2: Beer and Beverages
- 3 and 23: Banking and finances
- 4: Mining
- 7: Workshops (leather, furniture, bags, etc)
- 10: Coffee (includes trilla)
- 11: Transport
- 12 and 33: Commerce
- 13: Agriculture and Natural Activities based on national resources
- 15: Cement
- 16: Matches
- 17: Electricity and Public Services
- 20: Business related with land (construction, urbanization, etc)
- 22: Mills
- 25: Hotels and Services in General

We obtained 47 "hijuelas" (27 from people in Bogota, 20 from people in Medellin). Nothing guarantees that the sample is unbiased in one or other direction, but we just collected all the information available. Basically, that is the information available in *Notarias* in Bogota and Medellin (also in Archivo Historico in Medellin). What does the analysis of Hijuelas shows?. The results are indicated in Tables 3

The first part of Table 3 shows total assets in different activities for people in Bogota and in Medellin. The second part shows the importance (participation) of that type of investment in total assets for that person. The Table brings the mean for each variable, the coefficient of variation, and Wilk's Lambda Coefficient which indicates if the values for Bogota and Medellin are significantly different⁸⁴

The main results are:

Rich people in Medellin were much richer than those in Bogota. The average "Total" is almost double in Medellin; the coefficient of variation is also higher, indicating much more dispersion for people in Medellin.

⁸⁴ A low level of significance (high F) means that the two means are significantly different.

TABLE 3

ANALYSIS OF TESTAMENTS - "Hijualas".

	I. ABSOLUTE VALUES. \$ of 1948 MEAN			COEF. OF VARIATION			WILK'S LAMBDA	F	SIGNIF. LEVEL
	Medellin	Bogota	Total	Medellin	Bogota	Total			
Total	1338.0	719.1	982.5	0.89	0.51	0.67	0.96	2.06	0.16
Industry	388.6	171.9	226.6	0.88	0.37	0.53	0.98	1.84	0.31
Bank	88.9	33.9	53.9	0.42	0.48	0.38	0.97	1.38	0.26
Liquid Assets	214.2	46.3	117.7	0.56	0.71	0.45	0.98	5.18	0.03
Mining	6.1	8.1	2.6	0.42	0.19	0.27	0.91	4.62	0.04
Transport	21.8	48.9	32.7	0.46	0.28	0.21	1.08	0.17	0.68
Land -Urban-	483.8	263.8	368.4	0.76	0.44	0.57	0.98	1.13	0.29
Land -Rural-	159.1	56.2	188.8	0.79	0.48	0.61	0.98	4.86	0.03
Cattle	36.2	4.3	17.9	0.44	0.24	0.31	0.92	3.83	0.06
Other	27.6	73.8	53.7	0.77	0.51	0.48	0.96	1.98	0.17
Year of Death	1931	1944	1939	112.61	128.49	113.94	0.87	6.93	0.01
II. Participation %									
Industry	23.0	14.2	17.9	0.95	0.78	0.85	0.96	2.05	0.16
Bank	4.5	2.8	3.5	0.86	0.44	0.59	0.98	0.84	0.36
Liquid Assets	18.8	12.8	14.9	0.84	0.71	0.76	0.97	1.48	0.24
Mining	8.3	8.8	8.2	0.64	0.19	0.41	0.87	6.51	0.01
Transport	1.1	1.2	1.1	0.48	0.32	0.35	1.08	0.88	0.36
Land -Urban-	34.7	36.8	35.9	1.46	1.32	1.38	1.08	0.88	0.78
Land -Rural-	12.9	11.7	12.2	0.71	0.62	0.66	1.08	0.85	0.83
Cattle	1.6	1.1	1.3	0.59	0.38	0.48	0.99	0.23	0.63
Other	4.6	14.8	18.5	0.49	0.62	0.54			

Source. Different "Notarias" in Bogota and Medellin; Archivo Historico de Antioquia
47 Hijualas. 27 in Bogota and 20 in Medellin

It is also true, and this is another important conclusion, that Antioquenos invested a greater percentage of their fortunes in industry (23% vs 14%), but not, as Twinam claims, because they showed less preference for land. The percentage of their fortunes invested in land is really impressive in both cases without important differences among them.

The most important conclusions of our analysis in this particular area show that the antioquenos were more dynamic mainly because they were much richer. But we also show that industry was always a minor activity in relation with the much profitable business of selling and buying land. It was not rural land which was important but urban land. This is an area in which much more research has to be done.

APPENDIX . SOURCES OF INFORMATION

Some corrections and "depurations" still have to be done, but on the main it presents the correct information for our purposes.

Our sample includes 534 "cases" and has the following variables (see Table

-(1)-(4): K2529-k4045. This is the amount of money owned by the person in industry for 4 different periods: 1925-29, 1930-34, 1935-39 and 1940-45. It was calculated from two combined sources. On one hand, the Actas de Asambleas de Accionistas, where it is possible to obtain the list of the number of shares owned by each person. It is always possible that an important shareholder do not go into the Asamble, but it was observed than in almost all the cases when the important shareholder did not go, he was explicitly represented by somebody else, and that was written in the Actas. The number of shares was multiplied by the Value of Total Assets as it appeared in the Assets and Liabilities statement of the firm. The figures, as they appear were not deflated and, in that sense, there is not much sense in comparing them for the four periods (/though inflation rates can not be compared with today's rates in the colombian economy).

-(6): Fk it is still not well processed and corresponds to the number of firms in which the capitalist has a significative amount of shares. It could give us a rough idea of industrial diversification among sectors.

-(7)-(13): SHA TO SHG. Sector in which the shareholder invest. The meaning of each number is given in Appendix B.

-(14)-(16). CSA, CSB AND CO. CSA and CSB are the city(s) in which the firms were located. A capitalist which investment was in Bavaria and in Fabricato had number 1 for CSA and 2 for CSB. Number 1 means Medellin, number 2 means bogota.

The case of CO is rather different and it represents the city to which the capitalist should be associated. Most of the time it is the city in which he was born. In addition to Medellin (1) and Bogota(2), number (3) was added for "others", most of the time shareholders for Barranquilla or Cali.

-(17)-(20). BMA-BMD. They indicate if the person considered was in the Board of Managers of one of the firms, and it also indicates the Sector in which the firm was located.

-(21)-(23): MT, MK, MY. Merchant Type, Capital and Year in which the business was founded. The information of MT corresponds to 1: If he was associated to foreign trade; 2. If he was associated with domestic trade; 3. No trade. However, the difference between 1 and 2 is not as neat as desired because the information was obtained from "Directorios Comerciales" (1894, 1903, 1908, 1916, 1922, 1928, 1932 were some of the Directories consulted), and in some case it just says "merchant". Also, the information on MK and MY was obtained only for some of the merchants considered.

-(22-28). Correspond to data on coffee production and exports. Coffee Production was obtained from Monsalve(19..), and on Coffee Exports from internal documents of the Federacion Nacional de Cafeteros. COFQ AND COFX are 1 when the coffee producer or exported are small in the respective list, 2 if they are large (in fact, there was none corresponding to that category), and 3 if he does not produce or export.

-(29)-(34). Corresponds to information collected by Zoilo Payares and Associates and analyzed in a joint paper in 1982 (Payares and Echavarria, 1982) on the creation or re-creation of new business in Bogota. More than 3 firms were analyzed. The variables of the Appendix indicate the sector of the firm in which the person was a shareholder (or an associate).

(35)-(39). It brings the ranking of that particular person among the 534 considered when the capital of all activities is added (first it was deflated to bring it to \$ of 1940). The main problem with the information is that until 1917 there are two kinds of money circulating. Pesos oro and pesos. Though most of the time the Registros Notariales specify very clearly which kind of money is considered, we decided to play with various alternatives: first, to assume that if it was not specified it meant that it was Pesos Oro; second, to assume that if it was not specified, it meant just Pesos.

-(43)-(46). EGR.. It indicates if the person considered was or not a member of the <Industria Nacional>, The Federation of Coffee Growers, or SAC. It has to be completed to include FENALCO and ANDI.

-(47)-(50). It indicates if the person was in the Parliament or Senate (1), if he was Minister (2), Governor (3) or None of them (4). Information was obtained from Diario Oficial.

-(51)-(61). Is the information collected from "Hijuelas" and differentiates: total, industry, liquid assets, minning, transport, Urban or Rural land, Cattle and Others. It is also indicated the year in which the person died.

Moreover, we will include the results of interviews with more than 30 persons belonging to the families we were interested in.

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VARIABLES USED IN THE ANALYSIS OF MANAGERS AND ENTREPRENEURS

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
NUM	LAST NAME	NAME	K2529	K3034	K3539	K4045	K4549	FE	SHA	SHB	SHC	SHD	SHE	SHF	SHG	CSA	CSB	CO
1	ABONDANO	CARLOS																2
2	ABONDANO	JOAQUIN																2
3	ACONCHA	JOSEFINA																
4	ACOSTA	CARLOS																2
5	ACOSTA	CUSTODIO																2
6	AGUDELO	FEDERICO																2
7	ALFARO	AQUILES																2
8	ALMANZAR	RAFAEL																
9	ALVAREZ	ANTONIO																2
10	ANCIZAR	JORGE																2
11	ANDRADE	JOSE																2
12	ANDRADE	ARTURO																2
13	ANGEL	ALEJANDRO	97542	894290	1409470				2	8	11	35	1	15	3	2	1	1
14	ANGEL	CIA INDUSTRIAL Y AGRICOLA					965254		8	2	1					1		1
15	ANGEL	GABRIEL		205970	90806				2	1	35					1	2	1
16	ANGEL	MARIA (DE)																1
17	ANGEL	SOFIA																1
18	ANGEL	ALMACENES ANCLA																1
19	ANGEL	APARICIO																1
20	ARANGO	ALBERTO																1
21	ARANGO	CLAUDINO		93375	148028		190558		15	8								1
22	ARANGO	FERNANDO																1
23	ARANGO	FRANCISCO	21685	40744	45356				2							2		1
24	ARANGO	HELENA																1
25	ARANGO	JORGE																1
26	ARANGO	RAFAEL																1
27	ARBELAEZ	RICARDO																1
28	ARBOLEDA	JORGE																2
29	ARBOUIN	LESLIE C.																
30	ARCHILA	HERNANDO																2
31	ARCINIEGAS	ISMAEL																2
32	ARIAS	EDUARDO																
33	ARTURO	CARLOS																2
34	AYA	MAXIMILIANO																2
35	BALCAZAR	FEDERICO																2
36	BERNAL	JOSE																1
37	BERNAL	RAMON																1
38	BOTERO	VALERIO																1
39	BOTERO	Y CIA		74404					3	8						1		1
40	BOTERO	JULIO																1
41	BOTERO	RICARDO																1
42	BRAVO	ABRAHAM																1
43	BRAVO	POMPILIO																1
44	BRAVO	VICENTE																1
45	BRECONS	OLEGARIO																
46	BRITO	ANIBAL																2
47	CAICEDO	ARISTIDES																
48	CAJIAO	FRANCISCO																2
49	CALA	SAMUEL																2
50	CALDERON	EDUARDO																2
51	CALDERON	DOLORES																2
52	CALDERON	LUIS																2
53	CAMACHO	GABRIEL																2
54	CAMACHO	JOAQUIN																2
55	CAMACHO	JORGE																2
56	CAMACHO	JOSE																2
57	CAMACHO	NEMESIO																2
58	CAMACHO	SALVADOR																2
59	CAMARGO	AGUSTIN																2
60	CAMARGO	NICOLAS																2

[illegible]

127	ESGUERRA	RAFAEL									
128	ESPINOSA	EUGENIO									
129	ESTRADA	PEDRO	75714	56366			35	3	8	1	
130	FACCINI	EMILIA									
131	FACCINI	MARIA									
132	FAJARDO	COSME									
133	FAJARDO	ESTANISLAO									
134	FERNANDEZ	FRANCISCO									
135	FLOREZ	FRANCISCO									
136	FONSECA	JOSE									
137	FORERO	JESUS									
138	FORERO	MANUEL									
139	FRAYHOS	VINCULAS									
140	GAITAN	FRANCISCO									
141	GAMBOA	ROBERTO									
142	GARCES	MARIO									
143	GARCIA	JORGE									
144	GARCIA	LAUREANO									
145	GARCIA	RAFAEL									
146	GARCIA	IGNACIO									
147	GARCIA	MANUEL									
148	GART	EDUARDO	17602				1			1	
149	GARZON	TEODOSIO									
150	GAVIRIA	JUAN									
151	GAVIRIA	LEONARDA	23297				3			1	
152	GAYROND	ERNESTO									
153	GAYROND	MAURICIO									
154	GOMEZ	ANTONIO									
155	GOMEZ	ITONIO									
156	GOMEZ	JOSE	57061				8			1	
157	GOMEZ	NICOLAS	22657	52752			15			2	
158	GONZALES	BERNABE									
159	GONZALES	GUILLERMO	4965	47174			15			2	
160	GONZALES	LUIS									
161	GONZALES	PIO QUINTO									
162	GONZALES	TOMAS									
163	GONZALEZ	BERNARDO									
164	GONZALEZ	JOSE									
165	GUTIERREZ	AGUSTIN									
166	GUTIERREZ	CARLOS									
167	GUTIERREZ	EDUARDO									
168	GUTIERREZ	EMILIO									
169	GUTIERREZ	EUGENIO									
170	GUTT	SALOMON									
171	GUZMAN	RUFINO									
172	HERNANDEZ	ANTONIO	45610				3	8			
173	HERNANDEZ	VICTOR									
174	HERRERA	ERNESTO									
175	HERRERA	LUIS									
176	HERRERA	LUIS									
177	HERRERA	JUAN									
178	HERRERA	RICARDO									
179	HOLGUIN	HERNANDO									
180	HOLGUIN	JAIME									
181	HOLGUIN	JORGE									
182	HOLGUIN	PABLO									
183	HOLGUIN	RICARDO									
184	HOSIE	STUART	8366				15			2	
185	HURTADO	JUAN									
186	HURTADO	MANUEL									
187	HURTADO	SIMON									
188	ISAZA	GUILLERMO		52937	1290590						

Nº	APELLIDOS Y NOMBRES	CÓDIGO	FECHA DE NACIMIENTO	SEXO	ESTADO CIVIL	GRUPO SANGÜÍNEO	RELIGIÓN	OTROS DATOS
193	JARAMILLO IGNACIO	494118	35	M	SOLTERO	O	R	
194	JARAMILLO ISABEL (VDA DE)	54357	1	F	VUEVA	O	R	
195	JARAMILLO PEDRO			M	SOLTERO	O	R	
196	JARAMILLO RICARDO			M	SOLTERO	O	R	
197	KIPS EUGENIO			M	SOLTERO	O	R	
198	KOHN GUILLERMO	1103640		M	SOLTERO	O	R	
199	KOHN RODOLFO	1.0E+15		M	SOLTERO	O	R	
200	KOPP GUILLERMO	47834	2	M	SOLTERO	O	R	
201	KOPP OLGA (DE)	1426600		F	SOLTERA	O	R	
202	KOPP LEO	29459	20	M	SOLTERO	O	R	15313
203	KOPPEL LEON A			M	SOLTERO	O	R	
204	KOPPEL SAM	1262740	2	M	SOLTERO	O	R	
205	KRAUSS ANTON	56642	68396	M	SOLTERO	O	R	
206	LARA LEONIDAS	699561	2	M	SOLTERO	O	R	
207	LASERNA EMILIANO			M	SOLTERO	O	R	
208	LASERNA FRANCISCO			M	SOLTERO	O	R	
209	LATIEF JOSE	81242	265492	M	SOLTERO	O	R	929998
210	LATORRE CARLOS			M	SOLTERO	O	R	
211	LEAL FORTUNATO			M	SOLTERO	O	R	
212	LEIVA ROBERTO			M	SOLTERO	O	R	
213	LEIVA ROBERTO			M	SOLTERO	O	R	
214	LIEVANO NICOLAS			M	SOLTERO	O	R	
215	LLANO GUILLERMO			M	SOLTERO	O	R	
216	LLOREDÁ ALVARO	66636	15	M	SOLTERO	O	R	
217	LONDONO ANA			F	SOLTERA	O	R	
218	LONDONO EDUARDO			M	SOLTERO	O	R	
219	LONDONO EDUARDO			M	SOLTERO	O	R	
220	LONDONO JOSE	108713		M	SOLTERO	O	R	
221	LOPEZ ALFÓNSO			M	SOLTERO	O	R	
222	LOPEZ JESUS	37647		M	SOLTERO	O	R	
223	LOPEZ MIGUEL			M	SOLTERO	O	R	
224	LOPEZ PEDRO			M	SOLTERO	O	R	
225	LORGOCHA JUAN			M	SOLTERO	O	R	
226	LOZANO CARLOS			M	SOLTERO	O	R	
227	LURS HANS	22421	1	M	SOLTERO	O	R	35
228	MACIAS MIGUEL			M	SOLTERO	O	R	
229	MACIAS TEODICELDO			M	SOLTERO	O	R	
230	MACKENZIE MAURICIO			M	SOLTERO	O	R	
231	MADERO ENRIQUE			M	SOLTERO	O	R	
232	MAGNER WILLIAM	0	28588	M	SOLTERO	O	R	15
233	MALDONADO PEDRO			M	SOLTERO	O	R	1
234	MARANON EL	264872	2	M	SOLTERO	O	R	
235	MARINO ENRIQUE			M	SOLTERO	O	R	
236	MARINO JORGE			M	SOLTERO	O	R	
237	MARINO PEDRO			M	SOLTERO	O	R	
238	MARKEN MILTON F			M	SOLTERO	O	R	
239	MARULANDA ROBERTO			M	SOLTERO	O	R	
240	MATALLANA JOSE			M	SOLTERO	O	R	
241	MATEO JOSE			M	SOLTERO	O	R	
242	MATIZ JULIO			M	SOLTERO	O	R	
243	MAYNHAM HAROLD	10213	87760	M	SOLTERO	O	R	94921
244	MCDONALD RJ	85156	1	M	SOLTERO	O	R	35
245	MEDINA GERARDINO			M	SOLTERO	O	R	
246	MEDINA JOSE			M	SOLTERO	O	R	
247	MEDINA JUAN			M	SOLTERO	O	R	
248	MEDINA PEDRO			M	SOLTERO	O	R	
249	MEDRANO IGNACIO			M	SOLTERO	O	R	
250	MEJIA ALBERTO			M	SOLTERO	O	R	
251	MEJIA ALBERTO	76580		M	SOLTERO	O	R	35
252	MEJIA ALVARO	341619		M	SOLTERO	O	R	35
253	MEJIA AMALIA	6643		F	SOLTERA	O	R	35
254	MEJIA BERNARDO	176739		M	SOLTERO	O	R	35
255	MEJIA CARLOS	15743	41286	M	SOLTERO	O	R	35
256	MEJIA CLIMACO			M	SOLTERO	O	R	
257	MEJIA CLIMACO							

259 MEJIA	GABRIELA	2553			35					1	
260 MEJIA	INES	2553			35					1	
261 MEJIA	JORGE				775972	35				1	
262 MEJIA	LAZARO	86655	148376	135810		35	16			1	
263 MEJIA	LUIS	110277	339351			35	2	3		1	
264 MEJIA	MAGDALENA	2553				35				1	
265 MEJIA	MANUEL										2
266 MEJIA	MANUEL				2370350	35				1	
267 MEJIA	MANUELA	2553				35				1	
268 MEJIA	MARGARITA	6648				35				1	
269 MEJIA	SANTIAGO				1881030	35				1	
270 MELQUIZO	JESUS										
271 MERIZALDE	DANIEL				46046	15				2	
272 MESA	FRANCISCO	6605				35				1	
273 MESA	RAFAEL										1
274 MICHELSEN	CARLOS										2
275 MICHELSEN	ROBERTO				94224	8	3			2	1
276 MICHONIK	JORGE										2
277 MOLINA	JUAN				866191	35				1	
278 MOLINA	Y CIA			10000		1	35			1	
279 MONROY	DANIEL										2
280 MONTOYA	ENRIQUE		20000	5980		35				1	
281 MONTOYA	JUSTO										2
282 MORA	ABEL										1
283 MORA	BERNARDU										1
284 MORA	HROS.	600242	952408		2619470	15	2	3	35	1	2
285 MORA	MARCO										1
286 MORA	OTROS		37400		128257	35				1	
287 MORALES	EMILIANO										2
288 MORALES	JESUS				45157	1	2			2	
289 MORALES	LUIS										2
290 MORALES	ROBERTO										2
291 MORENO	ABRAHAM										1
292 MORENO	BENJAMIN		17012			2	35	15		2	1
293 MORENO	ERNESTO				119743	35	1			1	
294 MORENO	FRANCISCO	20797	79107		1195130	15	35	2	3	16	1
295 MORENO	JUAN										
296 MORENO	MANUEL										
297 MORENO	PEREZ Y CIA	15743	41286			2	1			2	1
298 MUNOZ	ERNESTO										
299 MUNOZ	RAMON				192211	3	15			1	2
300 MURILLO	EDUARDO										2
301 MURILLO	EDUARDO										2
302 MURILLO	EMILIA										2
303 NIETO	AGUSTIN										2
304 NIETO	LUIS										2
305 NOGUERA	LUIS										2
306 NOGUERA	VICENTE										2
307 ORJUELA	LUIS										2
308 ORTIZ	JORGE	11262				35				1	
309 OSPINA	JORGE										2
310 OSPINA	MANUEL										1
311 OSPINA	MARIANO										1
312 OSPINA	SANTIAGO										1
313 PALACIOS	EUGENIO										2
314 PARDO	FELIX										2
315 PAREDES	CARLOS										2
316 PARRA	PABLO										

325	PEREZ	ALBERTO	47725			2			2	1
326	PEREZ	JORGE								1
327	PEREZ	JUAN								2
328	PEREZ	RICARDO	20639		559021	15			2	1
329	PIEDRAHITA	RAFAEL	216585	265687	332048	15	2	35	1	2
330	PINEDA	LEONARDO								2
331	PINZON	CELIO								2
332	PIZANO	BERNARDO			297800	1	35		2	2
333	PLATA	BERNARDO								2
334	PLATA	LUIS	6206	27177		15			2	2
335	POMBO	JORGE								2
336	POSADA	BERNARDO								2
337	POSADA	ERNESTO								2
338	POSADA	GABRIEL	40364			35	3	2	1	1
339	POSADA	JESUS								1
340	POSADA	LUIS	61720			35				1
341	PRADILLA	M.G		56642		15			2	2
342	PULIDO	ISAAC								2
343	QUINTANA	BELISARIO								2
344	QUINTANA	FRANCISCO								2
345	QUINTERO	MAYORIO								2
346	RAMIREZ	EZEQUIEL								2
347	RAMIREZ	JORGE								2
348	RAMIREZ	JORGE								2
349	RAMIREZ	JULIO			41055	15			2	2
350	REINHART	KLING	11328			15			2	2
351	RESTREPO1	ANA		34305	53540	3	35	2	1	1
352	RESTREPO1	ANTONIO		30000	77738	1	35		1	1
353	RESTREPO1	CAMILO								1
354	RESTREPO1	CARMEN			51620	1	2		1	1
355	RESTREPO1	EDUARDO			30648	2	35		1	1
356	RESTREPO1	ELISEO			10000	1	35		1	1
357	RESTREPO1	EMILIO	164643	184942	121766	35	2		1	1
358	RESTREPO1	ENRIQUE								1
359	RESTREPO1	ERNESTO	18617	110564		15			2	1
360	RESTREPO1	EUSEBIO		12862	41916	2	35		1	1
361	RESTREPO1	FEDERICO		81685	48261	2	8		2	1
362	RESTREPO1	FERNANDO								1
363	RESTREPO1	GABRIEL	65000	52000		35			1	1
364	RESTREPO1	GONZALO			15205	1	35		1	1
365	RESTREPO1	GUSTAVO								2
366	RESTREPO1	HIPOLITO	30000	33170	34720	35			1	1
367	RESTREPO1	INES			12605	1	35		1	1
368	RESTREPO1	JORGE			775922	1	35		1	1
369	RESTREPO1	JULIA	19382	26225		1			1	1
370	RESTREPO1	LAZARO	70159			2			1	1
371	RESTREPO1	LUCIANO			45229	3	8	35	1	1
372	RESTREPO1	LUIS	26881	31370		3	8	1	28	1
373	RESTREPO1	LUIS			683826	3	35	1	1	1
374	RESTREPO1	MANUEL								1
375	RESTREPO1	MANUEL								1
376	RESTREPO1	MARGARITA (DE)			20560	2	1	35	1	1
377	RESTREPO1	OSCAR			643319	1	35		1	1
378	RESTREPO1	PEPA			43387	1	2		1	1
379	RESTREPO1	RAMON	57317	111657	135995	35	2	1	1	1
380	RESTREPO1	RICARDO	27782	81874	112328	35	1		1	1
381	RESTREPO1	ROBERTO	23087			1			1	1
382	RESTREPO1	SOFIA			143054	3	35	2	1	1
383	RESTREPO2	DAVID								2
384	RESTREPO2	EUGENIA (DE)		328304	410388	1	15		2	2
385	RESTREPO2	H.S.CARLOS	9309	434194	752655	1501875	2	8	15	1
386	REYES	ANTONIO								2
387	REYES	JOSE								2
388	REYES	RAFAEL								2
389	RICHARD	MARIANA (DE)			1248670	1	2		2	2
390	ROBLES	ANTONIO	33719			35			1	1

[illegible]

[illegible]

523 VILLA	VICENTE	137847	41594		3	35		1	1
524 VILLA	VICENTE								1
525 VILLAR	LUIS								2
526 VILLAVECES	FRANCISCO								2
527 VILLEGAS	ALEJANDRO			13756	2	3	2	1	1
528 VILLEGAS	AQUILINO								
529 VILLEGAS	MERCEDES			13197	1	2		1	1
530 WILLIAMSON	LUIS	47174	47107			15		2	2
531 WILLS	EDUARDO								2
532 ZAFRANE	ADOLFO								2
533 ZAPATA	ADOLFO								2
534 ZUNIGA	MARIO								

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Sources and Methodology. See explanations in the main text.

VARIABLES USED IN THE ANALYSIS OF MANAGERS AND ENTREPRENEURS

		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(31)	(32)	(33)	(34)
NUM	LAST NAME	NAME	BMA	BMB	BMC	BMD	MT	MK	MY	COFQ	COFQ#	COFX	COFX#	COFXY	ZSA	ZSB	ZSC	ZSD
1	ABONDANO	CARLOS													22	37	10	
2	ABONDANO	JOAQUIN													22	10		
3	ACONCHA	JOSEFINA																
4	ACOSTA	CARLOS													7			
5	ACOSTA	CUSTODIO					1	4000	1926						33	18		
6	AGUDELO	FEDERICO													7			
7	ALFARO	AQUILES								1	200000				15			
8	ALMANZAR	RAFAEL	3															
9	ALVAREZ	ANTONIO								1	40000	1	2329	1944	2			
10	ANCIZAR	JORGE										1		1927	25	22		
11	ANDRADE	JOSE													12	7		
12	ANDRADE	ARTURO					2	5000	1932			1		1927	1	12		
13	ANGEL	ALEJANDRO	2									1		1927				
14	ANGEL	CIA INDUSTRIAL Y AGRICOLA																
15	ANGEL	GABRIEL	1	2	8	35												
16	ANGEL	MARIA (DE)																
17	ANGEL	SOFIA																
18	ANGEL	ALMACENES ANCLA																
19	ANGEL	APARICIO																
20	ARANGO	ALBERTO													1			
21	ARANGO	CLAUDINO					2		1931									
22	ARANGO	FERNANDO													1			
23	ARANGO	FRANCISCO					2		1916	1	155000				13			
24	ARANGO	HELENA																
25	ARANGO	JORGE													20			
26	ARANGO	RAFAEL																
27	ARBELAEZ	RICARDO													7			
28	ARBOLEDA	JORGE													13	1		
29	ARBOUIN	LESLIE C.																
30	ARCHILA	HERNANDO													15			
31	ARCINIEGAS	ISMAEL													6			
32	ARIAS	EDUARDO																
33	ARTURO	CARLOS													22			
34	AYA	MAXIMILIANO													32			
35	BALCAZAR	FEDERICO					2	50000	1912						12			
36	BERNAL	JOSE				35									20			
37	BERNAL	RAMON													2			
38	BOTERO	VALERIO													1			
39	BOTERO	Y CIA																
40	BOTERO	JULIO					2		1931									
41	BOTERO	RICARDO																
42	BRAVO	ABRAHAM					2	100000	1903						22	20	18	12
43	BRAVO	POMPILIO													20			
44	BRAVO	VICENTE													22			
45	BRECONS	OLEGARIO																
46	BRITO	ANIBAL													18			
47	CAICEDO	ARISTIDES																
48	CAJIAO	FRANCISCO								1	90000	1	512	1935	32	19		
49	CALA	SAMUEL					2	10000	1923						12			
50	CALDERON	EDUARDO													20			
51	CALDERON	DOLORES													18			
52	CALDERON	LUIS					2	20000	1901						20			
53	CAMACHO	GABRIEL					2		1928						12			
54	CAMACHO	JOAQUIN													12			
55	CAMACHO	JORGE													12			
56	CAMACHO	JOSE													33			
57	CAMACHO	NEMESIO													20	1	1	13
58	CAMACHO	SALVADOR													12			
59	CAMARGO	AGUSTIN					2	10000	1919						12	12		

60 CAMARGO	NICOLAS				13	31	20
61 CARRIZOSA	BERNARDO				1		
62 CASTANEDA	LUIS				7		
63 CASTELLANOS	NARCISO				7		
64 CASTILLA	ROBERTO	2	1109	1924	12	6	
65 CHILD	JORGE	2		1907	3	13	12
66 CHOZNEK	ABRAHAM				7		
67 CIA	COLSEGUROS						
68 CIA	COMERCIAL Y AGRICOLA						
69 CIA	HANDEL						
70 CIA	HOTEL GRANADA						
71 CIA	INDUSTRIAL Y FINANCIERA						
72 CIA	INGENIO MANUELITA						
73 CIA	INVERSIONES						
74 CIA	INVERSIONES E INDUSTRIA SA						
75 CIA	MUNICIPIO DE MEDELLIN						
76 CIA	MUTUALIDAD NACIONAL						
77 CIA	NACIONAL DE INVERSIONES						
78 CIA	NAVIERA COLOMBIANA						
79 CIA	SACO						
80 CIA	SCADTA						
81 CIA	SIDERURGICA DE MEDELLIN						
82 CIA	UNION DE INVERSIIONES						
83 CIA	VIDRIERA FENICIA						
84 CIA	COLSEGUROS						
85 CIA	SURAMERICANA						
86 CLAVIJO	JULIAN					20	
87 COCK	BERNARDO		35				
88 COCK	CARLOS		35			20	
89 CONTRERAS	EDUARDO						
90 CORDOBA	GONZALO						
91 CORDOBEZ	VICTOR					2	
92 CORREA	ISMAEL				1	500	1933
93 CORREA	DRIGELIO						
94 CORTEZ	MARLENE H						
95 CRANE	CARLOS				1	300000	
96 CUERVO	LUIS				1	400000	
97 DAVILA	CARLOS		2	15		13	20 17
98 DE BEDOUT	FELIX						
99 DE CASTRO	DIEGO		2	3334	1916	13	
100 DE CASTRO	FEDERICO						
101 DE NIER	JOAQUIN					1	
102 DE SANTAMARIA	IGNACIO					1	
103 DE VALENZUELA	ULPIANO						
104 DEL CASTILLO	JUAN					7	
105 DEL CASTILLO	MANUEL						
106 DIAZ	EFREN						
107 DONOVAN	ELIAS						
108 DUQUE	RAFAEL				1	1927	1 36 26 6
109 ECHAVARRIA	ALBERTO		3	35	8		
110 ECHAVARRIA	ALEJANDRO		3	35		2	1916
111 ECHAVARRIA	ANGELA (DE)						35
112 ECHAVARRIA	CARLOS						
113 ECHAVARRIA	DIEGO						
114 ECHAVARRIA	EDUARDO						
115 ECHAVARRIA	GABRIEL						
116 ECHAVARRIA	JAIME		2	35	8	1	385 1933
117 ECHAVARRIA	JORGE			35			
118 ECHAVARRIA	LUCIA						
119 ECHAVARRIA	PABLO			35			
120 ECHAVARRIA	RUDECINDO			35		2	1894
121 ECHAVARRIA	ALEJANDRO						
122 EMILIANI	NICOLAS						
123 ESCALLON	CARLOS				1	12000	1908
124 ESCOBAR	JULIO					33	7 12
125 ESCOBAR	Y CIA					16	6

126 ESCOBAR	BENJAMIN								33
127 ESQUERRA	RAFAEL								2 12
128 ESPINOSA	EUGENIO	1	2000 1925						
129 ESTRADA	PEDRO								1
130 FACCINI	EMILIA								1
131 FACCINI	MARIA								20
132 FAJARDO	COSME				1	160000			20
133 FAJARDO	ESTANISLAO								35 13
134 FERNANDEZ	FRANCISCO								7 36 13 33
135 FLOREZ	FRANCISCO								
136 FONSECA	JOSE								15 22
137 FORERO	JESUS								7
138 FORERO	MANUEL								
139 FRAYHOS	VINCULAS				1	52000			
140 GAITAN	FRANCISCO								13 6 25 6
141 GAMBOA	ROBERTO	2	1912						20 18 13
142 GARCES	MARIO								18
143 GARCIA	JORGE								20 6 22
144 GARCIA	LAUREANO								2 13
145 GARCIA	RAFAEL								7
146 GARCIA	IGNACIO								11 13 6 13
147 GARCIA	MANUEL								
148 GART	EDUARDO								7
149 GARZON	TEODOSIO								32 12
150 GAVIRIA	JUAN	2	20000 1925		1	80000	1	1927	
151 GAVIRIA	LEONARDA								1
152 GAYROND	ERNESTO								1
153 GAYROND	MAURICIO								7 6
154 GOMEZ	ANTONIO	2							
155 GOMEZ	ANTONIO								18 12
156 GOMEZ	JOSE								33
157 GOMEZ	NICOLAS								33
158 GONZALES	BERNABE								3 17 27 13
159 GONZALES	GUILLERMO								19 20
160 GONZALES	LUIS								7
161 GONZALES	PIO QUINTO								7
162 GONZALES	TOMAS								20 17
163 GONZALEZ	BERNARDO					1	60000		12 33 37
164 GONZALEZ	JOSE				2	833854 1924			
165 GUTIERREZ	AGUSTIN								18
166 GUTIERREZ	CARLOS	35 15 8							18
167 GUTIERREZ	EDUARDO				2	6000 1922			18
168 GUTIERREZ	EMILIO						1	250000	7
169 GUTIERREZ	EUGENIO								20 32 12
170 GUTT	SALOMON				2	7000 1922			36
171 GUZMAN	RUFINO								
172 HERNANDEZ	ANTONIO				2				7
173 HERNANDEZ	VICTOR								6 1
174 HERRERA	ERNESTO								1
175 HERRERA	LUIS								1
176 HERRERA	LUIS								22 25
177 HERRERA	JUAN								12 1
178 HERRERA	RICARDO				2	1907			
179 HOLGUIN	HERNANDO								3
180 HOLGUIN	JAI ME								25 13 7
181 HOLGUIN	JORGE	3				1	1390000	1	20 15
182 HOLGUIN	PABLO								11 13 25 17
183 HOLGUIN	RICARDO							1	
184 HOSIE	STUART								22
185 HURTADO	JUAN					1	65000		12
186 HURTADO	MANUEL				2	10000 1903			25
187 HURTADO	SIMON								
188 ISAZA	GUILLERMO				1	35			1
189 ISAZA	EMILIANO								35 22 18
190 IZQUIERDO	ANTONIO	3							17
191 JARAMILLO									

192 JARAMILLO	FRANCISCO		1	1927		3	20	33
193 JARAMILLO	IGNACIO							
194 JARAMILLO	ISABEL (VDA DE)							
195 JARAMILLO	PEDRO		1	400 1927		3	17	
196 JARAMILLO	RICARDO		1	77000		1	20	
197 KIPS	EUGENIO					20		
198 KOHN	GUILLERMO					36	26	
199 KOHN	RODOLFO							
200 KOPP	GUILLERMO					33		
201 KOPP	OLGA (DE)							
202 KOPP	LEO		1	1927		33	4	
203 KOPPEL	LEON A							
204 KOPPEL	SAM					3		
205 KRAUSS	ANTON							
206 LARA	LEONIDAS					11		
207 LASERNA	EMILIANO	1	2800	1905		17	16	13 33
208 LASERNA	FRANCISCO	1		1905		16	17	13 33
209 LATIEF	JOSE					33		
210 LATORRE	CARLOS					22		
211 LEAL	FORTUNATO					6		
212 LEIVA	ROBERTO					22		
213 LEIVA	ROBERTO							
214 LIEVANO	NICOLAS	2	10000	1904		13	17	12 20
215 LLANO	GUILLERMO							
216 LLOREDA	ALVARO							
217 LONDONO	ANA					20	31	
218 LONDONO	EDUARDO	2	3	35		6		
219 LONDONO	EDUARDO							
220 LONDONO	JOSE					1		
221 LOPEZ	ALFONSO	3				4	6	3
222 LOPEZ	JESUS	1	2		1 50000 1 761 1927			
223 LOPEZ	MIGUEL					17	4	11 20
224 LOPEZ	PEDRO	1	4000	1912	1 17000 1 1920	17	20	11 10
225 LORGOCHA	JUAN					22		
226 LOZANO	CARLOS	1	4000	1908		33	18	12 20
227 LURS	HANS							
228 MACIAS	MIGUEL					1		
229 MACIAS	TEODICELDO					1		
230 MACKENZIE	MAURICIO							
231 MADERO	ENRIQUE					1		
232 MAGNER	WILLIAM							
233 MALDONADO	PEDRO					20	7	
234 MARANON	EL							
235 MARINO	ENRIQUE					15		
236 MARINO	JORGE					1		
237 MARINO	PEDRO					18		
238 MARKEN	MILTON F					17		
239 MARULANDA	ROBERTO					20		
240 MATAALLANA	JOSE							
241 MATEO	JOSE					7		
242 MATIZ	JULIO					20		
243 MAYNHAM	HAROLD	35						
244 MCDONALD	RJ							
245 MEDINA	GERARDINO					22		
246 MEDINA	JOSE					18	7	
247 MEDINA	JUAN	2	2000	1924		22	3	12
248 MEDINA	PEDRO					7		
249 MEDRANO	IGNACIO					33		
250 MEJIA	ALBERTO							
251 MEJIA	ALBERTO							
252 MEJIA	ALVARO					12		
253 MEJIA	AMALIA							
254 MEJIA	BERNARDO							
255 MEJIA	CARLOS					7		
256 MEJIA	CLIMACO				1 190000	7		
257 MEJIA	CLIMACO							

258 MEJIA	ELIODORO	2	25 1916		7	12
259 MEJIA	GABRIELA					
260 MEJIA	INES					
261 MEJIA	JORGE					
262 MEJIA	LAZARO	35				
263 MEJIA	LUIS	35	2	1923		
264 MEJIA	MAGDALENA					
265 MEJIA	MANUEL				3	20
266 MEJIA	MANUEL	2 35		1	1927	20
267 MEJIA	MANUELA					
268 MEJIA	MARGARITA					
269 MEJIA	SANTIAGO					
270 MELQUIZO	JESUS					
271 MERIZALDE	DANIEL					
272 MESA	FRANCISCO	35			2	
273 MESA	RAFAEL				2	12
274 MICHELSEN	CARLOS	3			6	
275 MICHELSEN	ROBERTO				25	
276 MICHONIK	JORGE		2	15000 1926	12	
277 MOLINA	JUAN					
278 MOLINA	Y CIA					
279 MONROY	DANIEL					
280 MONTOYA	ENRIQUE				12	
281 MONTOYA	JUSTO				28	32 7
282 MORA	ABEL					
283 MORA	BERNARDO	1	8	1	1927	
284 MORA	HNOS.					
285 MORA	MARCO	2			5	
286 MORA	OTROS					
287 MORALES	EMILIANO				2	
288 MORALES	JESUS					
289 MORALES	LUIS				37	32
290 MORALES	ROBERTO		2	5000 1919	2	12
291 MORENO	ABRAHAM		1	1896		
292 MORENO	BENJAMIN	2	15			
293 MORENO	ERNESTO					
294 MORENO	FRANCISCO	35				
295 MORENO	JUAN				17	
296 MORENO	MANUEL			1	40000	20
297 MORENO	PEREZ Y CIA					
298 MUNOZ	ERNESTO				34	15
299 MUNOZ	RAMON				33	7
300 MURILLO	EDUARDO				2	
301 MURILLO	EDUARDO					
302 MURILLO	EMILIA				2	
303 NIETO	AGUSTIN		2	32000 1914	33	12 20
304 NIETO	LUIS		2	1914	33	25 20 1
305 NOGUERA	LUIS				13	12
306 NOGUERA	VICENTE				20	4
307 ORJUELA	LUIS				33	
308 ORTIZ	JORGE					
309 OSPINA	JORGE				15	33 37
310 OSPINA	MANUEL	35			33	
311 OSPINA	MARIANO			1	400000	1
312 OSPINA	SANTIAGO	3			1927	3 20
313 PALACIOS	EUGENIO				20	
314 PARDO	FELIX		2	20120 1913	7	
315 PAREDES	CARLOS				12	1
316 PARRA	PABLO				7	
317 PATINO	DANIEL				10	
318 PATINO	ROBERTO		2	10000 1920	6	
319 PELAEZ	CARLOS				12	6
320 PELAEZ	DANIEL					
321 PELAEZ	GABRIEL				4	
322 PELAEZ	PABLO					
323 PFNB	WERNER					

324 PERDOMO	VICTOR								20
325 PEREZ	ALBERTO								
326 PEREZ	JORGE								
327 PEREZ	JUAN								13 22
328 PEREZ	RICARDO								
329 PIEDRAHITA	RAFAEL	35	15		1931				20
330 PINEDA	LEONARDO								7
331 PINZON	CELIO								7
332 PIZANO	BERNARDO								
333 PLATA	BERNARDO								2 6
334 PLATA	LUIS								12 20 33
335 POMBO	JORGE								18
336 POSADA	BERNARDO								2
337 POSADA	ERNESTO								2
338 POSADA	GABRIEL								3
339 POSADA	JESUS								8
340 POSADA	LUIS								
341 PRADILLA	M.G								
342 PULIDO	ISAAC								22
343 QUINTANA	BELISARIO	2		10000	1907				22 12 13
344 QUINTANA	FRANCISCO	2			1907				22 1 12
345 QUINTERO	MAYORIO								6
346 RAMIREZ	EZEQUIEL								7
347 RAMIREZ	JORGE	2			1901				18 12
348 RAMIREZ	JORGE								
349 RAMIREZ	JULIO								
350 REINHART	KLING								
351 RESTREPO	ANA								
352 RESTREPO	ANTONIO								
353 RESTREPO	CAMILO								
354 RESTREPO	CARMEN								
355 RESTREPO	EDUARDO	3	35						22 6
356 RESTREPO	ELISEO								
357 RESTREPO	EMILIO	35		2	1931	1	45000		11 27
358 RESTREPO	ENRIQUE								22
359 RESTREPO	ERNESTO								27 15 12 2
360 RESTREPO	EUSEBIO								
361 RESTREPO	FEDERICO								
362 RESTREPO	FERNANDO								
363 RESTREPO	GABRIEL								36 28 26
364 RESTREPO	GONZALO								
365 RESTREPO	GUSTAVO	3		2	50000	1922			15 12 31 27
366 RESTREPO	HIPOLITO								
367 RESTREPO	INES								
368 RESTREPO	JORGE								
369 RESTREPO	JULIA								
370 RESTREPO	LAZARO								
371 RESTREPO	LUCIANO								
372 RESTREPO	LUIS	1	8				1	1927	1
373 RESTREPO	LUIS								
374 RESTREPO	MANUEL					1	65000		12 22
375 RESTREPO	MANUEL								
376 RESTREPO	MARGARITA (DE)								1
377 RESTREPO	OSCAR								
378 RESTREPO	PEPA								
379 RESTREPO	RAMON	35							7
380 RESTREPO	RICARDO								
381 RESTREPO	ROBERTO					1	65000		35
382 RESTREPO	SOFIA								
383 RESTREPO2	DAVID								
384 RESTREPO2	EUGENIA (DE)								
385 RESTREPO2	H.S.CARLOS			2	50000	1922			
386 REYES	ANTONIO			2	10000	1920			7 6 12
387 REYES	JOSE								7 7 6
388 REYES	RAFAEL			2	200	1915			12 31 22 13
389 RICHARD	MARIANA (DE)	2							

[illegible]

456 SORNOZA	AQUILINO				18
457 SOTO	ALVARO				3
458 STEMBERG	FRICHO				
459 STUSUS	KURT				
460 SUAREZ	ARTURO				
461 SUAREZ	JULIO				1
462 TAMAYO	JOAQUIN				6
463 TAMAYO	JOSE	3			6
464 TAMAYO	PABLO				6
465 TAMAYO	RAFAEL		2	9714 1914	6
466 TAVERA	ENRIQUETA				7
467 TOBON	PABLO				
468 TOBON	VALERIO	2	3		
469 TOMARA	ROGELIO				
470 TOQUICA	EPIFANIO				
471 TORO	ANGELA (DE)				
472 TORO	EDUARDO				
473 TORO	JOSE				
474 TORRES	CARLOS				6 7
475 TORRES	GUILLERMO		2	100000 1903	12 22
476 TRIANA	JORGE				
477 TRIMINO	LIBARDO				2
478 UCROS	RAFAEL				15
479 UMANA	ALBERTO				7
480 UMANA	EDUARDO				
481 UMANA	MANUEL				15
482 URDANETA	ALEJANDRO				
483 URIBE	ALBERTO				23
484 URIBE	JOHN	35	3	2 1916	
485 URIBE	LUISA (DE)				
486 URIBE	RAUL				
487 URIBE	RUBEN				
488 VALDERRAMA	BENIGNO				18
489 VALDEZ	NARCISO				7
490 VALENCIA	ROBERTO				
491 VALENZUELA	ALBERTO				
492 VALENZUELA	ALFREDO		2	20000 1927	
493 VALENZUELA	RICARDO				13
494 VARGAS	CARLOS		2	1000 1927	17
495 VARGAS	GAGRIEL				
496 VASQUEZ	ALICIA				
497 VASQUEZ	CAROLINA (DE)				
498 VASQUEZ	CAROLINA (DE)				
499 VASQUEZ	EDUARDO				
500 VASQUEZ	FRANCISCO				
501 VASQUEZ	HELENA (DE)				
502 VASQUEZ	JULIAN			1 100000	
503 VELASCO	JUAN				3
504 VELEZ	AURELIANO				
505 VELEZ	BERNARDO		3	35	16
506 VELEZ	GABRIEL				
507 VELEZ	JOSE		3		13
508 VELEZ	LISANDRO				
509 VELEZ	LUCRECIO				
510 VELEZ	RAFAEL				
511 VELEZ	ROBERTO	2	3	35 1 60000	
512 VERGARA	FRANCISCO				18
513 VIDAL	MANUEL				33
514 VIEIRA	ANTONIO				1
515 VILLA	ALFONSO				
516 VILLA	CARLOS		2	4500 1932	13
517 VILLA	GRACIELA				17
518 VILLA	LEOPOLDO				
519 VILLA	MARGARITA				
520 VILLA	GERMAN				
521 VILLA	GERMAN				

VARIABLES USED IN THE ANALYSIS OF MANAGERS AND ENTREPRENEURS

		(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)
NUM	LAST NAME	NAME	Z#MA1	ZKMA1	Z#MA2	ZKMA2	Z#MN1	ZKMN1	Z#MN2	ZKMN2	EGRNEGRY	EGRPPGRA	PGRB	
1	ABONDANO	CARLOS	193	225895	253	492700	285	180820	449	326350				
2	ABONDANO	JOAQUIN	193	225895	253	492700	664	45075	625	166350				
3	ACONCHA	JOSEFINA												
4	ACOSTA	CARLOS	345	69999	397	131927	1010	21375	1376	21375				
5	ACOSTA	CUSTODIO	345	69999	397	131927	1325	12346	892	74270				
6	AGUDELO	FEDERICO	829	1960	356	196000	2059	1960	572	196000				
7	ALFARO	AQUILES	369	56850	491	56850	613	56850	972	56850				
8	ALMANZAR	RAFAEL												
9	ALVAREZ	ANTONIO	231	158911	100	2819304	786	33200	1161	33200	3	1947	2	1
10	ANCIZAR	JORGE	695	7340	780	7340	1577	7340	1905	7340	1	1911	30	
11	ANDRADE	JOSE												
12	ANDRADE	ARTURO	11	5568380	24	15971696	280	183980	608	183980				
13	ANGEL	ALEJANDRO												
14	ANGEL	CIA INDUSTRIAL Y AGRICOLA												
15	ANGEL	GABRIEL												
16	ANGEL	MARIA (DE)												
17	ANGEL	SOFIA												
18	ANGEL	ALMACENES ANCLA												
19	ANGEL	APARICIO												
20	ARANGO	ALBERTO	155	326590	147	1539344	534	71720	898	71720	3	1939	4	
21	ARANGO	CLAUDINO												
22	ARANGO	FERNANDO	155	326590	147	1539344	535	71720	899	71720	1	1920		
23	ARANGO	FRANCISCO	155	326590	147	1539344	1578	7325	1906	7325				
24	ARANGO	HELENA												
25	ARANGO	JORGE	155	326590	147	1539344	2008	2665	2245	2665				
26	ARANGO	RAFAEL												
27	ARBELAEZ	RICARDO	10	5622595	38	11160160	2062	1935	579	193500				
28	ARBOLEDA	JORGE	5	9973731	29	13775331	127	415531	159	1682731				
29	ARBOUIN	LESLIE C.												
30	ARCHILA	HERNANDO	320	82432.5	459	82432.5	493	82432.5	860	82432.5				
31	ARCINIEGAS	ISMAEL	428	36515.92	547	36515.92	816	31700	1190	31700				
32	ARIAS	EDUARDO												
33	ARTURO	CARLOS	272	112250	419	112250	400	112250	756	112250				
34	AYA	MAXIMILIANO	411	39912	533	39912					1	1933	2	
35	BALCAZAR	FEDERICO	201	202775	19	20277477	239	202500	18	20250000				
36	BERNAL	JOSE	29	2236599	111	2455884	2108	1480	2322	1480	2		1	3
37	BERNAL	RAMON	29	2236599	111	2455884	156	381600	417	381600				
38	BOTERO	VALERIO	166	303080	316	303080	536	71720	900	71720			1	
39	BOTERO	Y CIA												
40	BOTERO	JULIO											1	
41	BOTERO	RICARDO												
42	BRAVO	ABRAHAM	279	107915	66	5796187	803	32725	93	3272450				
43	BRAVO	POMPILIO	279	107915	66	5796187	985	22500	118	2250000				
44	BRAVO	VICENTE	279	107915	66	5796187	2041	2129	537	212850				
45	BRECONS	OLEGARIO												
46	BRITO	ANIBAL	647	10000	737	10000	1418	10000	1759	10000				
47	CAICEDO	ARISTIDES												
48	CAJIAO	FRANCISCO	300	89209	110	2456200	1022	21200	125	2120000	1	1925	15	
49	CALA	SAMUEL	443	33200	558	33200	788	33200	1163	33200				
50	CALDERON	EDUARDO	110	501949	53	7719771	467	87900	836	87900				
51	CALDERON	DOLORES	110	501949	53	771977.1	1981	290	483	294000				
52	CALDERON	LUIS	110	501949	53	771977.1	178	324016.5	257	764660.6				
53	CAMACHO	GABRIEL	15	4376090	20	19713242	183	317000	456	317000				
54	CAMACHO	JOAQUIN	15	4376090	20	19713242	2632	0	2632	0				
55	CAMACHO	JORGE	15	4376090	20	19713242	184	317000	457	317000				
56	CAMACHO	JOSE	15	4376090	20	19713242	72	754196	258	763898				
57	CAMACHO	NEMESIO	15	4376090	20	19713242	33	1387063	56	7721241	1	1919	4	1
58	CAMACHO	SALVADOR	15	4376090	20	19713242	185	317000	458	317000				2
59	CAMARGO	AGUSTIN	63	946932	105	2649758	387	117761	611	179685				
60	CAMARGO	NICOLAS	63	946932	105	2649758	80	736169	266	736169				
61	CARRIZOSA	BERNARDO	129	417183	274	417192	131	402731	379	402731				

62 CASTANEDA	LUIS	536	19133	428	103085	2219	848	852	84800					
63 CASTELLANOS	NARCISO	754	4040	280	404000	2301	320	1188	32000					
64 CASTILLA	ROBERTO	321	82268	460	82268	802	32816	1177	32816					
65 CHILD	JORGE	230	159313	354	196141	417	108540	775	108540					
66 CHOZNEK	ABRAHAM	400	42462	521	42461.64	695	42461.64	1069	42461.64					
67 CIA	COLSEGUROS													
68 CIA	COMERCIAL Y AGRICOLA													
69 CIA	HANDEL													
70 CIA	HOTEL GRANADA													
71 CIA	INDUSTRIAL Y FINANCIERA													
72 CIA	INGENIO MANUELITA													
73 CIA	INVERSIONES													
74 CIA	INVERSIONES E INDUSTRIA SA													
75 CIA	MUNICIPIO DE MEDELLIN													
76 CIA	MUTUALIDAD NACIONAL													
77 CIA	NACIONAL DE INVERSIONES													
78 CIA	NAVIERA COLOMBIANA													
79 CIA	SACO													
80 CIA	SCADTA													
81 CIA	SIDERURGICA DE MEDELLIN													
82 CIA	UNION DE INVERSIONES													
83 CIA	VIDRIERA FENICIA													
84 CIA	COLSEGUROS													
85 CIA	SURAMERICANA													
86 CLAVIJO	JULIAN	252	132650	396	132650	350	132650	693	132650					
87 COCK	BERNARDO													
88 COCK	CARLOS	85	760500	212	760500	71	758000	259	758000					
89 CONTRERAS	EDUARDO													
90 CORDOBA	GONZALO													
91 CORDOBEZ	VICTOR	533	19350	635	19350	1076	19350	1430	19350					
92 CORREA	ISMAEL													2
93 CORREA	DRIGELIO													
94 CORTEZ	MARLENE H													
95 CRANE	CARLOS	180	264107	17	26410695									
96 CUERVO	LUIS	414	39271	171	1015947	1911	3260	2174	3265	1	1930	2	1	2
97 DAVILA	CARLOS	62	965402	180	965402	87	635750	285	635750					
98 DE BEDOUT	FELIX													
99 DE CASTRO	DIEGO	331	77820	62	6092070	1148	17070	1496	17070					
100 DE CASTRO	FEDERICO													
101 DE MIER	JOAQUIN	200	202800	99	2875800	890	27000	101	2700000					
102 DE SANTAMARIA	IGNACIO	133	402731	281	402731	133	402731	381	402731					
103 DE VALENZUELA	ULPIANO													
104 DEL CASTILLO	JUAN	271	113049	417	113049	670	44829	1040	44829					
105 DEL CASTILLO	MANUEL	271	113049	417	113049	550	68220	911	68220					
106 DIAZ	EFREN													
107 DONOVAN	ELIAS													
108 DUQUE	RAFAEL	246	137122	389	137122	523	75128	886	75128					
109 ECHAVARRIA	ALBERTO													
110 ECHAVARRIA	ALEJANDRO	835	1758	882	1758	2216	879	2385	879					
111 ECHAVARRIA	ANGELA (DE)													
112 ECHAVARRIA	CARLOS													
113 ECHAVARRIA	DIEGO													
114 ECHAVARRIA	EDUARDO													
115 ECHAVARRIA	GABRIEL													
116 ECHAVARRIA	JAIME													
117 ECHAVARRIA	JORGE													
118 ECHAVARRIA	LUCIA													
119 ECHAVARRIA	PABLO													
120 ECHAVARRIA	RUDECINDO													
121 ECHAVARRIA	ALEJANDRO													
122 EMILIANI	NICOLAS													
123 ESCALLON	CARLOS	32	2007820	85	3805660	200	282120	139	1961160					
124 ESCOBAR	JULIO	71	858772	195	858772	807	32560	1181	32560					
125 ESCOBAR	Y CIA													
126 ESCOBAR	BENJAMIN													
127 ESCOBAR	BENJAMIN	250	133410	219	708105	1701	5205	504	520500					

128	ESPINOSA	EUGENIO	95	581995	237	581995	1506	8220	554	202260				
129	ESTRADA	PEDRO												
130	FACCINI	EMILIA	194	223200	338	223200	527	74400	889	74400				
131	FACCINI	MARIA	194	223200	338	223200	323	148800	655	148800				
132	FAJARDO	COSME	44	1560424	141	1661800	2254	512	994	51200				
133	FAJARDO	ESTANISLAO	44	1560424	141	1661800	2250	512	995	51200				
134	FERNANDEZ	FRANCISCO	35	1945599	119	2246311	79	738468	200	1039180	1	1928	1	
135	FLOREZ	FRANCISCO	136	393177	256	488960	250	198695	568	198695				
136	FONSECA	JOSE												
137	FORERO	JESUS	47	1349417	122	2195224	78	742350	170	1470000				
138	FORERO	MANUEL	47	1349417	122	2195224	431	102286	788	102286				
139	FRAYHOS	VINCUAS												
140	GAITAN	FRANCISCO												
141	GAMBOA	ROBERTO	328	78770	102	2724247	604	58404	275	688044				
142	GARCES	MARIO	94	599320	231	609458	282	182532	589	192670	1	1912	11	
143	GARCIA	JORGE	57	1091724	72	4692876	2653	0	2653	0				
144	GARCIA	LAUREANO	57	1091724	72	4692876	731	38594	970	57750	1	1936	2	
145	GARCIA	RAFAEL	57	1091724	72	4692876	424	106702	781	106702				
146	GARCIA	IGNACIO	57	1091724	72	4692876	1866	3720	425	372000				
147	GARCIA	MANUEL	57	1091724	72	4692876	608	114268	969	114268				
148	GART	EDUARDO												
149	GARZON	TEODOSIO	247	135979	128	2048065	2137	1355	677	135450				
150	GAVIRIA	JUAN	164	310349	153	1433203	459	89910	339	473040				
151	GAVIRIA	LEONARDA												
152	GAYROND	ERNESTO	821	2322	336	232200	2172	1161	741	116100				
153	GAYROND	MAURICIO	821	2322	336	232200	2173	1161	742	116100				
154	GOMEZ	ANTONIO	25	2544537	90	3552243	2040	2159	536	215870				
155	GOMEZ	ANTONIO					2040	2159	536	215870				
156	GOMEZ	JOSE	25	2544537	90	3552243	1789	4433	353	443003				
157	GOMEZ	NICOLAS	25	2544537	90	3552243	49	967500	214	967500				
158	GONZALES	BERNABE	46	1360133	107	2627333	392	117000	740	117000				
159	GONZALES	GUILLERMO	46	1360133	107	2627333	150	387000	410	387000				
160	GONZALES	LUIS	46	1360133	107	2627333	532	73817.2	896	73817.2				
161	GONZALES	PIO QUINTO	46	1360133	107	2627333	2105	1548	650	154800				
162	GONZALES	TOMAS	46	1360133	107	2627333	631	52000	989	52000				
163	GONZALEZ	BERNARDO	4	10104234	30	13626681	1001	21975	1366	21975				
164	GONZALEZ	JOSE	4	10104234	30	13626681	620	55908	977	55908				
165	GUTIERREZ	AGUSTIN												
166	GUTIERREZ	CARLOS	91	653353	16	27791533	862	29300	1239	29300				
167	GUTIERREZ	EDUARDO	91	653353	16	27791533	377	120130	725	120130				
168	GUTIERREZ	EMILIO	91	653353	16	27791533	861	29300	1238	29300				
169	GUTIERREZ	EUGENIO	91	653353	16	27791533	1011	21375	1377	21375				
170	GUTT	SALOMON	67	884912	190	884912	161	379072	422	379072				
171	GUZMAN	RUFINO	515	21955	265	444693	1401	10569	1743	10569				
172	HERNANDEZ	ANTONIO												
173	HERNANDEZ	VICTOR	147	376086	295	376086	231	212000	540	212000				
174	HERRERA	ERNESTO	99	555357	103	2695440	785	33547	1160	33547				
175	HERRERA	LUIS	99	555357	103	2695440	1473	9000	224	900000				
176	HERRERA	LUIS	99	555357	103	2695440	1473	9000	224	900000				
177	HERRERA	JUAN	99	555357	103	2695440	1963	3037	469	3037				
178	HERRERA	RICARDO	99	555357	103	2695440	1472	9004	223	900004				
179	HOLGUIN	HERNANDO												
180	HOLGUIN	JAIME	14	4424556	73	4424556	1752	4927	2057	4927				
181	HOLGUIN	JORGE	14	4424556	73	4424556	287	178700	612	178700				1
182	HOLGUIN	PABLO	14	4424556	73	4424556	1009	21440	1375	21440				
183	HOLGUIN	RICARDO	14	4424556	73	4424556	568	62612	932	62612	1	1942	2	
184	HOSIE	STUART												
185	HURTADO	JUAN	176	276805	311	316405	453	91280	821	91280				
186	HURTADO	MANUEL	176	276805	311	316405	2281	400	1099	40000				
187	HURTADO	SIMON	176	276805	311	316405	764	35292	1146	35292				
188	ISAZA	GUILLERMO												
189	ISAZA	EMILIANO												
190	IZQUIERDO	ANTONIO	232	154178	214	756915	328	148090	660	148095	1	1944	1	1
191	JARAMILLO	ALFONSO	45	1422447	151	1437400	2493	5	2504	5			1	3
192	JARAMILLO	FRANCISCO	45	1422447	151	1437400	62	779800	248	779800				
193	JARAMILLO	IGNACIO												

194 JARAMILLO	ISABEL (VDA DE)	45	1422447	151	1437400	2242	586	2402	591			
195 JARAMILLO	PEDRO	45	1422447	151	1437400	108	450774	344	450774			
196 JARAMILLO	RICARDO	122	443000	7	44300000	111	443000	6	44300000			
197 KIPS	EUGENIO	399	42728	520	42728	691	42728	1067	42728			
198 KOHN	GUILLERMO	399	42728	520	42728							
199 KOHN	RODOLFO	6	2297219	116	2297219	597	59109	958	59109			
200 KOPP	GUILLERMO		2297219	116	2297219							
201 KOPP	DLGA (DE)	6	2297219	116	2297219	29	2045710	162	2045710			
202 KOPP	LEO	162	313915	23	18617562							
203 KOPPEL	LEON A	162	313915	23	18617562	1861	3790	2137	3790			
204 KOPPEL	SAM	442	33695	557	33695	1002	21975	1367	21975			
205 KRAUSS	ANTON	159	321625	31	12901293	626	53584	198	1074013			
206 LARA	LEONIDAS	159	321625	31	12901293	284	181040	30	11740280			
207 LASERNA	EMILIANO											
208 LASERNA	FRANCISCO											
209 LATIEF	JOSE	212	189500	360	189500	271	189500	597	189500			
210 LATORRE	CARLOS	372	56385	493	56385	1120	18000	1473	18000			
211 LEAL	FORTUNATO	556	17760	655	17760	559	64548	921	64548			
212 LEIVA	ROBERTO											
213 LEIVA	ROBERTO											
214 LIEVANO	NICOLAS	283	104878	342	219817	492	83113	723	121426	1	1920	1
215 LLANO	GUILLERMO											
216 LLOREDA	ALVARO											
217 LONDONO	ANA	26	2378963	106	2641878	61	1350487	247	1350487			
218 LONDONO	EDUARDO	26	2378963	106	2641878	690	43585	1066	43585			
219 LONDONO	EDUARDO					690	43585	1066	43585			
220 LONDONO	JOSE	26	2378963	106	2641878	1795	4395	2086	4395			
221 LOPEZ	ALFONSO	24	2636976	65	5879424	540	70880	340	471830	1	1941	2
222 LOPEZ	JESUS											
223 LOPEZ	MIGUEL	24	2636976	65	5879424	100	499880	222	900830	1	1943	2
224 LOPEZ	PEDRO	24	2636976	65	5879424	94	524870	107	2529620			
225 LORGOCHA	JUAN	31	106600	425	106600	425	106600	782	106600			
226 LOZANO	CARLOS	33	1086531	4	48258055	45	1021856	5	44878856			
227 LURS	HANS											
228 MACIAS	MIGUEL	213	188137	26	15526880	514	77468	54	7746840			
229 MACIAS	TEODICELDO	213	188137	26	15526880	515	77468	55	7746840			
230 MACKENZIE	MAURICIO											
231 MADERO	ENRIQUE	436	34630	555	34630	1996	2930	2239	2930			
232 MAGNER	WILLIAM											
233 MALDONADO	PEDRO	120	448829	6	44411882	112	443000	7	44300000			
234 MARANON	EL											
235 MARINO	ENRIQUE	217	182681	221	685700	290	177600	615	177600			
236 MARINO	JORGE	217	182681	221	685700	2174	1161	744	116100			
237 MARINO	PEDRO	217	182681	221	685700	1835	3920	400	392000			
238 MARKEN	MILTON F	370	78825	492	78825	1003	21975	1368	21975			
239 MARULANDA	ROBERTO	17	4121800	78	4121800	13	4107000	72	4107000			
240 MATALLANA	JOSE											
241 MATEO	JOSE	890	320	561	32000	2302	320	1189	32000			
242 MATIZ	JULIO	445	32582	560	32582	864	29300	1241	29300			
243 MAYNHAM	HAROLD											
244 McDONALD	RJ											
245 MEDINA	GERARDINO	97	571795	240	571795	281	182560	609	182560	1	1930	4
246 MEDINA	JOSE	97	571795	240	571795	418	108185	776	108185			
247 MEDINA	JUAN	97	571795	240	571795	366	127590	712	127590			
248 MEDINA	PEDRO	97	571795	240	571795	508	78720	876	78720			
249 MEDRANO	IGNACIO											
250 MEJIA	ALBERTO											
251 MEJIA	ALBERTO	12	5545127	60	6148037	1949	3131	2192	3220			
252 MEJIA	ALVARO											
253 MEJIA	AMALIA											
254 MEJIA	BERNARDO											
255 MEJIA	CARLOS	12	5545127	60	6148037	1429	9960	1769	9960			
256 MEJIA	CLIMACO	12	5545127	60	6148037	346	139872	674	139872	1	1920	1
257 MEJIA	CLIMACO					346	139872	674	139872			
258 MEJIA	ELIODORO	12	5545127	60	6148037	654	47488	1024	47488			
259 MEJIA	GABRIELA											

260 MEJIA	INES								
261 MEJIA	JORGE								
262 MEJIA	LAZARO								
263 MEJIA	LUIS								
264 MEJIA	MAGDALENA								
265 MEJIA	MANUEL	12	5545127	60	6148037	18	3826000	81	3826000
266 MEJIA	MANUEL	12	5545127	60	6148037				3 1937
267 MEJIA	MANUELA								
268 MEJIA	MARGARITA								
269 MEJIA	SANTIAGO								
270 MELQUIZO	JESUS								
271 MERIZALDE	DANIEL								
272 MESA	FRANCISCO	437	34561	167	1030595	944	24500	1317	24500
273 MESA	RAFAEL	437	34561	167	1030595	1750	4940	327	4940
274 MICHELSEN	CARLOS	7	8571569	28	14195920	445	95100	814	95100
275 MICHELSEN	ROBERTO	7	8571569	28	14195920	826	31700	1200	31700
276 MICHONIK	JORGE	571	16280	667	16280	1183	16280	1530	16280
277 MOLINA	JUAN								
278 MOLINA	Y CIA								
279 MONROY	DANIEL								
280 MONTOYA	ENRIQUE	21	2943771	98	2943780	1295	13293	1635	13293
281 MONTOYA	JUSTO	21	2943771	98	2943780	31	1590550	164	1590550
282 MORA	ABEL								
283 MORA	BERNARDO								
284 MORA	HNOS.								
285 MORA	MARCO	202	202136	77	4160350	805	32600	1179	32600
286 MORA	OTROS								
287 MORALES	EMILIANO	75	835652	155	1321371	167	367500	431	367500
288 MORALES	JESUS								
289 MORALES	LUIS	75	835652	155	1321371	2605	0	2522	5
290 MORALES	ROBERTO	75	835652	155	1321371	524	74908	720	123418
291 MORENO	ABRAHAM								
292 MORENO	BENJAMIN								
293 MORENO	ERNESTO								
294 MORENO	FRANCISCO								
295 MORENO	JUAN	187	246445	101	2780845	2677	0	2677	0
296 MORENO	MANUEL	187	246445	101	2780845	1694	5860	2008	5860
297 MORENO	PEREZ Y CIA								
298 MUNOZ	ERNESTO	151	358554	203	799202	909	26416	1288	26416
299 MUNOZ	RAMON	151	358554	203	799202	398	114353	752	114353
300 MURILLO	EDUARDO	360	60744	76	4198350	1046	20480	131	2048000
301 MURILLO	EDUARDO					1046	20480	131	2048000
302 MURILLO	EMILIA	360	60744	76	4198350	1047	20480	132	2048000
303 NIETO	AGUSTIN	89	675509	140	1675295	300	166616	530	223640
304 NIETO	LUIS	89	675509	140	1675295	296	170589	490	290701
305 NOGUERA	LUIS	226	163408	33	12112510	1303	12898	175	1289800
306 NOGUERA	VICENTE								
307 ORJUELA	LUIS	823	2215	341	221500	2037	2215	535	221500
308 ORTIZ	JORGE								
309 OSPINA	JORGE	156	326396	186	901091	1497	8534	1829	8534
310 OSPINA	MANUEL	156	326396	186	901091	1702	5805	306	580500
311 OSPINA	MARIANO	156	326396	186	901091	283	182527	610	182527
312 OSPINA	SANTIAGO	156	326396	186	901091	865	29300	1242	29300
313 PALACIOS	EUGENIO	444	33073	559	33073	1638	6317	1966	6317
314 PARDO	FELIX	116	468010	32	12725715	480	85309	45	8530880
315 PAREDES	CARLOS								
316 PARRA	PABLO	124	433392	228	632264	1477	8917	1809	8917
317 PATINO	DANIEL	352	66598	476	66601	1222	15650	1569	15650
318 PATINO	ROBERTO	352	66598	476	66601	1223	15650	1570	15650
319 PELAEZ	CARLOS								
320 PELAEZ	DANIEL	357	61386	61	6138600	2237	636	925	63600
321 PELAEZ	GABRIEL								
322 PELAEZ	PABLO								
323 PENAL	HERNANDO								
324 PERDOMO	VICTOR	245	137146	388	137146	432	102202	789	102202
325 PEREZ	ALBERTO								

326 PEREZ	JORGE										
327 PEREZ	JUAN	83	772037	8	42727742	209	256000	506	256000		
328 PEREZ	RICARDO										
329 PIEDRAHITA	RAFAEL	69	879836	191	879836	1814	4144	2103	4144		
330 PINEDA	LEONARDO	203	201919	208	776614	1703	5805	307	580500		
331 PINZON	CELIO	228	161166	262	452226	1982	2940	484	294000		
332 PIZANO	BERNARDO										
333 PLATA	BERNARDO	19	3277385	46	9108326	21	2070415	73	4097935		
334 PLATA	LUIS	19	3277385	46	9108326	218	237157.4	76	4000979		
335 POMBO	JORGE	34	1977847	129	2022115	934	25360	1311	25360		
336 POSADA	BERNARDO	8	8366024	52	8369856	2692	0	2692	0		
337 POSADA	ERNESTO	8	8366024	52	8369856	2693	0	2693	0		
338 POSADA	GABRIEL	8	8366024	52	8369856	8	8300000	52	8300000		
339 POSADA	JESUS	8	8366024	52	8369856	1175	16300	1522	16300		
340 POSADA	LUIS										
341 PRADILLA	M.G										
342 PULIDO	ISAAC	242	143384	384	143384	454	91280	822	91280	1 1928	2
343 QUINTANA	BELISARIO	103	531893	211	771572	478	86975	549	208250		
344 QUINTANA	FRANCISCO	103	531893	211	771572	509	78430	618	175450		
345 QUINTERO	MAYORIO	31	2049620	127	2049620	866	29300	1243	29300		
346 RAMIREZ	EZEQUIEL	177	275074	238	579290	2065	1935	586	193500		
347 RAMIREZ	JORGE	177	275074	238	579290	942	24641	835	88001		
348 RAMIREZ	JORGE					942	24641	835	88001		
349 RAMIREZ	JULIO										
350 REINHART	KLING										
351 RESTREPO1	ANA										
352 RESTREPO1	ANTONIO										
353 RESTREPO1	CAMILO										
354 RESTREPO1	CARMEN										
355 RESTREPO1	EDUARDO										1
356 RESTREPO1	ELISEO										
357 RESTREPO1	EMILIO										
358 RESTREPO1	ENRIQUE										
359 RESTREPO1	ERNESTO										
360 RESTREPO1	EUSEBIO										
361 RESTREPO1	FEDERICO										
362 RESTREPO1	FERNANDO										
363 RESTREPO1	GABRIEL										
364 RESTREPO1	GONZALO										
365 RESTREPO1	GUSTAVO										
366 RESTREPO1	HIPOLITO										
367 RESTREPO1	INES										
368 RESTREPO1	JORGE										
369 RESTREPO1	JULIA										
370 RESTREPO1	LAZARO										
371 RESTREPO1	LUCIANO										
372 RESTREPO1	LUIS										2
373 RESTREPO1	LUIS										
374 RESTREPO1	MANUEL										
375 RESTREPO1	MANUEL										
376 RESTREPO1	MARGARITA (DE)										
377 RESTREPO1	OSCAR										
378 RESTREPO1	PEPA										
379 RESTREPO1	RAMON										
380 RESTREPO1	RICARDO										
381 RESTREPO1	ROBERTO										
382 RESTREPO1	SOFIA										
383 RESTREPO2	DAVID	39	1699042	43	9619438						
384 RESTREPO2	EUGENIA (DE)	39	1699042	43	9619438						
385 RESTREPO2	H.S.CARLOS	39	1699042	43	9619438						
386 REYES	ANTONIO	84	769174	58	6454499	434	101260	790	101260		
387 REYES	JOSE	84	769174	58	6454499	799	33120	1174	33120		
388 REYES	RAFAEL	84	769174	58	6454499	516	77351	113	2343857		1
389 RICHARD	MARIANA (DE)										
390 ROBLES	ANTONIO										
391 ROCHA	ANDRES	97	415075	74	11707474	1999	9870	407	987040	7 1977	1

392	ROCHE	PABLO	101	533131	244	533131	134	402731	382	402731		
393	RODRIGUEZ	ABELARDO	41	1601357	55	7429424	881	28193	1254	28193		
394	RODRIGUEZ	CARLOTA (DE)										
395	RODRIGUEZ	JOSE	41	1601357	55	7429424	1525	7930	1850	7930		
396	RODRIGUEZ	JUAN	41	1601357	55	7429424	756	36391	931	62705		
397	RODRIGUEZ	SENEEN	41	1601357	55	7429424	745	37745	1127	37745		
398	ROJAS	LUIS	64	942367	183	949049	2700	0	2700	0		
399	ROJAS	SAUL	64	942367	183	949049	75	744000	262	744000		
400	ROLDAN	JOSE	163	29300	580	29300	867	29300	1244	29300		
401	RUIZ	ALFREDO										
402	RUIZ	BELISARIO	59	991923	51	8454047	671	44829	1041	44829		
403	RUIZ	JUAN	59	991923	51	8454047	320	151600	652	151600		
404	RUIZ	JULIO	59	991923	51	8454047	661	46480	1030	46480		
405	RUIZ	LUIS										
406	RUIZ	MARCO										
407	RUIZ	PABLO	59	991923	71	8454047	1639	6318	1967	6318		
408	SAENZ	ALBERTO	13	4586472	42	10244520	655	47360	1025	47360		
409	SAENZ	ALEJANDRO										
410	SAENZ	CAMILO	13	4586472	42	10244520	1437	9837	1777	9837	3	1931 5
411	SAENZ	DANIEL	13	4586472	42	10244520	1590	7200	1919	7200		
412	SAENZ	FRANCISCO	13	4586472	42	10244520	1304	12882	1643	12882		
413	SAENZ	GUILLERMO	13	4586472	42	10244520	32	1436108	172	1436108		
414	SAENZ	JOSE	13	4586472	42	10244520	26	1936123	140	1936123	1	1927 18
415	SALAZAR	BEATRIZ										
416	SALAZAR	FERNANDO	22	2915867	71	4896594	1403	10569	1745	10569		
417	SALAZAR	JOSE	22	2915867	71	4896594	86	640325	281	640330	3	1928 6
418	SALAZAR	RAFAEL	22	2915867	71	4896594	81	725161	268	731148		
419	SALAZAR	ALEJANDRO										
420	SALAZAR	FELIX	22	2915867	71	4896594	37	1200372	186	1200372	3	1921 10
421	SALAZAR	JOSE	22	2915867	71	4896594	86	640325	281	640329		
422	SALAZAR	M.R.										
423	SALAZAR	RAFAEL										
424	SALAZAR	RICARDO										
425	SALCEDO	EUSTORGIO	572	16280	143	1627994	1238	15000	168	1499985		
426	SALDARRIAGA	GERMAN										
427	SAMPER	ALBERTO	40	1661462	124	2145009	962	23458	1333	23458		
428	SAMPER	BERNARDO										
429	SAMPER	FRANCISCO	40	1661462	124	2145009	1886	3516	2155	3516		
430	SAMPER	GABRIELA (DE)										
431	SAMPER	JOAQUIN	40	1661462	124	2145009	171	349550	446	349550		
432	SAMPER	JOSE	40	1661462	124	2145009	2322	293	2454	293		
433	SAMPER	LUIS	40	1661462	124	2145009	539	70940	903	70940		1
434	SAMPER	MIGUEL	40	1661462	124	2145009	176	331800	448	331800	3	1939 2
435	SAMPER	OLGA (DE)										
436	SAMPER	RICARDO	40	1661462	124	2145009	395	115046	749	115046		
437	SAMPER	ROBERTO	40	1661462	124	2145009	885	28080	1258	28080		
438	SAMPER	SILVESTRE	40	1661462	124	2145009	214	245907	514	245907		
439	SAMPER	VICENTA										
440	SAMPER	ANA (DE)										
441	SANCHEZ	ANTONIO	188	244859	93	3342041	2044	2120	542	212000		
442	SANCHEZ	CESAR	188	244859	93	3342041	574	62544	938	62544		
443	SANCHEZ	EDUARDO	188	244859	93	3342041	1363	11530	194	1153005		
444	SANTAMARIA	LUCIANO										
445	SANTODOMINGO	ERNESTINA (DE)										
446	SANTODOMINGO	J.MARIO										
447	SANTODOMINGO	L.F										
448	SANTODOMINGO	Y CIA S.A.										
449	SANTOS	HERNANDO	134	401384	192	875023	1887	3506	439	350550		
450	SANTOS	JUAN	134	401384	192	875023	2176	1156	747	115623		
451	SERNA	ALBERTO	233	150153	305	334293	326	148293	658	148293		
452	SERNA	CECILIA (DE)										
453	SOBELMAN	HNOS										
454	SOLANO	JOAQUIN	175	277962	121	2200740	444	96240	813	96240		
455	SORDO	JUAN										
456	SORNOZA	AQUILINO	753	4096	277	409600	1816	4096	375	409600		

458	STEMBERG	FRICHO																	
459	STUSUS	KURT																	
460	SUAREZ	ARTURO						512		77980	879							77980	
461	SUAREZ	JULIO	37	1734794	135		1743051	538		71720	902							71720	
462	TAMAYO	JOAQUIN	92	618516	227		658618	369		126800	715							126800	
463	TAMAYO	JOSE	92	618516	227		658618	370		126800	716							126800	
464	TAMAYO	PABLO	92	618516	227		658618	371		126800	717							126800	
465	TAMAYO	RAFAEL	92	618516	227		658618	447		95100	816							95100	
466	TAVERA	ENRIQUETA	356	62898	67		5703213	2710			0	2710						0	
467	TOBON	PABLO																	
468	TOBON	VALERIO																	
469	TOMARA	ROGELIO																	
470	TOQUICA	EPIFANIO							297		169600	621						169600	
471	TORO	ANGELA (DE)																	
472	TORO	EDUARDO																	
473	TORO	JOSE																	
474	TORRES	CARLOS	9	8313265	48		8742160	1856		3833	416							383250	
475	TORRES	GUILLERMO	9	8313265	48		8742160	17		4000000	80							4000000	
476	TRIANA	JORGE																	
477	TRIMINO	LIBARDO	772	3675	299		367500	1874		3675	432							367500	
478	UCROS	RAFAEL	266	116393	159		1280633	494		82433	861							82433	
479	UMANA	ALBERTO	3	11465889	1		410000000	426		106600	783							106600	
480	UMANA	EDUARDO																	
481	UMANA	MANUEL	3	11465889	1		410000000	291		177600	616							177600	
482	URDANETA	ALEJANDRO																	
483	URIBE	ALBERTO	49	1307066	83		3905972	2282			400	1103						40000	
484	URIBE	JOHN																	
485	URIBE	LUISA (DE)																	
486	URIBE	RAUL																	
487	URIBE	RUBEN																	
488	VALDERRAMA	BENIGNO	524	20520	278		408600	1839		3920	404							392000	
489	VALDEZ	NARCISO	207	200000	353		200000												
490	VALENCIA	ROBERTO																	
491	VALENZUELA	ALBERTO						880		28280	99							2828000	
492	VALENZUELA	ALFREDO						455		91193	823							91193	
493	VALENZ																		

524 VILLA	VICENTE								
525 VILLAR	LUIS								
526 VILLAVECES	FRANCISCO	317	84590	455	84590	487	84590	853	84590
527 VILLEGAS	ALEJANDRO								
528 VILLEGAS	AQUILINO								
529 VILLEGAS	MERCEDES								
530 WILLIAMSON	LUIS								
531 WILLS	EDUARDO	387	46318	510	46318	930	25423	1307	25423
532 ZAFRANE	ADOLFO	857	1300	401	130000	2156	1300	699	130000
533 ZAPATA	ADOLFO	222	171008	259	471720	845	29919	1220	29919
534 ZUNIGA	MARIO					2721	0	2721	0

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Sources and Methodology. See explanations in the main text.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
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60 CAMARGO NICHOLAS

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[illegible]

325 PEREZ	ALBERTO											
326 PEREZ	JORGE											
327 PEREZ	JUAN											
328 PEREZ	RICARDO											
329 PIEDRAHITA	RAFAEL											
330 PINEDA	LEONARDO											
331 PINZON	CELIO											
332 PIZANO	BERNARDO											
333 PLATA	BERNARDO											
334 PLATA	LUIS											
335 POMBO	JORGE											
336 POSADA	BERNARDO											
337 POSADA	ERNESTO											
338 POSADA	GABRIEL	796	661	0	64	8	0	72	0	0	0	1942
339 POSADA	JESUS											
340 POSADA	LUIS											
341 PRADILLA	M.G											
342 PULIDO	ISAAC											
343 QUINTANA	BELISARIO											
344 QUINTANA	FRANCISCO											
345 QUINTERO	MAYORIO											
346 RAMIREZ	EZEQUIEL											
347 RAMIREZ	JORGE											
348 RAMIREZ	JORGE											
349 RAMIREZ	JULIO											
350 REINHART	KLING											
351 RESTREPO1	ANA											
352 RESTREPO1	ANTONIO											
353 RESTREPO1	CAMILO	1795	592	0	18	18	0	969	197	0	0	1933
354 RESTREPO1	CARMEN											
355 RESTREPO1	EDUARDO	1931	2									
356 RESTREPO1	ELISEO											
357 RESTREPO1	EMILIO	4204	1303	42	1724	0	0	631	378	84	42	1934
358 RESTREPO1	ENRIQUE											
359 RESTREPO1	ERNESTO											
360 RESTREPO1	EUSEBIO											
361 RESTREPO1	FEDERICO											
362 RESTREPO1	FERNANDO	527	0	5	343	0	0	90	69	5	0	1900
363 RESTREPO1	GABRIEL											
364 RESTREPO1	GONZALO											
365 RESTREPO1	GUSTAVO	6936	2220	347	69	0	1040	2913	277	0	69	1940
366 RESTREPO1	HIPOLITO											
367 RESTREPO1	INES											
368 RESTREPO1	JORGE											
369 RESTREPO1	JULIA											
370 RESTREPO1	LAZARO											
371 RESTREPO1	LUCIANO											
372 RESTREPO1	LUIS											
373 RESTREPO1	LUIS											
374 RESTREPO1	MANUEL											
375 RESTREPO1	MANUEL											
376 RESTREPO1	MARGARITA (DE)											
377 RESTREPO1	OSCAR											
378 RESTREPO1	PEPA											
379 RESTREPO1	RAMON											
380 RESTREPO1	RICARDO											
381 RESTREPO1	ROBERTO											
382 RESTREPO1	SOFIA		</									

[illegible]

[illegible]

524 VILLA VICENTE
525 VILLAR LUIS
526 VILLAVECES FRANCISCO
527 VILLEGAS ALEJANDRO
528 VILLEGAS AQUILINO
529 VILLEGAS MERCEDES
530 WILLIAMSON LUIS
531 WILLS EDUARDO
532 ZAFRANE ADOLFO
533 ZAPATA ADOLFO
534 ZUNIGA MARIO

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Sources and Methodology. See explanations in the main text.

CHAPTER III. LABOR SUPPLY AND THE DUAL ECONOMY.

JUAN JOSE ECHAVARRIA

FEDESARROLLO

SEPT 20, 1987

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30

CHAPTER III. LABOR SUPPLY AND THE DUAL ECONOMY

INTRODUCTION

No other theoretical construction has received so much attention in the literature of economic development and growth as *the dual economy*. Issues have been heatedly debated for more than three decades since W.A. Lewis 1954's seminal paper¹ and some conclusions are now relatively clear. The usefulness of the concept does not seem restricted to growth in the LDC's², and its influence in the area of economic planning -e.g. the discussion on shadow prices- has been quite unique.

¹ Lewis W.A, "Economic Development with Unlimited Supplies of labor" in Agarwala A.N and S.P.Singh, (Eds), *The Economics of Underdevelopment*, Oxford, Oxford University Press, 1963. Dixit considers that the central idea goes back to Preobrazhensky (1924). See E.A Preobrazhensky, *The New Economics*, trans B.Pearce (1965), Oxford, Clarendon Press, 1924; Dixit A.K, "Models of Dual Economies", in J.A. Mirrlees and N.H.Stern, *Models of Economic Growth*, Macmillan, 1973.

² Kindleberger attributes the differences in economic growth in the european countries to the unequal degree of labor availability. In a similar vein, Dennison considers that England's lower post-war growth rates were mainly due to the absense of transferences of people from activities with low productive of labor towards others with high productivity. See Kindleberger C, *Europe's Postwar Growth*, Cambridge, Massachusetts, 1967; see also Dennison "" in R. Caves,

Lewis considered that the central fact in economic development was the jump in savings -as a proportion of national income- from 5% to 12% or more, explained in terms of income re-distribution in favour of capitalists and profits³. The existence of unlimited supply of labor was a crucial variable in this shift since constant wages allowed capitalists to reap all profits⁴.

Section A browses through the literature of the dual economy and specifies its consequences for economic growth. It also highlights those assumptions which seem to be crucial for the model, and the implications of different hypothesis by diverse authors. On the main it refers to the "classics" in the area, Lewis, Fei and Ranis and Jorgenson. As the main lessons, it is shown that economic growth does not depend on a single variable, being this the case even for Lewi's powerful model. At the end we present some of the limitations and introduce the next Chapters of the book.

³ Workers do not save, and the middle class saves just 'to keep up with the jones' with a large proportion of expenditures in housing and education. Of special interest for our topic "we cannot explain any 'industrial' revolution (as the economic historians pretend to do) until we can explain why savings increased relatively to national income". Op.Cit, p.416.

⁴ Under a different scenario-limited supply of labor- increases in labor productivity will partially go to labor through higher real wages.

Section B studies labor supply in Colombia during the early stages of industrialization and asks two main questions. First, did the colombian labor market behaved as a typical dual one?; if so, what advantages did it have for capital accumulation and growth?. Second, how influencial on growth and accumulation were certain factors which traditionally ave been considered obstacles to growth?. Among them:

-Did the "modern state" force firms to pay higher wages and comply with extra-wage requirements which otherwise would not have existed?. Or was the colombian legislation something *ex-post* which did not really affect industry?.

-Was it difficult to procure *skilled* labor?. Some economists have concluded that the main obstacle to growth is the absense of skilled workers and middle-level technicians⁵ and we want to analize how severe were those bottleneck in our period.

⁵ F. Harbison and C.A Myers, *Education, Manpower and Economic Growth: Strategies of Human Resource Development*, New York, McGraw Hill, 1974

-Finally, it is clear that the level of conflict between managers and workers unambiguously affects industrial growth. Was the level of conflict specially marked in the colombian industry?; were there important regional differences and in such a case, why?. The quality of the labor force and the stability in workers-managers relations are some among the crucial variables in understanding the relation between labor, labor supply and economic growth.

A. THE DUAL ECONOMY. DISCUSSION OF THE LITERATURE AND MISSING ELEMENTS.

1. GENERAL CONCEPTS AND DEFINITIONS.

A pre-capitalist and capitalist sector co-exist in a *dual economy*. Labor supply from the first to the second sector is unlimited, and real wages for *unskilled labor* are kept constant throughout time. "Capitalist" is defined in the classical tradition where the "capitalist" hire "free" labour to sell the product and obtain profits. At this level of generality agriculture could be part of the capitalist sector, and government could behave as the capitalist required by the model⁶.

⁶ Capitalist relations of production could be also present in agriculture. A domestic servant is in the capitalist sector when working in a hotel; in the pre-capitalist sector when working in a private home. Lewis W.A, "Reflections on Unlimited Labour", In L.Di Marco, *Economics and Development*, 1975 Lewis W.A, "Unlimited Labour. Further Notes", *Manchester School*, jan, 1958

Dual economy models have, then, two important characteristics. First, as an *empirical proposition* it is argued that real wages will be constant through time until turning points are faced⁷. Second, as a *methodological proposition* the economy is divided in a precapitalist and a capitalist sector. Economists have used many alternative divisions: consumption vs capital goods; tradables vs non-tradables.

We can arrive at important conclusions even at this level of generality, all of them pointing towards the weakness of any mechanic link between labor supply and growth. These issues will be explored in Section A-3 but we could consider some of them now.

First, any automatic link between profits and growth is difficult to establish. Profits do not mechanically assure investment, and investment is only one of the factors influencing growth and production: labor and "the residual" could also be important⁸. This two issues will be covered in Chapter IV. Second, real wages -constant if unlimited supply of labor- are only one among many of the variables determining profits; labor productivity and the terms of trade should also be considered. We want to explore this second area here.

⁷ Those turning points will differ according to the specific assumptions we do on the behavior and characteristics of the economy, mainly: is it an open or a closed economy?; does the "pre-capitalist" sector trades with the capitalist sector?.

⁸ To assume a fixed saving ratio (spI/Y) is not very satisfactory for our particular purposes.

Profits depend on a race between industrial productivity (Q_m/L_m), real wages (w/P_f) and the commodity terms of trade ' P_m/P_f '.

Formally:

$$s = rK/P_m Q_m = 1 - \frac{w/P_f}{\frac{P_m}{P_f} \cdot \frac{Q_m}{L_m}} \quad (1)$$

where:

a: Profit's Share
 rK: Total Profits
 Q_m : Quantity Produced
 P_m : Price of manufactured goods
 P_f : Price of Food.
 w: Nominal Unit Wage
 L_m : Number of Workers employed in the Modern Sector

Even worse, those are not always independent parameters. It is generally agreed, for example, that higher wages forced managers-entrepreneurs in some developed countries to adopt (and innovate with) labor saving technology which, in turn, increased labor productivity. This seems to have been the case in the United States in the XIX century, and in Europe in the Post-War Period ¹⁰.

⁹ In a closed economy agricultural productivity will be an additional factor influencing the domestic terms of trade. W.A Lewis, "Reflections on Unlimited Labour", In L.Di Marco, *Economics and Development*, 1975, p.93.

¹⁰ P.H Wilken, *Entrepreneurship. A Comparative and Historical Study*. New Jersey, Ablex Publishing Corporation, 1979; D.C. North, *Industrialization in the United States*, in H.J.Habakuk & M.Postan (Eds), *The Cambridge Economic History of Europe* (2nd ed) (Vol 6, II), Cambridge: University Press, 1965, p. 676; Saul S.B (Ed), *Technological Changes: The United States and Britain in the nineteenth Century*, London, Methuen, 1970; Kindleberger C, *Europe's Postwar Growth*, Cambridge, Massachusetts, 1967. Cited by W.A. Lewis, op.cit, p.93

What determines the different variables in Equation (1)? In order to answer that question we need to make further assumptions on the type of economy we are analyzing. We will only consider a close economy for which the capitalist sector trades with the pre-capitalist one; the economy will be opened only when we consider the main limitations of this model in the next Section ¹¹. Additional assumptions must be made before we start.

But some definitions will be common to both cases. Additional assumptions and further clarifications must be made before we start.

-Sectors. In practice the two sectors chosen are more like "agriculture" and "industry" than anything else.

The "pre-capitalist" sector *produces* food which could only be used for consumption (seeds for investment are only marginal), and the "capitalist" sector produces consumption and investment "manufactures".

¹¹ Lewis considers a third type: a closed economy where the capitalist sector does not trade with the precapitalist one. See Lewis W.A, "Reflections on Unlimited Labour", In L.Di Marco, *Economics and Development*, 1975, p. 83-91

The pre-capitalist sector uses land and labor; the capitalist sector labor and capital¹². Another way to put it, which is not so restrictive is to say that K/L ratios are much lower in the pre-capitalist sector and that "capital" used in both sector is not easily transferable. Alternative definitions according to the degree of commercialization are sometimes used but it is clear that alternative definitions often conflict ¹³

2. GROWTH IN THE DUAL CLOSED ECONOMY.

This section will deal with the closed economy, a restrictive assumption which, nevertheless, will allow us to highlight some important conclusions on growth. Even more important, it will allow us to present the main limitations of the model.

¹² A weaker condition, the pre-capitalist production is much less capital intensive (K/L low), and "capital" for the two sectors is of different forms, not easily transferable. .

¹³ See below when we consider the colombian case.

After Jorgenson's writings on the dual economy¹⁴ it has been common to consider that the *critical condition* separating economies in the low level equilibrium trap from those capable of sustained growth was the capacity to generate an *agricultural surplus*. Another way to put it, surplus labor is no surplus without surplus food¹⁵. Jorgenson's model assumed no technical change in the agricultural sector but the concept of the food surplus is immediately useful to understand the role of technical change in agriculture. It will allow the economy to produce the required surplus to leave the low income trap.

Once the surplus required to start is available, the *speed* of growth will depend of the same factors that determine growth in the developed countries. In the Harrod-Domar tradition, "the more rapid the rate of *technical change*, the higher the saving ratio, and the more rapid the rate of growth of *population*, the more rapid is the pace of growth in the advanced sector"¹⁶.

¹⁴ Jorgenson D, "The Development of a Dual Economy", *Economic Journal*, june, 1961. See specially pp.333-334

¹⁵ Jorgenson assumed -as Lewis- that wages coincide with *average* productivity (y^-) in the pre-capitalist sector. In order to produce a food surplus it is necessary that food production per capita be higher than y^- .

¹⁶ Op.Cit, p.334

This was surely an important step in the discussion since it completely shifted the focus from the necessity of massive injections of capital into the system in order to leave the low level equilibrium trap¹⁷ towards production and technical change in the different sectors¹⁸. But Jorgenson did not really face some specially acute problems remaining in the model. Two are of special concern for us here: how is the food surplus going to be shifted to the modern sector?; what was the role of the terms of trade in the process?

Jorgenson dismisses the problem with a very restrictive assumption. The consumption function of the peasants-workers has unitary income elasticity before the worker leaves and 0 income elasticity afterwards. On the other hand, the terms of trade play only a passive role; they adjust to equate the income per head in the two sectors¹⁹.

¹⁷ R.Rodan, "Problems of Industrialization of Eastern and South-Eastern Europe" in A.N Agarwala and S.P.Singh, (Eds), *The Economics of Underdevelopment*, Oxford, Oxford University Press, 1963; also H. Leibenstein H, *Economic Backwardness and Economic Growth*, New York, Wiley, 1957, specially chapter 3.

¹⁸ Formally, it can be proved that the condition which ensures sustained growth in food production per capita (ypY/L) is: $b-(1-a)v > 0$ (2)

where: b : Technical Change in Agriculture; a : Labor Share in production; v : Population Growth. If $a=0.4$ and $v=2.5\%$ a year, then $b=1.5\%$ a year, not a very restrictive condition.

¹⁹ Other models are only marginally more general. The terms of trade adjust to keep constant a pre-assigned gap between wages in the two sectors. Op.Cit, p.346.

Fei and Ranis²⁰ "solved" the problem we are considering assuming the existence of an schizophrenic landlord which saves in agriculture and invests in industry; sells his food surplus to industry but remains passive in agriculture while agricultural employment remains far above a profitable level²¹. Such a landlord certainly does not exist in most latin american countries, even less in Colombia²².

Both approaches are really schemes to hide the importance of relative prices in the evolution of the modern sector if the market mechanism is going to be allowed. What determine such relative prices?. The answer was given by H. Johnson more than 20 years ago²³.

Given that:

$e_r + e_m > 1$ is a condition likely to be fulfilled

then:

P_m/P_r will decrease if $R_m Q_r > R_r Q_m$.

²⁰ H.C.H Fei and G.Ranis, *Development of the Labor Surplus Economy; theory and policy*, Illinois, Homewood, 1964

²¹ See A.K Dixit, "Models of Dual Economies", in J.A. Mirrlees and N.H. Stern, *Models of Economic Growth*, Macmillan, 1973, p.342.

²² Fei and Ranis say it explicitly: "The typical agriculture-based underdeveloped country has, almost by definition, inherited a landlord class which, except for the case of the latifunda or absentee landlord, constitutes the main candidate for carrying out the entrepreneurial fundicion in the dualistic economy" (our italics). See Fei H.C.H and Ranis G, *Development of the Labor Surplus Economy; theory and policy*, Illinois, Homewood, 1964, p.

²³ Johnson H, *International Trade and Economic Growth*, London, 1958.

where

e_f : Price Elasticity of Demand for Food

R_f : Income " " "

e_m : Price Elasticity of Demand for Manufactures

R_m : Income " " "

Q_f : Rate of Growth of Production of Food

Q_m : Rate of Growth of Production of Manufactures

Assuming that income elasticity of demand for food and manufactures will be around 0.5 and 1 respectively, the terms of trade will move against industry if the growth rate of the food sector is less than half that one of manufactures. If agricultural productivity rises slowly (relative to industry) the rapid growth of manufactures will be finally checked, even if a food surplus were available in agriculture.

Niho²⁴ tries to formalize the dual economy model introducing income and prices elasticities of demand for food. He concludes that in that case, technical change in agriculture is always welcome because it allows to increase the food surplus -required in the Jorgenson model-. The effect of technical change in industry will be ambiguous: if the demand for food depends on income and relative prices it could benefit accumulation; if the demand for food depends *only* on income -in the tradition of the Engel Law- productivity changes in industry will only affect relative prices and will not allow the movement of labor from agriculture to industry.

3. THE MAIN LIMITATIONS OF THE DUAL ECONOMY MODEL AND SOME PRELIMINARY CONCLUSIONS.

The original formulation of Lewis, Fei and Ranis and Jorgenson was no doubt important. They shifted the emphasis of the time from the requirement of large amounts of capital for the "big push" towards the requirement of technical change and productivity.

Jorgenson and Fei and Ranis also improved upon the original paper by Lewis in the sense that they showed that it was not enough to have labor surplus. A food surplus was also required. Finally, Fei and Ranis opened the important question -hidden in Jorgenson's treatment- of how was that food surplus going to be transferred to the capitalist sector.

²⁴ Y. Niho, "The Role of Capital Accumulation in the Industrialization of a Labour Surplus Economy. A formulation of the Fei-Ranis Model", *Journal of Development Economics*, 3, pp.161-169

Recent literature has shown, however, that things are even more complicated.

The identification of the two sectors is some times difficult to establish. Many countries, for example, show higher K/L ratios in agriculture than in industry. Should we consider, then, industry as the "pre-capitalist sector"? If we consider both being capitalist, where is the other third sector to use Lewis model?. An alternative classification of the two sectors could be done on the cases of "commercial/non-commercial basis" but new problems arise.

In the first place, it has been shown that, empirically, it is almost impossible to differentiate a dual economy from a "neo-classical" one. Jorgenson's "proved" that the neo-classical model is better but his assumption of an elasticity of substitution equal to one is not guaranteed.

Second, recent literature²⁵ has shown that it is not enough to have surplus agriculture and labour in order to jump into a self-sustained process of growth. The terms of trade, partially determined by income and price elasticities of demand, but also by technical change in agriculture and industry could check growth in the industrial sector. Prices come back into the scenario again. After all this discussion we are back where we started. Constant wages are not the only factor determining profits, and the causality between profits and growth is far from mechanical.

Third, does the existence of an unlimited supply of labor guarantee constant real wages?. We did not want to rise this very basic question before explaining the general discussions and conclusions of the model, but this is the time to do it. The issue of labor quality has just recently being explored in the economic literature though it is almost as old as economics²⁶. Labor quality could explain, for example, why capitalists share productivity gains with workers to a greater extent than one would expect if labor supply is unlimited and capitalists profit maximizers. This, by itself could explain the rise in real wages before the reservoir of labour is exhausted.

²⁵ A.K. Dixit, "Models of Dual Economies", in J.A. Mirrlees and N.H. Stern, *Models of Economic Growth*, Macmillan, 1973, specially the discussion at the end of the chapter by Dixit; see also L. Taylor, *Structuralist Macroeconomics*,

²⁶ See J. Stiglitz "The Dependence of Quality on Price", *Journal of Economic Literature*, Vol XXV, march, 1987, pp.1-48 for a summary of the actual discussion

Conflict between managers and labor could be another important factor, not altogether separated from the same issue of labor quality. Finally, State legislation could force the firms to modify its behavior towards labour much before the labour surplus is exhausted.

Fourth, it is not clear which wages should remain constant. This, obviously, is of the most importance in identifying the existence of the dual economy. Lewis considers many alternative definitions of "wages" and conclude that in order to prove or disprove the validity of the dual model two questions should be asked: i. Was w/P_m initially constant?. 2. Did wL_m/P_mQ_m ultimately rise, after the first turning point was reached²⁷ and the economy was not dual any more?.

Fifth. But the main limitation of the dual models is that it assumes a *closed economy*. Fei and Ranis are more explicit than other authors in this respect.

"...the study of foreign trade...often appears to border on an 'art' rather than constituting scientific economic analysis aimed at a better understanding of the total growth process...An analysis of the open economy aspects of growth is, moreover, handicapped by the lack of homogeneity among the countries carrying the 'underdeveloped' label,

²⁷ The first turning point in the dual economy occurs when wages start rising in agriculture; the second one when labor productivity es equal in agriculture and industry. See W.A Lewis, "Reflections on Unlimited Labour", In L.Di Marco, *Economics and Development*, 1975, pp.86-87

even among those of the labor surplus variety..."Such impressive instances of international comparative advantage as tin in Bolivia, guano in Peru, rubber in Malaya, may, after all, be viewed as historical accidents for which it is hard to find parallels and from which it may thus be difficult to generalize..."happily, it is our conviction that it doesn't really matter very much, since the development effort in the labor surplus type of underdeveloped economy is primarily a domestic matter and decided on the battlefield of domestic policy. Given the structural conditions prevailing in such an economy, while foreign trade and aid can play an important facilitating role, it is likely to be a secondary and subsidiary rather than a central and decisive one"...the additional open economy complexities require a modification rather than a fundamental revision of our basic approach"²⁸.

More will be said on the issue of exports and growth in Chapter VI; something was also said in Chapter I. Our goal here is much more limited. How does the open economy modify our previous conclusions?. Marginally as Fei and Ranis say?. This does not seem to be the case:

*Food surplus as a potential bottleneck is not relevant any more. If capitalists were hindered by failure of the noncapitalist sector to produce what was wanted, goods (including food for their workers and raw materials for their machines) could come from other countries*²⁹. The possible rate of growth of such an economy is determined by its propensity to export. With foreign exchange bottlenecks the food surplus problem is just part of the foreign exchange problem.

²⁸ Fei H.C.H and Ranis E, *Development of the Labor Surplus Economy; theory and policy*, Illinois, Homewood, 1964, pp.289-291.

²⁹ Lewis W.A, "Reflections on Unlimited Labour", In L.Di Marco, *Economics and Development*, 1975p. 94

The terms of trade are determined now not by the relative growths of the two sectors of the economy and by income and price elasticities, but by the world market.

B. THE SUPPLY OF LABOUR IN COLOMBIA.

This Chapter reviews labor supply and labor conditions in Colombia during the early stages of industrialization. From the discussion above we concluded that labor supply was one among the important variables in the analysis of growth, not the only one.

Section B-1 discusses the economic characteristics of different sectors. All the results point out towards industry as a modern-capitalist sector but there are important sectors, like coffee, which are not easy to put in one side or the other. Coffee was produced with low K/L ratios, was land intensive and produced mainly by peasant labour; all these will advice us to put coffee in the pre-capitalist side. However, it was a consumption good which was exported, unimportant in the consumption basket of industrial workers, and with a very modern -at least for the standards of the time- organization (the FNC) dealing with marketing and exports; the last characteristics suggest us to include it in the "modern-industrial" sector.

A second question will be asked in Section B-2. Were real wages constant in the early stages of industrialization?; under which definition of wages?. If so, was it due to very large supply of labor released by the other sectors?; which sectors?. The answer to this questions will allow us to contrast what should be expected from aggregated data with what was in fact taking place. The analysis of files for more than 3000 workers -files available in the firms- constitutes the central part of the Chapter. Comparisons with what other authors have said on the subject will follow. be made at the end of the Section.

In Section B-3 we analyze the impact of potential "obstacles" to growth -from the labor side-: possible candidates are the legislation by the "modern" state, the availability -or absense of- "skills" in the labour force, and the level of conflict in the firms.

A THE CHARACTERISTICS OF THE DIFFERENT SECTORS.

How to divide the economy in sub-sectors which, more or less agree with the broad concepts of the dual economy?. The most commonly used election is to look for K/L ratios; alternatively we could consider the importance of "free" labor in the sector. There are other criteria utilized by some authors³⁰. Let us look first at capital intensity.

Table 1 presents three variables traditionally associated with the idea of capital intensity. The more appropriate for our purposes is the relation K/L but it is not always available. The figures given by CEPAL on "total industry" are misleading since they include "artisans"; and both sectors were extremely different³¹. We will discuss first a proxy for K/L, namely, the productivity of labor (Q/L) because ECLA-CEPAL gives detailed figures for such a variable. Of course, K/L and Q/L will not necessarily give identical rankings for the sectors³².

³⁰ J.M. Hornby, for example, divides his "dual" economy in agriculture and industry. The agricultural sector has three main features; i. Agricultural Income can not be taxed directly; ii. The agricultural product is an important component of the household budget of the industrial labor force and, iii. Land is required as a factor of production. But he recognizes that plantations growing export crops do not fit easily into the context of the model. They belong to the agricultural sector according to iii. but the opposite happens for i. and ii. If we use Hornby's definition does not fit very well for coffee. See J.M. Hornby, "Investment and Trade Policy in the Dual Economy", *Economic Journal*, LXXVIII, pp.96-107, 1968.

³¹ Labor productivity was 16% in "artesanias" compared with modern industry (Table 1, Row 4).

³² $L/K = (Q/K) / (Q/L)$. The ratio L/K is a combination of the productivity of capital and the productivity of labour.

table 1

LABOR INTENSITY AND PRODUCTIVITY IN DIFFERENT ECONOMIC SECTORS

	Q/L		K/L		Q/K	
	1925	1953	1925	1953	1925	1953
(1) MODERN MANUFACTURES	1930	5057	7092	9912	0.27	0.51
INDEX. SECTOR (1)=100						
(2) AGRICULTURE	38.86	25.57	35.21	36.09	110.22	70.56
(3) MINING	41.45	70.69	72.62	60.92	58.79	115.64
(4) ARTISANSHIP	16.84	16.65	NA	NA	NA	NA
(5) TRANSPORT, COMMUNICATIONS AND PUBLIC SERVICES	77.61	100.08	286.85	240.53	29.39	41.16
(6) OTHER SERVICES 1/.	47.18	42.34	94.28	70.36	47.76	58.80
(7) TOTAL	45.28	37.22	59.41	54.54	77.16	68.60

Q: Production-gross- in Col \$ of 1950; K: Capital Stock in Col \$ of 1950; L: Active Population in Numbers.

Source: CEPAL, 1956, Annex, Table 8 Methodology: Figures for Q/L

Methodology: Figures for Q/L

and K/L for Sectors (4) and (5) in 1925 are only approximate, assuming that the relation with the other variables was similar to that one in 1945.

CEPAL does not provide figures for K for modern industry and then our K/L and Q/K were calculated assuming that the relation between K/L in the modern and in the "Total Industry -includes manufactures- was similar to the relation of Q/L in both sectors. Given that, Q/K for modern industry was calculated as the relation between Q/L and K/L

1/.Includes Energy, Housing, Commerce and other services.

Looking at (Q/L) it is clear that modern industry was very capital intensive since the early times, even compared with sectors like Transport and Communications. Productivity in agriculture was specially low and remained stagnant, which explains the widening gap between industry and the "average"; the gap between industry and other sectors did not increase.

Making some plausible assumptions to obtain K/L for the different sectors³³ industry still appears as capital intensive but not as much as before, and sectors like Transport and Communications are now more capital intensive than industry. The gap between industry and the rest of the economy decreased through time.

Industry was not homogeneous, of course, and our figures suggest that labor productivity was high in beverages and beer, and low in tobacco and food; textiles and non-metallic minerals were in an intermediate position. Textile production was done in very large establishments compared to the other sectors³⁴.

³³ It was assumed that the relation between Q/L and K/L were similar in the different sectors analyzed.

³⁴ See Appendix. Table A-1. It is also shown that labor productivity was similar for Bogota and Medellin. The Census of 1945 reports 7849 industrial establishments employing 135400 persons. As we said before, food, beverages, tobacco, textiles and non-mineral metals (mainly cement) "explain" between 60% and 70% of total employment, production and value added in industry. No other sector had a weight larger than 8% either on employment or on total value added.

Was coffee in the modern sector?. The results are not clear cut, and the criteria chosen to select the different sectors will affect the conclusions. Taking labour productivity first -as a proxy for capital intensity-, coffee appears in an intermediate position between the agricultural sector as a whole and industry ³⁵. On the second criteria, use of free labor for production and profits, there were major differences between the various regions in Colombia. Arango³⁶ finds that "non-wage" -parcelaria- coffee production was dominant in the east of the country, and large plantations dominant in the west. Coffee farms with less than 20.000 coffee trees represented 62% of the total in Antioquia, 82% and 88% in Caldas and Valle del Cauca. On the other hand in Cundinamarca, and Los Santanderes large farms accounted for 72%, 50% and 70% of the total.

³⁵ Berry considers that labor productivity in coffee could be 60%-100% of labor productivity in the non agriculture economy. As we saw before that labor productivity in industry was higher than in any other sector. See A. Berry "A Descriptive History of Colombian Industrial Development in the Twentieth Century", (mimeo), p. 6

³⁶ Arango M, *Cafe e Industria. 1850-1930*, Medellin, CIE, Carlos Valencia Editores, specially p.160-162

If we were forced to assign coffee to a particular sector we will put it together with agriculture and the pre-capitalist sector: K/L ratios were low, and non-wage production was predominant (mainly in the west regions of the country). But many problems remain. The existence of the Coffee Federation implied a very modern "state" among the state partially controlling domestic marketing and foreign exports; the characteristics of coffee are very dissimilar to those ones of "food" in the dualistic model. For one reason coffee is not important in the consumption basket of the industrial worker.

1. UNLIMITED SUPPLY OF LABOR?

How many workers were demanded by industry at the beginning of the industrialization process?. Which sectors could have potentially released those workers?. The discussion on potential supply and demand for labor together with the analysis of real wages will be useful for the next Section when we look at more specific results from more than 3000 workers files available in the firms.

a) DEMAND AND POTENTIAL SUPPLY OF LABOR.

Modern industry employed 230 thousand workers in 1950 and required only 6 thousand new workers per year: 1.5 thousand in Medellin and 1.1 thousand in Bogota³⁷. Even in 1950 industry represented less than 7% of total employment in Colombia. No other sector grew so fast -Table 2-, but the small absolute size meant that almost any other sector could have easily supplied the workers required.

Agriculture was the obvious candidate. It "employed" more than 60% of the labor force in the period, and just 7% of agricultural workers were enough to satisfy industrial requirements. Employment in agriculture remained stagnant suggesting important release of workers to other sectors - the natural growth of the population was higher in the rural areas³⁸.

There were other sectors which could have potentially released labor for industry. Artisans engaged in "industrial" activities doubled the number of workers in manufacturing in 1925; the relation decreased but was still prominent in 1950. Construction and commerce, together, provided 50% more employment than modern industry.

³⁷ ECLA, "Análisis y Proyecciones del Desarrollo Económico. El Desarrollo Económico de Colombia. *Anexo Estadístico*. DANE, Serie Monográfica. Colección Económica. DANE/SN/CE 70/1, Table 5. From ECLA figures modern manufactures created 146 thousand new jobs in 1925-1950. That means 5.8 thousand new jobs per year. On the other hand, from Section II y Table A-1 Antioquia and Cundinamarca employed 46% of the workers being Antioquia relatively more important. In this chapter we will refer broadly to industry when we consider modern industry or manufactures. When we include "crafts" we will say it explicitly. The figures on new jobs are only rough estimates.

³⁸ Coffee employed 80 thousand permanent workers in 1914; 240 thousands during the coffee crop. J.A. Bejarano, *El Régimen Agrario. De la Economía Exportadora a la Economía Industrial*. Bogotá, La Carreta, 1979, p.

TABLE 2

EMPLOYMENT IN DIFFERENT ECONOMIC SECTORS.
COLOMBIA, 1925-50

	TOTAL	AGRIC.	MINING		INDUSTRY		CONSTRUC- TION	OTHERS				
			-----		-----			-----		-----		
			PROPIET.	ARTISAN.	MANUFACT.	ARTISAN.		TOTAL	TRANSP & COMMUNIC.	COMMERCE & FINANCE	GOVERNMENT	SERVICES
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PARTICIPATION 1925-50												
# Workers ('000s)	3199	1994	17	50	152	236	79	672	91	214	96	432
%	100.0	62.3	0.5	1.6	4.7	7.4	2.5	21.0	2.5	5.9	2.6	11.9
II. ANNUAL GROWTH RATE (%)												
1925-30	1.83	1.11	8.45	8.45	5.80	-0.10	0.85	4.05				
1930-35	2.06	1.52	2.53	2.93	3.13	1.77	7.21	3.19				
1935-40	1.93	1.30	2.25	1.85	3.24	1.89	5.77	3.20				
1940-45	1.76	0.94	1.03	0.00	3.80	2.43	2.13	3.49	3.71	3.67	1.42	3.80
1945-50	1.43	0.15	0.00	1.03	4.30	3.25	3.71	3.16	3.71	3.68	6.22	2.13
1925-50	1.80	1.00	2.81	2.81	4.05	1.84	3.91	3.42				
III. ABSOLUTE VARIATION PER YEAR (# of Workers, '000s)												
1925-30	48	19	1	3	6	0	0	18				
1930-35	59	28	0	1	4	4	4	17				
1935-40	61	26	0	1	5	4	4	20				
1940-45	61	20	0	0	6	6	2	26	3	7	1	15
1945-50	54	3	0	1	9	9	4	28	4	8	6	10
IV. ABSOLUTE VARIATION (# of Workers, '000s)												
1925-50	1411	485	10	30	146	114	74	552				

Source: CEPAL, 1956. Anexo Estadístico. Table

Notes and Methodology.

Cols (7)-(10) the figures for I are only for 1940-50

Focusing now on the *population* in Bogota and Medellin, it is also clear that the relative "surplus" of labour was substantial. Industry in Bogota required 1.1 thousand new workers a year and population growth was 18 thousand; the figures for Medellin were 1.5 and 10 thousand (Table A-2)³⁹.

Among industry, Food (20.0%) and Textiles (20.0%) provided more than 40% of the total jobs⁴⁰, being the weight of textiles much higher in Medellin. Our sample of sectors, processed food, beverages, tobacco textiles and non-metallic minerals represented more than 60% of the total labor force employed in industry,

b) The Evidence from Wages.

Our first evidence clearly confirms the existence of unlimited supply of labor for industry. All the labor required could have being supplied by the release of 7% of the total in agriculture and the population in the cities grew much faster than industrial employment. Capitalists in the industrial sector had a huge reservoir of labor to choose from, and real real wages should have stayed constant through time. Before we look at the evidence on wages through time we will say something about relative wages in the different sectors.

³⁹ Population growth was 4.5% in Bogota in 1928 and 1951 and 4.9% in Medellin. Industrial employment rose 4.05% a year in 1925-50. Population doubled every 15 years, industrial employment every 25

⁴⁰ Apparel (7%) was the only other sector employing more than 5% of the labor force.

Wages in the cities were much higher than wages in the rural areas. This is not only suggested by the figures available but also by the large migratory process which took place. When unemployment in the cities was at its worst in 1931-32, the government, the FNC and large landowners were unable to convince workers to "return" and work in the coffee plantations.

Transport paid higher wages than any other sector -in Bogota and Medellin-, followed by manufactures and commerce. This ranking coincides with the one on labor productivity (see Section B-1) which does not mean that the link between both variables was automatic⁴¹. On the whole industry paid much better wages than the "informal" sector⁴²

⁴¹ Urrutia suggests that in capital intensive sectors it was more difficult to substitute "skilled" labour, and conflict was intense all the time. Managers and the state accepted wage rises when conflicts were imminent. See M. Urrutia, *Historia del Sindicalismo Colombiano*, 2nd ed, Bogota, Editorial la Carreta, 1976, pp. . On wages see L.B Ortiz, 1939, p.; also, L.B.Ortiz, "Actividades Economicas de la Poblacion Colombiana-Departamento de Antioquia-", *Anales de Economia y Estadistica*, 1940;

⁴² Laundress, chambermaids and cleaners earned the lowest "wages". Earnings by a spooler in a textile mill doubled the minimum but were also very low in relative terms. Much better were the wages for tobacco cutters. Figures per day were -all in Col \$-:

Chambermaids	\$	0.47
Cleaners		0.69
Laundresses		0.39
Tobacco Cutters(men)		2.04
Tobacco Mixers		1.13
Spoolers (textiles)		0.81
Spinners		1.05
Weavers		1.06

Among industry "Trilladoras de Cafe" payed the lowest wages and Fundiciones and Talabarterias the highest. The sectors of our sample -textiles, cement, tobacco, processed food and beer- were badly paid in general, with the exception of beer⁴³.

Previously to any study on the evolution on real wages through time we must say that figures are very unreliable for our period, and it is not even clear if the appropriate screening -by sex and age among others- has been done. There has been an important effort during the last years to build more reliable figures. The samples chosen are small but that seems the only way to arrive at more reliable observations⁴⁴.

Our sample for industry includes 521 people workers in the textile(366), cement(119) and tobacco sectors⁴⁵. A Paashe Price(Wage) Index was produced for each firm. Our categories represent nearly 50% of total "wage earners" in the tobacco plant, nearly 70% in Fabricato, and nearly 30% in Samper. Also, they are always the most important categories when considered in isolation.

⁴³ The lowest for textile and processed food; tobacco and cement in an intermediate position among the sectors of the sample. But the case of cement is difficult to identify: Wages for "Non-Metallic Minerals" were much lower than for cement and it is common to find those two sectors together when looking at wage statistics. However, most workers in "cement" were "peones", badly payed.

⁴⁴ See specially the information collected by Palacios on wages in coffee farms; also, the information collected by Thorp and Londono for the decade of the 1930s.

⁴⁵ The firms included were Coltabaco(Medellin), Fabricato, and Cementos Samper. In Tobacco we took three categories, "Hebras", "Maquinista" in "Hechura de Cigarrillos", and "Ayudante de Maquinista" in "Hechura de Cigarrillos"; finally, in Samper we worked only with "Peones". In Textiles we included "Envolvedoras", "Hilados" and "Telares".

To have an idea of the skills required in each job, daily wages paid in 1935 were as follows:

Coltabaco

Hebras Col \$ 1.50

An critical problem remains, however, and we should discuss it straight away. It seems that "Non-Wage" earners were very important in the textile sector (say 1/4 of the total labor force⁴⁶). Not so much in tobacco and we do not have the slightest idea of its importance in beer, food and cement. The history of those "sub-contracting" workers remains to be told.

Maquinista	2.57
Ayudante Maquinista	1.50
Fabricato	
Envolvedora	0.62
Hilados	0.56
Telares	0.72
Samper	
Peon	0.76

If we accept that the most qualified jobs paid higher wages, the "maquinista" could be considered a qualified job (in relative terms), "hebras" and "ayudante de maquinista" in the middle rank. In the lower extreme were "envolvedoras", "hilados", "telares" and the "peon". By sectors, tobacco had high and middle paid workers, textile and cement low paid workers. This information is relatively consistent with our previous discussion from secondary sources.

⁴⁶ In Fabricato non wage earners represented 0% of the total labor force in 1923 -when the firm was created-, 32% (average) in 1929-33, 23% in 1935-37, and 28% in 1938-40. In tobacco, we can say that sub-contracting was important based in the following information: (to complete). But, as we said before, this is a topic in which we have to be careful at any statement, because the information is more than precarious, and there is only indirect evidence on the topic. a. Nothing comes in *Actas* on the issue of subcontracting or "payment per piece"; b. We are presuming the existence of sub-contracting workers in Fabricato based in the information of the "Planillas de Nómina", considering that those people whose names appear in the Nómina without any indication of payment were not regular workers of the firm. That happens in a very regular way to be just missing information. They are not necessarily sub-contractors and we could say, as well, that they were people paid "per-piece". The truth remains that we do not have information on wages for an important fraction of the labor force in Fabricato. Things are even more difficult to interpret in the tobacco sector, and the evidence we have on irregular payments is very indirect indeed. They do not seem to be very important in Coltabaco-Medellin, but almost all wages paid by Coltabaco in Bogota were "per-piece" basis. Again, the evidence is very indirect. We say that "non-wage" workers were few in Medellin on the following basis: 1. The "Planilla de Nómina" considers 296 paid workers in 1935 (261 men, 35 women). 2. Total wages paid by Coltabaco-Medellin in the first 10 months of 1935 amount to Col \$ 116.213.00, which could mean 250-300 workers at Col \$1.50-\$2.00 per day. The information on wages we have for Bogota is that most workers were paid "by gruesa" and wages can not be compared in both cities.

Graph 1 and Table 3 the evolution of nominal and real wages in 1925-50. Graph 1a shows *nominal* wages in Textiles Tobacco and Cement. Wages on cement only start in 1933, and in Textiles they go only until 1945. Graph 1b presents *real* wages in agriculture and industry, and part 1c and 1d the evolution of *real* wages in the three sectors just mentioned.

Two alternative definitions of *real* wages were utilized: "basket" (w/P_f), and "cost" (w/P_m) - according to the terminology employed in Section A 3). The difference among the two is determined by the evolution of the terms of trade agriculture-industry. We must remember that Lewis seems to prefer the second variable for the empirical analysis of the dual economy⁴⁷.

⁴⁷ But the analysis of the evolution of the workers standard of living is important *per se* and corresponds to one of the most heatedly debated issues among historians working on the process of industrialization in the developed countries. Even if they eventually arose, why did it take so long?

WAGES IN TOBACCO, TEXTILES AND CEMENT
1924-58. INDEX, 1935=100

	TOBACCO				TEXTILES				CEMENT				NOTIONAL WAGES Units - Barrel			
	# WORKERS	NOTIONAL WAGES	REAL1 BASKET	REAL2 COST	RELATIVE PRICES Cigarettes/Food	# WORKERS	NOTIONAL WAGES	REAL1 BASKET	REAL2 COST	RELATIVE PRICES Cloth/Food	# WORKERS	NOTIONAL WAGES		REAL1 BASKET	REAL2 COST	RELATIVE PRICES Cloth/Food
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		(13)	(14)	(15)
1923	NA	NA	NA	NA	104.1	189	NA	NA	NA	NA	NA	NA	NA	NA	NA	74.1
1924	11	88.7	72.8	78.8	101.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	88.7
1925	19	79.7	78.2	69.1	86.4	NA	81.4	71.7	83.8	86.4	NA	NA	NA	NA	176.2	84.4
1926	23	76.8	57.8	65.9	92.2	NA	91.8	68.1	92.8	73.4	NA	NA	NA	NA	188.5	91.1
1927	33	181.1	88.8	87.6	92.2	146	101.7	81.3	106.6	76.3	NA	NA	NA	NA	232.5	111.9
1928	30	95.2	75.8	51.1	148.5	136	104.1	82.9	119.6	69.3	NA	NA	NA	NA	188.9	128.1
1929	36	97.3	77.8	32.3	240.8	173	93.1	74.4	182.1	72.9	NA	NA	NA	NA	152.6	122.2
1930	35	97.7	58.4	20.1	499.9	NA	86.5	87.2	106.5	81.9	NA	NA	NA	NA	155.8	108.1
1931	36	83.8	97.7	98.8	107.6	NA	88.3	93.6	102.2	91.6	NA	NA	NA	NA	98.8	86.2
1932	28	86.5	131.5	88.4	163.7	241	81.3	123.5	118.5	111.9	NA	NA	NA	NA	117.4	72.6
1933	21	81.8	117.3	81.8	144.7	318	78.8	112.9	87.7	128.7	56	75.8	108.5	82.5	131.5	82.2
1934	28	93.8	97.8	93.8	184.3	448	87.2	91.8	85.4	106.5	62	94.7	99.2	99.2	99.5	81.5
1935	23	108.8	108.8	108.8	188.8	446	108.8	108.8	108.8	108.8	69	108.8	108.8	108.8	108.8	108.8
1936	41	106.8	108.7	106.8	94.3	NA	106.3	108.3	102.1	98.3	78	97.4	91.9	93.1	98.6	112.6
1937	35	111.5	101.8	111.5	91.3	593	109.8	99.5	111.6	89.2	81	98.8	82.9	75.8	118.5	112.6
1938	37	133.8	107.9	123.5	87.4	NA	107.8	87.5	109.8	79.6	88	93.4	75.8	73.8	102.7	113.3
1939	40	147.3	111.6	136.8	81.6	NA	107.6	149.7	207.7	72.1	84	108.8	70.8	79.8	95.9	127.4
1940	50	148.5	115.1	NA	NA	859	201.6	161.8	211.9	76.3	NA	NA	NA	NA	99.4	NA
1941	37	148.4	128.1	NA	NA	NA	205.6	166.5	106.6	89.2	NA	NA	NA	NA	98.8	NA
1942	36	154.8	106.2	154.8	68.6	NA	201.5	138.5	149.1	92.8	142	112.6	77.3	89.8	86.9	NA
1943	40	145.9	83.9	145.9	57.5	NA	248.1	142.7	177.8	88.6	157	117.9	67.8	93.2	72.8	NA
1944	44	135.4	62.6	117.4	53.3	NA	268.4	123.9	167.4	74.8	166	114.5	52.9	83.2	63.5	NA
1945	56	174.8	74.3	113.6	65.4	NA	288.4	122.5	144.8	85.1	169	158.4	63.9	97.6	65.4	NA
1946	54	167.6	65.8	108.9	59.7	NA	NA	NA	NA	91.3	NA	NA	NA	NA	78.4	NA
1947	54	282.1	131.3	188.9	59.4	NA	NA	NA	NA	98.8	197	309.2	87.1	154.8	56.6	NA
1948	58	316.8	89.1	285.4	43.4	NA	NA	NA	NA	92.3	178	306.3	93.6	174.5	53.6	NA
1949	NA	NA	NA	NA	42.5	NA	NA	NA	NA	76.6	193	371.1	81.1	182.3	44.5	NA
1950	NA	NA	NA	NA	40.3	NA	NA	NA	NA	NA	193	NA	NA	NA	NA	NA

Sources:

Archivos de Coltabaco

Cemco y Montenegro, 1982, p.71

Revista del Banco de la Republica

Notes and Methodology:

Hourly wages for the first week of January in each year.

1982: of workers in the Section "Hebras" - laboracion de picastru - were men

Maguistates and Raudentes de Maguistates were also men in all cases.

Col (1): Sections of "Hebras", and in "Hebras de Cigarrillos"; Maguistates and Raudentes de Maguistates. This three Sections represent about 78% of total

workers in Coltabaco-Medellin. Col (2): 1924-1948: Pastas Price Index for wages in the three Sections of Col (1) 1948-58: from Montenegro

Col (3): 1924-1948: Pastas Price Index for wages in the three Sections of Col (1) 1948-58: from Montenegro

Col (4): Cuadro 8.5: "Total Industria Nacional" Col (5): 1924-1948: Using as Deflator the Price of Food in the four largest Colombian cities

1946-58: Using as Deflator the Index of Cost of Living in Bogota Col (6): Using as Deflator the Price of Cigarettes. Figures for 1928-38 and 1948-42

are only approximate Col (6): Workers in "Envolvedoras", "Hilados" y "Tejidos" in Fabricato. They represent more than 78% of total workers in Fabricato

Col (7): Pastas Price Index for wages in Envolvedoras, Hilados y Telares. Col (8): 1925-38: Weighted Wage for workers in the three Sections of Col

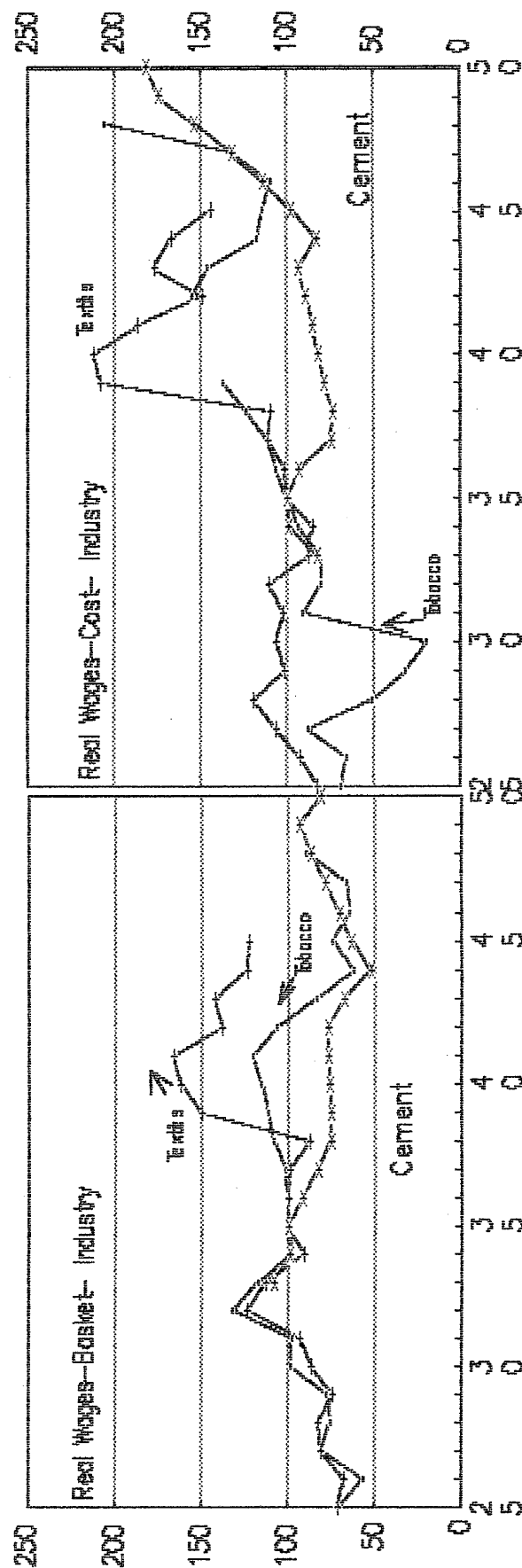
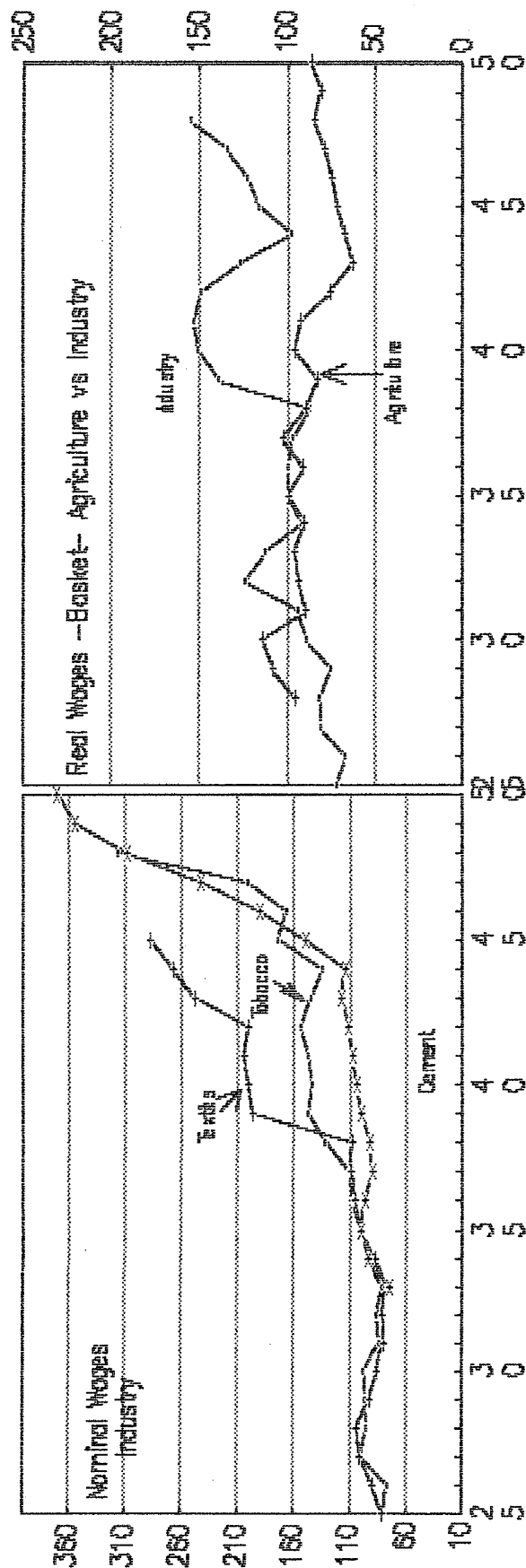
(6) 1939-48: Montenegro, Ibid. "Total Industria en Medellin" Col (9): 1943-58: Ibid. Total Industria Nacional Col (10): As in Col (8) Col (11):

Using as Deflator the Pastas Price for 5 products in Fabricato which represent more than 88% of total sales. Col (12): "Pacmas" en Cementos Saper Col

(14): Price of Cement. 1925-38: Cemco y Montenegro (1982), p.71

Col (16): From Urutia and Arrubla, 1978, p.74

WAGES IN COLOMBIA, 1925-50. AGRICULTURE AND INDUSTRY. 1935=100



Source: Table

The evolution of nominal wages in Tobacco and Textiles is very similar in the 1920s and 1930s (information on Cement is not available), and differs markedly from the traditional sources - mainly Urrutia⁴⁸-. They are more stable than previously assumed and increase much more in the long run⁴⁹. After 1940, however, wages rise much faster in textiles than in the other sectors. But the terms of trade (P_m/P_r) moved against industry and the wage-price ratio (w/P_m) deteriorated markedly. This had negative consequences for profits which, anyhow were very high during the period⁵⁰.

⁴⁸ In Urrutia M and Arrubla M, (Eds.), *Compendio de Estadísticas Historicas de Colombia*, Bogota, Universidad Nacional, 1970. See Urrutia and Berry, p.74). See last Column in Table 5. Unfortunately, their figures only to until 1939.

⁴⁹ Urrutia's figures are roughly similar in 1928/29 and 1939; ours indicate a very important upsurge in the same period (50% for Tobacco, 100% for Textiles).

⁵⁰ See next Chapter on factors influencing investment.

More will be said on the topic below, but we could advance some hypothesis on the determinants of real wages. One could argue that managers tried to pay as little as they could but labor quality was an important asset. Workers are not really interested in the wage-price ratio. They simply tried to defend their standard of living, and conflicts were present when the price of food moved faster than the wage rate. Prices moved before wages but in the long run the two trends were very similar. And, of course, it will be difficult to imagine even lower wages than those who existed because the conditions of life of the population were certainly disastrous at that time ⁵¹.

⁵¹ On labor conditions the British Council wrote in . See J.J. Echavarria, "Los Factores determinantes de la Industrializacion Colombiana entre 1920 y 1950. Inversion y Cambio Tecnológico bajo condiciones de oferta ilimitada de mano de obra", *Coyuntura Economica*, June, 1984

The evolution of w/P_t in the textile sector is difficult to explain. Why did managers payed higher if they had this "reserve army" of labour?. A partial answer has to do with the evolution of labor productivity, which increased much faster textiles⁵². But that does not explain the whole picture. Some "irrationality" could be present and managers shared profits with workers; on the other hand, the quality of the labor was considered too important by managers. It is likely that a labor force motivated with higher wages and incentives increased profits more than a labor force in the limit of subsistence.

3.DIRECT INFORMATION FROM THE RECORDS OF THE FIRMS.

a)THE EVIDENCE. MAIN RESULTS

The wage-price ratio moved against industry in the period considered, mainly because the terms manufactures-food decreased all the time. The cost of living wage remained fairly constant except for the textile sector. Why?. In this section we want to analize the characteristics of the labor force employed by industry. A lot has been written on the subject and little is effectively known since the sources employed are on the main so deffective.

⁵² See Chapter IV

We worked with direct information from the firms for more than 3000 files available in textiles, beer, cement, and tobacco⁵³. Some of the questions which this new information allow us to explore is the following: Did labor come from agriculture as it is traditionally assumed?; from coffee areas; from areas in which capital proletarianized peasants as in the "classic" case, at least of England?. Did the labor force work in "Trilladoras de Cafe" and then moved to industry as it suggested by Arago⁵⁴. How stable was the labor force inside the firms?; how old?. The main figures are provided in Table 4. We start with some general characteristics of the labour force like sex, age and civil status, and then move to variables which are more important in the kind of discussion we have in the Chapter. Most of the workers of our sample (65%-70%) entered the firm in the 1940s (mostly in 1941-45).

⁵³ The firms considered were:

In the Textile Sector (1301 workers): Fabricato, Coltejer, Tejidos de Bello and Rosellon.

Tobacco: Coltabaco (Bogota and Medellin)

Beer: Bavaria (1000 files)

Cement: Cementos Samper

They were the leading firms in all cases, with the only exception of Cementos Samper. It was clear from the previous Sections that our firms were also representative in each sector. Files were roughly equally distributed between Bogota and Medellin. Unfortunately we only have one sector, Tobacco, for which comparisons between Bogota and Medellin can be made.

⁵⁴ Arango M. *Cafe y Industria. 1850-1930*, CIE, Medellin, Carlos Valencia Editores, 1979

each category unless otherwise specified)

[illegible]

TABLE 4 cont

1920-50

(% in each category unless otherwise specified)

		BOGOTA				MEDELLIN		
		TOTAL	BAVARIA CEMENTOS SAMPER	COLTABACO BOGOTA		TOTAL COLTEJER & FABRICATO MEDELLIN		
(9a) Labor Force's Birthplace. Distance								
	Bogota	12.6	19.3	0.0	19.7			
	Medellin					14.8	10.4	43.2
	La Calera	11.3	0.7	30.7	0.8			
	Bello, Envigado and Itagui					27.8	30.9	7.9
	<50 kms	12.3	11.2	13.9	13.9	22.5	23.4	16.8
	50-100 kms	15.5	17.3	14.5	5.7	18.3	18.9	14.2
	101-150 kms	7.2	6.7	5.5	19.7	14.9	15.1	14.2
	Boyaca	27.4	31.9	22.1	16.4			
	Other Departments	13.7	12.9	13.3	23.8	1.7	1.3	3.7
TOTAL		100.0	100.0	100.0	100.0	100.0	100.0	100.0
(9b) Labor Force's Birthplace. Economic Characteristics of the Region								
	Coffee	1.9	2.4	1.0	2.5	16.4	16.1	19.7
	Sugar Cane	1.5	1.1	2.1	0.8	3.5	3.5	3.0
	Mines	6.2	6.8	4.0	12.4	2.6	2.5	3.0
	Cattle	14.4	12.4	19.1	6.6	3.0	3.0	3.0
	Industry	31.8	29.4	35.5	33.1	32.1	34.1	13.6
	Others	3.1	3.1	3.0	4.1	41.4	40.8	47.0
	Boyaca	27.4	31.9	22.1	16.5			
	Other Depts.	13.8	12.9	13.2	24.0	1.1	0.0	10.6
TOTAL		100.0	100.0	100.0	100.0	100.0	100.0	100.0
(10) Migration Process								
	Late Migrant	22.6	20.5	29.4	5.8	3.4	3.6	2.6
	Early Migrant	39.0	53.0	9.9	69.4	39.8	37.2	52.4
	Continuous Migrant	11.7	6.2	22.2	4.1	2.7	3.1	1.1
	No Migration	26.7	20.2	38.5	20.7	54.1	56.1	43.9
TOTAL		100	100	100	100	100	100	100
(11) Previous Work								
	Coffee Trilla	0.29	0.23	0.20	1.82	0.30	0.26	0.59
	Textile Factory	0.71	1.05	0.20	0.00	13.02	13.21	11.76
	Non-Textile Factory	22.06	24.44	14.66	50.91	10.10	7.63	27.06
	"Independent Workers". Textile	0.14	0.23	0.00	0.00	0.67	0.77	0.00
	"Independent Workers". No Text	3.43	2.81	4.28	5.45	1.65	1.37	3.53
	Drug Stores and Commerce	13.78	14.50	12.42	14.55	6.44	5.32	14.12
	Agriculture	15.99	9.47	28.11	9.09	6.96	7.72	1.76
	Mines	1.36	0.94	2.24	0.00	0.90	1.03	0.00
	House Servant	0.93	1.05	0.61	1.82	2.25	1.03	10.59
	Student	0.64	0.23	1.22	1.82	1.50	0.77	6.47
	Construction	7.35	7.37	7.94	1.82	3.89	3.52	6.47
	Other	21.84	25.61	17.11	5.45	5.16	4.29	11.18
	No Previous Work	11.28	12.05	11.00	1.82	46.41	53.09	0.59

INDUSTRIAL WORKERS. ANALYSIS OF "HOJAS DE VIDA"

1920-50

(% in each category unless otherwise specified)

TABLE 4 cont
1920-50

(% in each category unless otherwise specified)

	BOGOTA				MEDELLIN		
	TOTAL	BAVARIA	CEMENTOS SAMPER	COLTABACO BOGOTA	TOTAL	COLTEJER & FABRICATO	COLTABACO MEDELLIN
Tobacco Factories	0.14	0.00	0.00	3.64	0.15	0.00	1.18
Artisan	0.07	0.00	0.00	1.82	0.60	0.00	4.71
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Internal Documentation in the Firms

Methodology:

(4): The Weighted Average assumes that all workers classified in '16-24 years' had an age of 20, the arithmetic average of the period. That assumption was done for each period. It was also assumed that the 'average' age for '>15' was 14, and for '>44' was 46

(7): The Weighted Average assumes that all workers in '<2' worked 1 year in the firm; '3-5':4; '6-10':8; '11-15':13; '16-20':18; '>21':26

(10): The definition of 'Late Migrant', 'Early Migrant' and 'Continuous Migrant' was based in the comparisons of the place in which the worker was born, got his 'cedula', and was living when working in the plant. Thus, a worker who was born in a Municipio located in the Category '101-150 kms', got his Cedula in another Municipio in '50-100 kms' and was finally living in Medellin (Bogotá), was considered a Continuous Migrant. That worker who was born in a different category from that one in which he got his Cédula, and the last place coincided with that one in which he was living when working in the plant, was considered an 'Early Migrant', etc

Workers in the textile sector were mostly *single women* who entered the firms at *ages less than 24* (25% at less than 15) and this mark an important difference with the other sectors. In the beer sector, for example, *married male* workers entered the firms being much *older*⁵⁵. The comparison between the tobacco plant in Medellin and Bogota suggests that the observed differences had more to do with the economic characteristics of the sector than with the region; percentages were very similar for Bogota and Medellin in than specific sector.

The stability of workes on the jobs is really impressive and only partially agrees with the idea of the manager in the dual economy working mainly with unskilled labor, replacing workers everytime an outsider offered to work for a lower wage. It is certainly difficult to explain why almost all workers in the tobacco sector -the extreme case- stayed in the company more than 20 years. The stability of the workers was much higher in Medellin than in Bogotá, but that, again, seems to be related with the economic characteristics of the sector since the stability in Tobacco was similar for the two cities⁵⁶.

⁵⁵ It could be, then, a bias in our information in the tobacco sector. Our information on beer and cement seems to be consistent with information from secondary sources. But we simply took all the cases available, and there is nothing we could do to solve the bias existent in the tobacco sector.

⁵⁶ "Paternalismo" and the quality of labor appear again as important variables. We could, alternately say that because industry paid higher wages than other sectors (except transport), workers desperately tried to remain inside the firms. Huge unemployment always scared them.

The level of education of the workers was outstandingly high when compared with the population average. More than 80% of the workers (95% in beer and in textiles) knew how to read and write, compared with less than 60% for the average in the population in Antioquia -a lower figure in the rest of the country -.

What our findings on education and the previous one on stability seem to suggest is that managers and capitalists in industry were very selective when choosing personnel in the large reservoir of uneducated-unskillful workers. This also confirms that the issue of quality and skills is important. It was not that one worker could be easily substituted by another. Our findings also seem to suggest that most workers were educated inside the firm. On a different complementary issue, and as it should have been expected -Row (8)-, most workers remained being workers all their lives⁵⁷.

⁵⁷ Also in Coltabaco, but the percentage of people who moved from worker to employee is strikingly different from the other firms. In the other extreme is Bavaria where practically no worker escalated the ladder. All this characterizes Coltabaco as the "different" company on labor relations. The textile sector has been always chosen as the example of paternalistic relations in Antioquia.

Rows 9a and 9b put together the information on the origin of the work force⁵⁸. There are important differences between the two cities considered. Medellin workers were born either in Medellin or in the towns in which the plants were located. The picture for Cundinamarca is completely different, most of the workers coming from the rural areas. A large proportion of workers working for the plants in Bogota came from Boyaca, a neighbour department with some important economic characteristics: rural, without coffee, and very poor.

But even in the case of Bogota Plants, those "workers" coming from the rural areas were "early migrants" (Row 10) which means that they arrived to the city before they were eighteen. What all this means is that there are very few cases of farmers proletarianized in the rural areas and then "expelled" -by capitalist expansion- into the cities as the "colombian folklore" says it happened; in Medellin workers did not come from the rural areas; in Bogotá workers were children when their parents migrated. They grew up in the cities.

⁵⁸ The classification on distances for the different municipalities was made based in internal documentation of the Instituto Agustin Codazzi (Maps 3-30-4-010 for Antioquia; and for Cundinamarca). We tried to follow the roads available at the time. But there are many problems involved which still remain for our classification. To start with, the quality of the roads could be completely different for two routes with the same distance. The classification of economic characteristics for the municipalities was based on the information provided by two publications for the case of Cundinamarca: Dirección Departamental de Estadística, Anuario Estadístico Ilustrado, 1930; and Dirección Departamental de Estadística, Hechos y Cifras de Cundinamarca, 1949-52. For Antioquia, based on ..()

What were the economic characteristics of those regions from which those *few young workers* came; we must also remember that this question has no meaning for Medellín since most workers were born in the city. Our classification included the following categories for each "municipality" of origin: industry, coffee, sugar cane, mining, cattle, industry" and "others". Coffee areas were not important, and most migrants came from areas in which cattle or minning were the main activities⁶⁰. In the case of Medellín those few workers who were not born in the city came from areas for which coffee production was important.

Who *trained* the workers?. What did they do before entering the plants?. Section (11) asks for workers previous job. The categories utilized were: coffee "trilla", Textile Factories, Non-Textile Factoris, "Independ Worker" in Textiles, "Independ Worker in No-Textiles", Drug Stores and Commerce, Agriculture, Mines, House Servant, Student, Construction, Other and No Previous Work.

⁵⁹ Urban areas are generally identified with industry in the sources utilized. In the case of workers coming from other departments different from Antioquia or Cundinamarca it was impossible to classify municipalities.

⁶⁰ Even if workers coming from Boyaca were no classified according to the economic activity of the municipality, it is clear that we can be pretty sure of our conclusions, at least in relation with coffee, since Boyacá does not produce coffee.

A large proportion of the Bogota's labor force was trained in "other" factories, meaning mainly that the firms in which workers were finally engaged had that relative advantage. Workers were previously trained in the life of industry before our firms hired them. The figure for Coltabaco-Bogota is specially high. Workers previously working in agriculture are almost nil for Bavaria and Coltabaco, confirming our previous findings on the origin and type of migration of Bogotá's labor force⁶¹. The other important sector providing workers for industry in Bogota was "Drug Stores and Commerce". The importance of "Artisans" and "Domestic Servants", two sectors which traditionally have been associated with reservoirs of workers for industry was really minor.

As we should have expected from the information given above on the textile sector, mainly from that one related to age of entry, sex, and stability,

The bulk of the labor force in the textile sector - Medellín- did not work before, something we should have expected from the information on age of entry-very young- and stability-large- ⁶².

⁶¹ The relatively high figure for Bogotá is a little bit misleading. The importance of agricultural activities of the labor force is due to the fact that the work force for Cemento Samper was born in the place in which the plant was located -La Calera-, a "rural"-but very near to the city- municipality.

⁶² And not from factories in the Tobacco sector.

There are four main conclusions from our previous findings:

First, the labor force in the textile sector was significantly different from the other sectors. Second, the idea of unskilled labour reservoir from which the firm picks workers does not fit very well the picture, as seen from the figures for stability, education and age of entry. It was a very segmented labor market where most migrant workers working in "industry" did it in the "coffee trilla"; but that was the end of the journey. They never jumped to modern industry. Third, workers were previously trained by other "industries", something which, no doubt helped our firms. Fifth, coffee and agriculture were irrelevant as a source of labor. Most labor came from the cities, and if they came from the rural areas, they came with their parents, and grew up in the cities.

b) CONTRASTS WITH OTHER AUTHORS.

Our findings in our previous Section conflict with most of what have been said on labor supply in Colombia. We do not pretend to be exhaustive here, and we will only review some of the main contributions to the issue in the past.

-On Previous Work:

Most authors will agree that artisan professions were not an important source of supply for future industrial workers, neither in Bogotá nor in Medellín⁶³. Even more, the absence of an important artisan class has been normally considered as an asset in the process of industrialization since there was no resistance from that class when the first industrial projects were installed. But that is a very different issue.

⁶³ M.Arango M. *Cafe y la Industria. 1850-1930*, CIE, Medellín, Carlos Valencia Editores, 1979, p. 18; R.Brew, *El Desarrollo Económico de Antioquia*, Bogotá, Banco de la República, 1977, p.327-335,408

The emphasis given by Ospina Vásquez, Arango and Brew to Coffee Trilla in the cities as the first contact of rural migrants with "modern" industry seems to be correct⁶⁴. It could even be correct-but we do not know enough on that labor market of the time- that the large reservoir of home servants had close links with the trilla plants⁶⁵. What is incorrect is to conclude from there that those workers moved later on towards modern industry. That is not confirmed by our information and suggests that the labor market was much more segmented than what has been traditionally assumed. From different sources it is clear that coffee "trilla" payed very low wages, and employed unskilled woman mainly. But those people never continued their process to more "decent" and better payed jobs in modern industry.

-On Origin:

⁶⁴ R.Brew, *El Desarrollo Economico de Antioquia*, Bogotá, Banco de la República, 1977, p. 68; M.Arango. *Cafe we Industria. 1850-1930*, CIE, Medellin, Carlos Valencia Editores, 1979; L. Ospina, *Industria y Protección en Colombia*, ESF, 1955, p.25

Preobrazhensky E.A, *The New Economics*, trans B.Pearce (1965), Oxrofd, Clarendon Press, 1924.

⁶⁵ Arango, *Op.Cit*, p. 106

Many authors have associated the rural conflicts which took place in the first part of the 30s in Colombia with the return of urban workers to their original rural places. Having known a different life in the cities, those people were not willing to tolerate archaic and feudal relations any more⁶⁶. This does not seem to be the case for people working in the large firms even though the story will seem plausible at first sight: rural conflicts occurred mainly in Cundinamarca and Boyacá and only those large firms from Bogotá threw out workers⁶⁷.

But the link is difficult to establish from our previous information. Workers were mainly urban and those few who really migrated from the rural areas did not have any link to coffee regions, where most conflicts occurred after the depression. It is likely that some people in the cities returned to the rural areas in the midst of the depression as reported by the press and other writers at the time⁶⁸, but probably those people in the worse situation in the cities.

⁶⁶ Urrutia M, *Historia del Sindicalismo Colombiano*, 2nd ed, Bogotá, Editorial la Carreta, 1976, p.151. Urrutia is referring in particular to those workers who were previously employed by the government in the construction of roads and railroads. It is not clear, however, that those workers went back to the countryside; many public works took place in the countryside.

⁶⁷ We have very detailed information for the large beer plant in Bogotá. Managers had agreed on a long term-two years- labor contract in 1929. When the depression arrived and wages start to fall with prices in the country, the only way managers saw to solve the problem was to through out workers and hire new ones with the "new" conditions.

⁶⁸ In one his speeches in 1932 President Olaya said "han vuelto a la tierra quienes la abandonaron". The report from Oficina del Trabajo also seem to confirm what Olaya stated.

On a more general level there is the -related- issue of the origin of the labor force for industry. Most authors accept the traditional view that it was rural labor force which migrated to the cities⁶⁹, and Brew goes even further. For the plants in Medellín he says that 45% of the labor force in 1945 had rural origin, mainly from coffee producing areas. Not only that but

"la mano de obra femenina había adquirido a través del tiempo experiencia del trabajo disciplinado y de la administración, como resultado de la experiencia anterior de los albores en las haciendas de café" ... "Las tradiciones de movilidad geográfica y el trabajo disciplinado y remunerado que tuvieron su origen en la mano de obra migratoria en la minería y luego en el Siglo XIX en las plantaciones de café facilitaron la transición del trabajo rural agrícola al industrial urbano"... "La industria textil antioqueña dependió en los primeros años de la mano de obra de muchachascampesinas, solteras que iban a Medellín, atraídas por la ciudad y halagadas por la perspectiva de dejar la casa y encontrar trabajo permanente, aunque en realidad este no fuere mejor pagado que en las haciendas cafeteras"⁷⁰

⁶⁹ Ocampo J.A. and S.Montenegro, 1984, *Crisis Mundial, Protección e Industrialización*, Fondo Editorial, EREC, p.439; .

⁷⁰ Brew R, *El Desarrollo Económico de Antioquia*, Bogotá, Banco de la República, 1977 pp.49-68

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TABLE A 1

CHARACTERISTICS OF PRODUCTION
INDUSTRIAL SECTORS AND DEPARTMENTS

PARTICIPATION Q2:												
SIZE OF THE TYPICAL "FIRM"												
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L: Employment; EST: # of Establishments; Q: Production; VA: Value Added

Sources:

Colombia. Dirección General del Censo, 1947. pp. 135 and 448.

Methodology:

Averages: Arithmetic for Sectors 1-5; weighted for "Other Sectors" and for "Total".

Absolute Values for Q and VA: in Millions of Col \$

The textile sector includes "despachos" and this could distort the results

slightly. Includes Fringe Benefits. It also includes "trabajadores a domicilio"

TABLE A 2

POPULATION GROWTH IN COLOMBIA. 1905-51

MUNICIPALITIES

=====

	1905-12	1912-18	1918-28	1928-38	1938-51
I. ANNUAL GROWTH RATE (%)					
BOGOTA	2.8	2.9	5.0	3.4	5.2
MEDELLIN	3.7	1.8	4.3	3.4	6.0
OTHER 17 MUNICIPALITIES	2.2	4.5	6.4	0.8	4.3
TOTAL	2.5	3.9	5.9	1.6	4.7

II. ABSOLUTE VARIATION PER YEAR

BOGOTA	3037	3790	9143	9489	24001
MEDELLIN	2298	1357	4090	4822	14609
OTHER 17 MUNICIPALITIES	7939	19796	43756	8232	58070
TOTAL	13274	24943	56988	22543	96680

=====

Sources:

McGreevey, 1971, Table 15 and author's calculations

Methodology:

Exponential growth rates in all cases

ISSUES IN LABOR LEGISLATION.

=====

I. PRINCIPAL LAWS STILL OPERATING IN 1936

Argentina: 1929, 1932, 1933
Brazil: 1932
Chile: 1924, 1931 and 1932
Colombia: 1931, 1934
Costa Rica: 1920, 1929
Cuba: 1933, 1934
Dominican Republic: 1935
Ecuador: 1928, 1934, 1935
Guatemala: 1926
Haiti:
Honduras: 1924
Mexico: 1931
Panama: 1914, 1916
El Salvador: 1928, 1929
Uruguay: 1915, 1931, 1932, 1935
Venezuela: 1936

II. LEGISLATION ON MAXIMUM HOURS

A. COLOMBIA. -8/day, 48/week. No limit in emergency. 48/week

8/day. No limit in emergency. 48/week
over 3 weeks; 56/Week if overtime.

B. COMPARISON WITH OTHER COUNTRIES:

8/day is the standard time for all countries
considered (Argent, Brazil, Chile, Colombia, Costa rica, Cuba,
Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Panama,
Salvador, Uruguay and Venezuela).

1. COUNTRIES WHOSE WORKERS WERE LESS PROTECTED THAN IN COLOMBIA

In Brazil workers may work 10 hours a day (60/week);
"by agreement", except in "unhealthful industries and mining"; in
Chile 10 per day "on work not prejudicial to health"; in ecuador
10/day, 60/week "approved by authorities"; Panama ("longer hours by
agreement"); Salvador ("longer hours for males over 16, if approved by
authorities"); Venezuela, 9 per day by agreement.

2. COUNTRIES WHOSE WORKERS WERE MORE PROTECTED THAN IN COLOMBIA

-In Ecuador, though la jornada is 48 hours a week, the
compulsory half holiday of saturday reduces it to 44 hours/week
-If the job is executed during the night, it has to be
for 7 hours a day in Argentina, Brazil, Ecuador, Mexico.
-No more than 1/2 day on saturdays in: Argentine,
Chile, Ecuador, Uruguay.
-Saturday half holiday <optional> in Cuba, Panama and
Venezuela (but, what is the meaning of "optional?").

III. LEGISLATION ON OVERTIME WORK.

A. COLOMBIA.

Additional wage of 25% per hour, with some occupations excluded

B. COMPARISON WITH OTHER COUNTRIES:

1. COUNTRIES WHOSE WORKERS WERE LESS PROTECTED THAN IN COLOMBIA

Brazil, Panama, Salvador: extra-pay at rate to be set by agreement; Cuba, Haiti, Honduras, Uruguay: No provision; Dominican Republic: "Option of regular rate or compensatory time off on following days";

2.COUNTRIES WHOSE WORKERS WERE MORE PROTECTED THAN IN COLOMBIA

+100%: Guatemala and Mexico

+50%: in Argentina, Chile, Ecuador (+100% after midnight)..

IV.LEGISLATION ON SUNDAYS AND HOLIDAYS.

A.COLOMBIA.

Double payment or compensatory rest.

B. COMPARISON WITH OTHER COUNTRIES.

1.COUNTRIES WHOSE WORKERS WERE LESS PROTECTED THAN IN COLOMBIA

Brasil, Chile, Costa Rica, Cuba, Dominican , Haiti, Honduras, Salvador and Uruguay: no provision.

V. EXCLUSIONS AND EXCEPTIONS.

A.COLOMBIA.

Supervisor, managers, confidential employees and persons with financial responsibility.

Agricultural Operations and Domestic Service where duties are intermittent.

Also, because the sectors covered are listed (extractive industries, factories, workshops, shipbuilding, transmissions and transformation of motive power, construction and maintenance of buildings, roads, etc and transportation and handling of goods), it seems that the public sector is excluded.

B. COMPARISON WITH OTHER COUNTRIES.

1.COUNTRIES WHOSE WORKERS WERE LESS PROTECTED THAN IN COLOMBIA

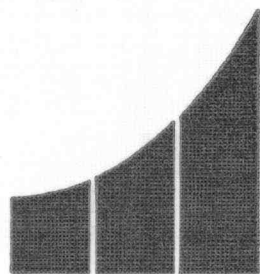
-In Argentina, Chile, Guatemala and Panama: Public

Sector Activities are also included

=====

Source. U.S Department of "Colombian Legislation on Hours of Work"

For Colombia it is based on : Decree NO 1278 of july 23, 1931, and Law NO 895 of apr 26, 1934.



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Entre los temas de investigación que han sido considerados de alta prioridad están la planeación económica y social, el diseño de una política industrial para Colombia, las implicaciones del crecimiento demográfico, el proceso de integración latinoamericana, el desarrollo urbano y la formulación de una política petrolera para el país.

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