

## AGRICULTURAL MODERNIZATION POLICIES AND RURAL DEVELOPMENT IN COLOMBIA (1996 – 2008)

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### ABSTRACT

This paper addresses Colombian agricultural modernization policies for the period of 1996–2008, in which an extreme change in the agronomic total factor productivity (TFP) growth trend occurred and Colombia suffered one of the most violent periods in its history. This paper takes into consideration the state-supported credit system that existed, which aimed to allow the agricultural sector to compete with external markets, seeking a balance between measures aimed at increasing the competitiveness of the agricultural sector and those directed at rural wellbeing. In this context, Colombia is working to increase the competitiveness of the agricultural sector; nevertheless, over 95% of resources are provided based on financial criteria and less than 5% are directed toward other necessities. Financing through credit explains one aspect of the evolution of Colombian agricultural production. It is because of this that smallholder farmers with a high level of social capital have to compete using the same rules as large-scale producers, exporters and emerging producers, all of whom are favored as politically strategic sectors in Free Trade Agreements (FTAs). This creates a complex agricultural landscape, as it aims to maintain large, medium and small producers while the volume of money granted is not proportional to the number of beneficiaries. This means that, in some cases, agricultural social policies are ineffective, perpetuating subsistence agriculture with low levels of technology and productivity. Some exceptions exist, however, such as in the case of coffee, banana, potato and rice producers who are supported by producer associations, allowing them to have some political weight and consequently greater competitiveness. For this reason, experiences under FTAs should be reviewed from a technical, economic and social cost standpoint.

**KEYWORDS:** Rural development; Latin America; Agricultural policy; Free Trade Agreement; Colombian agriculture.

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## POLÍTICAS DE MODERNIZACIÓN AGRÍCOLA Y DESARROLLO RURAL EN COLOMBIA (1996 - 2008)

### RESUMEN

Este documento aborda las políticas de modernización de la agricultura colombiana a partir del período 1996-2008, que se expuso a un cambio extremo en la tendencia de crecimiento de la productividad total de los factores (PTF) agronómicos y sufrió uno de los períodos más violentos de Colombia. En este trabajo se toma en consideración el sistema de crédito apoyado por el Estado y su objetivo era permitir que el sector agrícola pudiera competir con los mercados externos, buscando el equilibrio entre las medidas destinadas a aumentar la competitividad del sector agrícola y las dirigidas al bienestar rural. En este contexto, Colombia está trabajando para aumentar la competitividad del sector agrícola; sin embargo, más del 95% de los recursos se proporcionan en base a criterios financieros y menos del 5% se dirigen hacia otras necesidades. La financiación a través del crédito explica un aspecto de la evolución de la producción agrícola de Colombia. Es debido a esto que los pequeños agricultores con un alto nivel de capital social tienen que competir con las mismas reglas que los grandes productores, exportadores y productores emergentes, todos los cuales son favorecidos como los sectores políticamente estratégicos en el Tratado de Libre Comercio (TLC). Esto crea un panorama agrícola complejo, pues se propone mantener a los productores grandes, medianos y pequeños, mientras que el volumen de dinero otorgado no es proporcional al número de beneficiarios. Esto significa que, en algunos casos, las políticas sociales agrícolas son ineficaces, lo que perpetúa la agricultura de subsistencia con bajos niveles de tecnología y productividad. Existen algunas excepciones, sin embargo, como en el caso de los productores de café, plátano, papa y arroz que están apoyados por las asociaciones de productores, que les permite tener un cierto peso político y en consecuencia una mayor competitividad. Por esta razón, las experiencias del TLC deben revisarse desde un punto de vista económico, técnico y social.

**PALABRAS CLAVE:** desarrollo rural; América Latina; política agrícola; Tratado de Libre Comercio; agricultura colombiana.

## MODERNIZAÇÃO DA POLÍTICA AGRÍCOLA E DESENVOLVIMENTO RURAL NA COLÔMBIA (1996-2008)

### RESUMO

Este artigo discute as políticas de modernização agrícola na Colômbia desde o período 1996 - 2008, o qual esteve exposto a uma mudança extrema na tendência de crescimento de fatores agronômicos de produtividade total (PTF) e sofreu um dos períodos mais violentos na Colômbia. Este trabalho tem em conta o sistema de crédito apoiado pelo estado que existia e tinha a intenção de permitir ao sector agrícola competir com mercados externos, procurando um equilíbrio entre as medidas destinadas a aumentar a competitividade do sector agrícola e que visam o bem-estar rural. Neste contexto, a Colômbia está trabalhando para aumentar a competitividade do sector agrícola; No entanto, mais do 95% dos recursos são fornecidos com base nos critérios financeiros e menos do 5% são dirigidos para outras necessidades. O Financiamento através de crédito explica um aspecto da evolução da produção agrícola colombiana. É por isso que os pequenos agricultores com um alto nível de capital têm de competir com as mesmas regras que os grandes produtores, exportadores e produtores emergentes, todos favorecidos como setores politicamente estratégicos no Acordo de Livre Comércio (TLC). Isso cria uma paisagem agrícola complexa, pois visa manter produtores grandes, médios e pequenos, enquanto que o volume de dinheiro concedido não é proporcional ao número de beneficiários. Isto significa que, em alguns casos, as políticas sociais agrícolas

são ineficazes, perpetuando a agricultura de subsistência, com baixos níveis de tecnologia e produtividade. No entanto, existem exceções, como no caso dos produtores de café, bananas, batatas e arroz, apoiados por associações de produtores, permitindo-lhes ter algum peso político e, portanto, mais competitivo. Por esta razão, as experiências de TLC deve ser revisito a partir de um plano técnico, económico e social.

**PALAVRAS-CHAVE:** Desenvolvimento rural; A América Latina; A política agrícola; Acordo de Livre Comércio; A agricultura colombiana.

## 1. INTRODUCTION

In the 20<sup>th</sup> century, agricultural economic policies have been extremely important in over 90% of the countries in the world, supporting over 1.1 billion families. In many cases, these policies paved the way for industrialization processes (Lipton, 1977; Lipton, 2005; Birnbern & Resnick, 2010). Agriculture in developed and developing countries possesses a series of characteristics and factors that both positively and negatively affects these countries, creating problems specific to each region. This means that measures implemented to facilitate and guide evolutionary processes towards competitive and sustainable agriculture must be distinct, depending on the level of development and the agricultural dynamics of each country or region. Multifunctionality arguments insist that in addition to its productive function, agriculture fulfills environmental and social functions, contributing to the viability of rural areas and to territorial equilibrium. These assessment criteria or characteristics can help to evaluate the structural process from another point of view. There is broad debate over linking or not linking these viewpoints (competitive and multifunctional); some of the less-optimistic examples suggest that they contradict each other (Cahill y Hill, 2005; Febles-González *et al.* 2011). In the case of Europe, French policies included among the “Agricultural Orientation Laws” approved between 1960 and 1962 were the basis of European Union community policies. This policy took as its reference the “model” of family and professional farming on a medium-to-large scale capable of growing, incorporating technical progress, and becoming competitive in the markets (Arnalte, 2006). European-style family farms

generate more positive effects than other types of farms; their guidance and adjustment is necessary in order to avoid excessive concentration of land (Cahill & Hill, 2005). In North America, a social risk resulting from the excessive concentration of land has been noted (Ahearn *et al.*, 2004). Liberal counter-arguments openly state that no causal relationship exists between the present structure of farms and the fulfillment of their functions. Blanford & Hill (2005), meanwhile, they refer to an “environmental function” in which restructured agriculture can be capable of providing an environmental service at a lower cost. Additionally, they mention that both the population actively dedicated to agriculture in these areas and the impact of farming on area income are small.

Nevertheless, agricultural development trends, especially in some developing countries in Africa and Latin America, tend towards the implementation of food security policies (Birner & Resnick, 2010; Febles-González *et al.*, 2011). The past two decades have seen important changes in the patterns and processes of territorial development based on rural development in Latin America (Bebbington *et al.*, 2008). The general development landscape in Latin America is represented by large scale public and private investment in infrastructure and development, and a centralized and technocratic territorial development focus. Meanwhile policies have favored rural and social programs and decentralization processes (unequal and incomplete), and the priority is given to environmental issues (Reardon *et al.*, 2001; Wolford, 2004; Bebbington, 2008).

Rural development initiatives tend to focus on the redistribution of rural resources and to incentivize rural production. The propensity of

agrarian reforms is to, on one hand, aim for the spread of new technologies (green revolution) and, on the other, to look for solutions to poverty and low agricultural production in rural areas (Rigg, 2006; Chase, 2010). As stated by Bebbington (2008), this sharp contrast between state politics and the manner in which territorial development is actually occurring has made the policy debate regarding rural development increasingly important. Given the large number of cultural, ethnic and social contrasts in each Latin American country, the process of modernizing productive structures in the agricultural sphere is developing at different levels depending on the size of the farms and their economic and social functions. Unfortunately, as could be seen over the course of this research, which was focused specifically on Colombia, modernization policies in the farming and livestock sector essentially resulted in a very low percentage (<10%) for social policies or infrastructural development, and during the studied period there was a decrease in the agricultural productivity trend (Kalmanovitz & López, 2006). In considering modernization policies for agricultural land and rural development in Colombia, it is necessary to review the different areas of the Colombian agricultural economy in order to comprehend how the modernization process is occurring in the agricultural sector and, ultimately, to understand the financial dynamics, which are the principal driver of this process in the Colombian countryside. The joining of these realities makes it possible to objectively examine the effectiveness of the agricultural modernization policies in rural Colombia.

## 2. AGRICULTURAL MODERNIZATION POLICIES IN THE LATIN AMERICAN CONTEXT

Agricultural modernization implicates an increase in the efficiency of natural resources utilization, further development of the agrarian sphere, perfection of production process organization, and active implementation of innovative technologies.

It is recognized that innovative development and improvement of the agrarian production process requires great financial expenses and production resources (Tao & Zhu, 2013).

One of the aims of improving technologies is to increase agricultural productivity, which has been the world's primary means of assuring that the needs of a growing population don't outstrip the ability of humanity to supply food. Over the past 50 years, productivity growth in agriculture has allowed food to become more abundant and cheaper. A broad concept of agricultural productivity is total factor productivity (TFP). TFP takes into account all of the land, labor, capital, and material resources employed in farm production, and compares them with the total amount of crop and livestock output (Fuglie, 2015).

A significant part of the agricultural modernization process in Latin America is due to the generation of support and compensation policies in the agricultural and livestock sector aimed at family agriculture (FA), given the importance of FA for social equilibrium and the improvement of quality of life in rural communities.

In Latin America, FA fulfills a key function in poverty reduction, thanks to its capacity to form productive associations, to increase the flow of money into rural communities and to make other sectors of the economy more dynamic. FA is operationally characterized by the use of family labor, limited access to land and capital, and being multi-activity. The productive systems of FA are classified, according to their productivity, into: Family Subsistence Agriculture (FSA), Family Transitional Agriculture (FTA) and Family Consolidated Agriculture (FCA) (Soto *et al.*, 2006). On family farms, the farmer and his family live from farming, do not have a permanent workforce, can cover basic necessities and sell products to the market. These criteria differentiate family farms from subsistence and commercial farming. Garcia *et al.* (2006) affirms that in the majority of Latin American countries, FA accounts for 57% of agricultural sector employees and more than 80% of the total number of farms (**Table 1**).

Since the 1990s, the governments of Latin American and Caribbean countries have promoted economic liberalization processes associated with possible negative effects on small producers in the region (Soto *et al.*, 2006). Integrated rural development programs have been implemented under the supervision of agricultural agencies and have had a territorial focus, and have centered on productive, infrastructural and social aspects (Kerrigan, 2001). According to the cited author, Latin American countries can be divided into three categories based on the percentage of public expenditure destined for the promotion of agriculture and rural areas: those that prioritize productive development of the agricultural sector (Brazil, Costa Rica, Bolivia and the Dominican Republic); those that prioritize rural areas (El Salvador, Guatemala, Nicaragua, Argentina and Peru); and those that distribute the investment in a relatively equal manner (Chile, Colombia and Mexico).

Under Colombia's last distribution of its public expenditure, payments allowed large farms, often times the early adopters of new technology, to buy out their smaller neighbors largely through the effects of increases in productivity.

Nonetheless, a great deal of heterogeneity exists regarding investments in the agricultural sector; for example, in 2000 countries like Japan, the United States and members of the European Union directed 92.4%, 55.3% and 64.5% of GDP per capita income, respectively, of annual public expenditure to the Economically Active Agricultural Population (EAAP), while countries such as Chile and Mexico

allotted 9.9% and 8.9% GDP per capita income, respectively, and countries like Bolivia directed just 1.8% GDP per capita income to the EAAP (Kerrigan, 2001; Kjällerström, 2004).

In Latin America, diverse agriculture and livestock and rural support programs have emerged, such as the Direct Rural Support Program (PROCAMPO) and the Rural Development Project (PDR) in Mexico, the National Program for Strengthening Family Farming (PRONAF) in Brazil, and the Agricultural Sector Financing Fund (FINAGRO) in Colombia.

Regarding the cases of Chile and México, which utilize the same policy of agronomical credit distribution as Colombia (distribute the investment in a relatively equal manner), they address the consequences differently.

In the case of Chile, the agricultural sector is characterized by a deep duality; on one side an agro-export subsector exists that is technologically advanced and competitive in international markets, and on the other, small farmers who find it difficult to redirect production towards untraditional crops (David *et al.*, 2000). The worrisome economic deterioration of family agriculture made it necessary to implement policies focused on production-fostering (Kerrigan, 2001). The actions of the National Institute of Agricultural Development (INDAP) concentrate on 220,000 farming families in Chile responsible for 25% of the sector GNP (gross national product), half of them being below the poverty line.

**TABLE 1. PRINCIPAL CHARACTERISTICS OF FAMILY AGRICULTURE – FA - IN BRAZIL, CHILE, COLOMBIA, ECUADOR, MEXICO AND NICARAGUA**

Principal Characteristics / Country	Brazil	Chile	Colombia	Ecuador	Mexico	Nicaragua
Participation in Value of Sector Production (%)	38	27	41	45	39	67
Participation in Sector Employment (%)	77	57	57	-	70	-
Total Number of Agricultural Plots	4.139	285	737	740	4.834	287
Participation in Total Number of Farms (%)	85	87	87	88	78	98
Average Surface Area of Farm Units Associated with FA (Ha)	26	23	3	7	6	16
Average Surface Area of Farm Units Not Associated with FA (Ha)	433	1.090	15	71	-	343

Created based on information from the Soto *et al.*, 2006

Various joint governmental programs are directed at the rural sector, including the following: INDAP, with programs for fostering the development of small agriculture, increasing competitiveness and encouraging entry into new markets; PROCHILE, the government agency for the promotion of exportation; PRODEMU, the Foundation for the Promotion and Development of Women, focused on the training and education of rural women; and CONAF, an agreement with the National Forest Corporation for the recovery of degraded soils through reforestation (INDAP, 2005). The establishment of the principle of integrality in the design and implementation of these programs permitted family integration and increased the possibility of success and permanence (Ramírez *et al.*, 2001).

In Mexico's case, FA provides 39% of sector GNP, generating 70% of agricultural employment, with FA associated plots averaging 6 ha and the surface area of farmland planted for FA consisting of nearly 70% of the total (see **Table 1**). These numbers show low productivity indices for the sector, which are caused by excessive parceling, low land quality and other production factors such as deficient irrigation systems (Soto, 2006). Since the second half of the 1980s, the Mexican government has pursued the liberalization of the agricultural sector. The reforms established cover all areas of the sector and include a combination of measures, such as the following: the elimination of guaranteed minimum prices for staple crops and of subsidies for some agricultural supplies; the reduction of government-supplied agricultural loans; the privatization of land ownership rights in the social or communal land sector; the elimination or sale of public companies in the food sector, for example, the National Company of Popular Subsistence (CONASUPO); and the liberalization of commerce with the entry of Mexico into the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT) through the Uruguay Round in 1986 (Soto *et al.*, 2006). State agricultural policies aim to strengthen the capacity to compete in the international market whenever possible, or to otherwise minimize

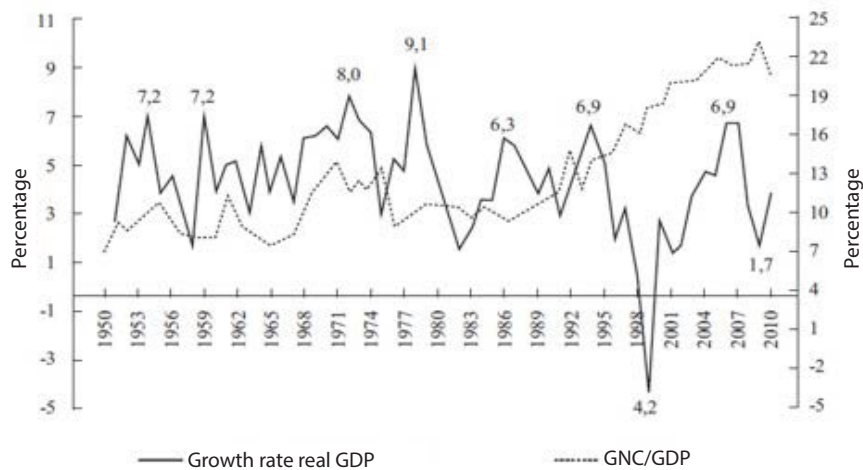
the negative impacts generated by NAFTA. Among state compensation policies, PROCAMPO and PDR, created in 1993 and 1995, respectively, stand out. These programs aim to compensate all Mexican producers who grow staple crops and are not competitive in the world of free trade, and to promote rural development by increasing productivity. PDR has the following affiliated programs: Support for Rural Investment Projects (PAPIR), for the capitalization of rural production units; the Program for Skills Development in Rural Areas (PRODESCA), focusing on skills development for eligible members of the rural community, the identification of areas of opportunity, and the implementation of development projects; and the Program to Strengthen Businesses and Rural Organizations (PROFEMOR), for the consolidation of rural economic organizations. For its part, PROCAMPO has had a positive impact on the use of machinery for planting and harvesting and the use of fertilizers and other agrochemicals, which explains its effects on agricultural productivity (Sadoulet *et al.*, 2001; Soto *et al.*, 2006).

In the Latin American context, Colombia has made strong efforts since the 1990s to create a public policy oriented directly towards agriculture (Gutierrez *et al.*, 2013).

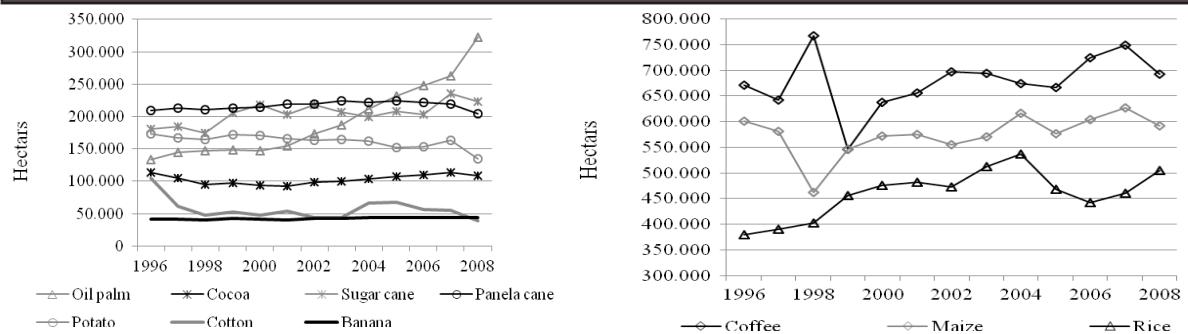
### 3. OVERVIEW OF COLOMBIAN AGRICULTURE

The Colombian economy in the 20<sup>th</sup> century was characterized by tax protection for industry and agriculture, which was a central component of economic policy from the Great Depression until the 1980s, and included credit subsidies and direct investments in production (Kalmanovitz & López Enciso, 2006). According to the cited authors, these state interventions did not create sustainable conditions for agricultural development (**Figure 1**), which stagnated when state intervention was reduced; they created tax policies that protected the agricultural sector, as well as a redistribution of credit users, depositors and owners, in order to add value to the agricultural sector.

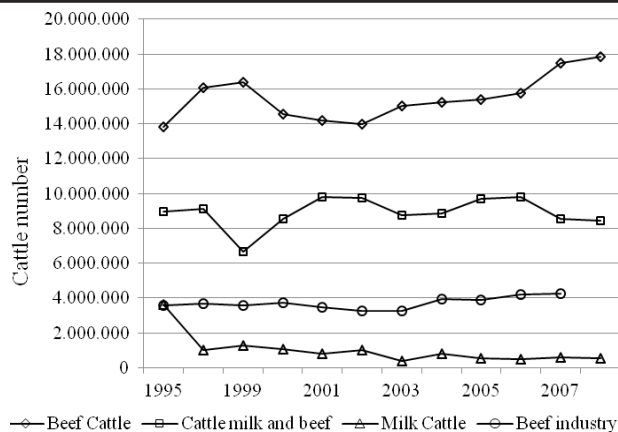
**Figure 1.** Economic growth versus public expenditure in Colombia, as PIB percentage according Alvis & Castrillon (2013)



**Figure 2.** Evolution of the planted area of principal permanent and temporary crops in Colombia in the period 1996-2008. Source: Elaborated from the MADR, 2009



**Figure 3.** Colombia: Evolution of cattle inventory 1995-2008. Source: Elaborated from the MADR, 2009



In its recent history, Colombia is known to have signed four trade agreements: the Cartagena Agreement in 1969; the G3 in 1994; the pact among the Andean Community Nations (CAN) in 2007; and has become an associated member of MERCOSUR. The FTA which went into effect on May 15, 2012, has some policy reforms for modernization and compensatory norms in the rural sector.

Farms in Colombia face issues such as high dependency on few markets, low prices on exported goods, and insecurity in the countryside (Kalmanovitz & López Enciso, 2006). In some parts of the country, the agricultural sector has become more dynamic thanks to an increase in public and private investment. The agricultural GNP represented 14% and 10.32% of overall GNP in the years 1995 and 2007, respectively (DANE, 2010). According to DANE (Colombia's National Administrative Department of Statistics), coffee represents 8.6% of total GNP. For the years 2002 and 2008, the agricultural sector generated 21.87% (3.67 million jobs) and 20.1% (3.6 million jobs) out of the total number of jobs created. For this reason, the rural unemployment rate was 4.7% lower in 2009 than the national unemployment rate. The surface area cultivated in the years 2001 and 2008 was 4,361,355 ha and 4,814,899 ha, distributed among temporary, permanent and forest cultivation (MADR, 2008). In general, Colombian agriculture can be roughly divided into three subsectors: permanent and temporary cultivation, and the livestock sector.

In regard to the implementation of permanent crops in Colombia, they are an alternative to the production of coffee, which dominated the Colombian agricultural landscape throughout the 20<sup>th</sup> century. The implementation of programs to diversify agricultural production throughout Colombia became a priority. Dependency on coffee exports, combined with fluctuations in international coffee prices, have led the Colombian agricultural sector to a certain level of stagnation, characterized by a reduction in income at the end of the 1990s

and the beginning of the 21<sup>st</sup> century, affecting the entire national territory (Feola, 2015). **Figure 2** shows the number of hectares of permanent crops cultivated during the 1996-2008 period, which have experienced technological changes that have not led to an increase in TFP, but instead to capitalization on the farms, acquiring materials and resources, renewed strengthening, renovation of old plantations, and adoption of new varieties with better output by land area and improved resistance to diseases.

In accordance with the analysis performed by MADR (2009) during the 1996-2000 and 2000-2008 periods, the area used for cacao cultivation decreased from 113,000 ha to 93,000 ha, and increased to 108,000 ha in 2008. The majority of producers are smallholders concentrated in three Colombian departments (Arauca, Santander del Norte and Santander del Sur), representing 60% of national production. In the case of sugar cane, little variation occurred, with its most marked decrease in the 2007-2008 period, of 20,000 ha. This was a result of market behavior: reduction in demand and the strengthening of Brazil as a sugar producer. Banana exportation occupies 1.5% percent of the planted area of permanent crops and supplies 7.6% of agricultural GNP. Production was concentrated in two departments (Antioquia and Magdalena), where farms function under a system of companies that supply resources to producers in exchange for ensuring the sale of the product to the company and promising the land as collateral, a system copied by multinational fruit companies established in the country as far back as the beginning of World War I (Kalmanovitz & López Enciso, 2006). The concentration of production in the Antioquia region has resulted in an increase in both exportations and output per hectare. Colombian fruit went from having a 5% share in the world market in 1965 to a more than 10% share in the 1990s, with an output above the national average but far from that reached by developed countries (Kalmanovitz & López Enciso, 2006). In Colombia, palm oil cultivation covers 12.5% of planted area and provides 4.3% of agricultural GNP



with a total of 322,781 ha of production, of which 80% is destined for local consumption (fats, oils and biofuels industry). Production is concentrated in the Meta, Santander del Sur and Cesar departments. For the 1996-2008 period, the area of production increased from 133,688 ha to 322,781 ha, thanks to subsidization policies, soft credit for producers, and the production of biofuels (MADR, 2009; FEDEPALMA 2012). The cultivation of sugarcane in Colombia makes up around 7.2% of cultivated area and provides 7.1% of agricultural production with around 50% of the product exported. Production is concentrated in the Valle and Cauca departments (MADR, 2009). The increase in sugar cane and palm oil cultivation is linked to an increase in the production of biofuels (bioethanol).

In regard to coffee, it is the most representative agricultural product of the Colombian economy, comprising 30% of farmland, providing 17% of agricultural GNP, and concentrating its production in more than 15 departments (Kalmanovitz & López Enciso, 2006). The area farmed has suffered great fluctuation (**Figure 2**). Following a period of crisis set off by the breakup of the International Coffee Pact in 1989, new producers entered into the market who had very low production costs, a worldwide surplus of coffee beans, and an excess of offerings, which generated the accumulation of inventories in the hands of consumer countries (Kalmanovitz & López Enciso, 2006).

Coffee farming has been oriented towards "green" production and the renovation of plantations, which has allowed for the opening of new markets and for a response to the prospects of market competitiveness. Additionally, the public administration and the National Federation of Colombian Coffee Farmers (FEDECAFE) have established joint policies with the objective of guaranteeing a profitable income, encouraging the renovation of coffee plantations, restructuring coffee plantations in zones not optimal for growth, providing technical assistance, investing in research

and development, and increasing the value of the product (MADR, 2008).

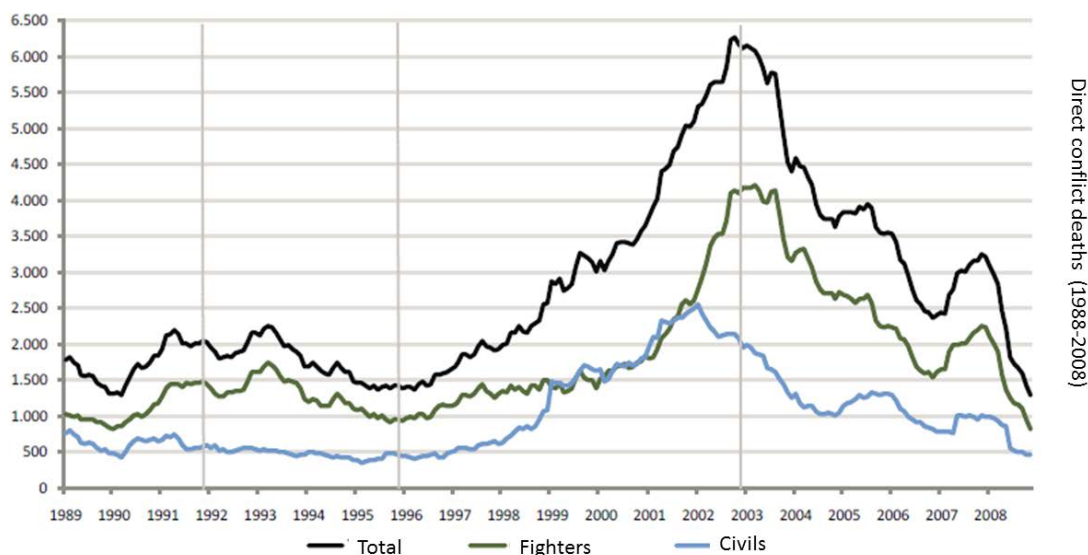
**Figure 2** illustrates the behavior of the planted areas of the principal temporary cultivations in Colombia for the 1996-2008 period. For the period studied, the planted surface area for cotton fell from 104,000 ha to 39,583 ha (1996-2008). Production was concentrated in the Cesar, Tolima and Córdoba departments (MADR, 2008). The decline in production is due to the emergence of China and Pakistan as the principal world producers, and the breakup of the Soviet Union in the 1980s and 90s. Currently, Colombian cotton plantations are on the best land, which prevents yield from falling. The number of hectares planted is currently the same as in the 1950s. (Kalmanovitz & López Enciso, 2006). Presently, 99% of the demand for cotton in national industries is met with imports (Espinal *et al.*, 2005). In the case of rice cultivation, the planted surface area grew from 380,000 ha to 505,000 ha during the years 1996-2008 (MADR, 2008). The amount of rice grown in respect to the total planted area for short-cycle crops rose in the year 2008 to 27.42%, representing 7.8% of agricultural GNP. The principal producers are the Tolima, Meta, Casanare and Sucre departments. The growth of this sector is due to the existence of strong agricultural labor unions, making it the most important temporary crop in the country (unaffected by economic liberalization), despite low yields in comparison with those observed in developed countries. For a detailed analysis of the behavior of production since 1996, see Kalmanovitz & López Enciso (2006), and MADR (2008). In regard to the cultivation of corn, the planted area has not changed greatly, due to the great aptitude of the Inter-Andean plains and valleys. Production has been incentivized through the use of subsidies, with the goal of decreasing dependency on grain imports. Corn makes up 38.5% of the total planted area of short-cycle crops and provides 2.6% of the country's agricultural production. The departments with the highest level of corn production are Córdoba, Valle, Cundinamarca, Tolima and Cesar (MADR, 2009). Potato farming

is the most successful case of the temporary crops planted in the country, increasing its participation in agricultural production value from 2.14% in 1950 to 4.56% in 2000 (Kalmanovitz & López Enciso, 2006), with planted area fluctuating little from year to year. In 2008, the potato sector represented 7.1% of the planted surface area for temporary crops and around 7.8% of agricultural production. Potato production is concentrated in the Cundinamarca, Boyacá, Nariño and Antioquia departments (MADR, 2009). The producers are classified in three groups: small producers (<3 ha, 90% of producers, 45% total production), medium producers (3-10 ha, 7% of producers, 35% total production), and large-scale producers (>10 ha, 3% producers, 20% total production) (Kalmanovitz & López Enciso, 2006). In recent years, exportations to Venezuela have facilitated the maintenance of stable potato prices, generating a certain profitability for producers.

In respect to the livestock sector, the total area used for cattle ranches was 26,580,245 ha in

the year 1995 compared to 31,445,360 ha in 2007 (MADR, 2008). This increase is due to technological improvements in areas of natural low prairie lands. Domestic consumption is 799,607 tons per year and exports have continued to rise. Since Colombia was declared a country free of hoof-and-mouth disease, an increase in exports of 15.8% is expected in the coming years (MADR, 2009). For the 1995-2008 period, a 19.8% increase was seen in the rate of extraction of livestock mass. In the 1990s, after the Colombian livestock sector overcame production deficiencies, it was affected by the upsurge in violence, in particular in the last decade of the 20<sup>th</sup> century (Kalmanovitz & López Enciso, 2006). Despite the notable recovery of the livestock sector in Colombia, it continues to be characterized by a low carrying capacity, extensive cattle ranches and a low grade of technical modernization. **Figure 3** shows the evolution of Colombian livestock inventory in heads of cattle destined for meat production, milk production and a combination of both.

**Figure 4.** Number of direct conflict deaths in Colombia (Restrepo & Aponte, 2009)



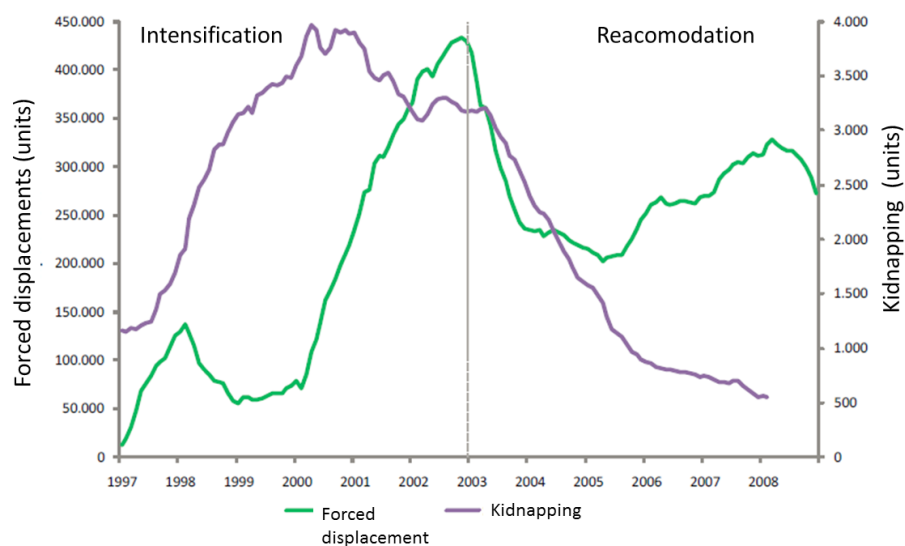
One concept that affects agriculture growth is violence because economic conditions such as employment, income, agricultural production, public and private investment and growth tend to be affected directly and negatively by the presence of violent conflicts (Collier & Hoeffler, 2005). In Colombia, the studied period had an increase of direct conflict deaths (Figure 4). According to Restrepo & Aponte (2009), during the 1996-2008 period there was an important increasing trend of forced displacements due to kidnappings trend until 2002 and posteriorly decreased until 2008 (Figure 5). As a result of the conflict-derived displacements, there was an increase in field abandonment and a decrease in manual labor availability in the agricultural sector, enriching the large landowners, and increasing social division within the sector.

#### 4. AGRICULTURAL CREDIT AS A MODERNIZATION STRATEGY IN COLOMBIA

In the past, rural development was associated only with growth and productivity, while other

characteristics, such as geographic distinctions, infrastructure, services and market access were less important in the designing of agricultural policies. For this reason, the focus of policies designed for rural areas did not go beyond the agricultural plane, severely limiting the effect of these policies on income and quality of life for the population. In the 1990s, initiatives worked in an isolated manner, aiming to cover the basic needs of the population and not to foster a truly sustainable development. Institutions such as the Colombian Agricultural Reform Institute (INCORA), created under *Law 135 of 1961*, had the objective of improving land access for peasants with few resources and supporting agricultural producers with technical and legal training in the land-buying process. It simultaneously granted subsidies proportional to the value of the land bought, acting as an intermediary in negotiations and providing credit through the Agricultural Credit Fund. *Law 16/1990* transformed the financial system, liberalizing the rural credit system and giving birth to the National Agricultural Credit System and the Fund for the Financing of the Agricultural Sector (FINAGRO), regulated by the National Commission on Agricultural Credit (CNCA).

**Figure 5.** Forced displacements and kidnapping during the studied period (Restrepo & Aponte, 2009)



**TABLE 2. STRUCTURE OF LINES OF AGRICULTURAL AND RURAL SUPPORT IN COLOMBIA**

STRUCTURE OF AGRICULTURAL MODERNIZATION POLICIES IN COLOMBIA					
Type	Program or measure	Description			
Directed towards the competitiveness of the agricultural sector	Classic Agricultural Credit and risk coverage FAG.	Finances the direct costs of development of productive activity (agricultural or rural), and the requirements for its commercialization or transformation. The agricultural and livestock guarantees fund acts as support for the coverage of credit, in the face of a lack of any other type of guarantee.			
	Special Credit Line	Credits with preferential rates or soft credits, to incentivize productive sectors of particular interest.	LEC	Secure Agricultural Income (AIS)	
	Land Improvement: Public edicts for irrigation and drainage	Land improvement works for agricultural and/or forestry development in areas with a high concentration of products. Construction of drainage and irrigation districts.	Production incentives		
	Research and Technological Development	Public edicts finance programs that meet the needs of the productive chains, presenting alliances between the academic and productive sector. Direct support to research activities in long-term national programs and the execution of strategic programs for the development of the sector.			
	Coffee Plantation Extension Service	Designed for the reactivation and modernization of the coffee sector. Based on free technical assistance to foment competitiveness, company management, and the diffusion of technology.			
	CIF	Subsidies for up to 75% of the cost of creating commercial forestry plantations.	Production incentives		
	IAT	Subsidies and soft credits for small and medium producers directed at the contracting of private technical assistance services.			
	Productive Transformation Program	Encourages the development of new and emerging sectors through the elaboration and coordination of strategic agendas, the designing of initiatives that permit the increase of exports, and the identification and channeling of investment resources in each sector.	Production incentives		
	ICR	Grants a direct subsidy on the total value of investments made through credit-specific activities.			
	Sanitary Improvement	Program aimed at obtaining the admissibility of national agricultural production in external markets.	AC		
Direct Financial Support	Direct subsidies, subject to compliance with the goals related to increased competitiveness in sectors that lack this.	AED			
Directed towards wellbeing in rural areas	Rationalization in the Use of Fertilizers	Close monitoring of the market for agricultural instruments, allowing for the detection of possible distortions and thus preventing an unjustified and uncompetitive increase in the price of supplies.			
	Biofuels	Program directed toward the generation of a normative framework, and the creation of financial tools and conditions for the encouragement of biofuel production.			
	Environmental Management for Sustainable Agricultural Development	Implementation of production sector actions that take into consideration environmental factors.			
	Land Access	Subsidy for the purchase of land through the public edict scheme.			
Directed towards wellbeing in rural areas	PADEMÉR	Intended to incentivize investments and capitalization in rural small companies.			
	Project of Support for Productive Alliances	Sustained coordination between the organizations of rural producers, the public sector and the private sector.			
	Rural Youth Grants Program	Subsidizes the cost of schooling for agricultural sciences at a technical, technological and university level.			
	Rural Social Interest Housing Program	Assigning of subsidies in regard to improvement and basic sanitation, construction or acquisition of a new home.			

FAG: Agricultural Guarantees Fund, CIF: Forestry Incentive Certificate, IAT: Technical Assistance Incentive, ICR: Rural Capitalization Incentive, AC: commercialization assistance, AED: Direct Financial Support, PADEMÉR: Program to support the development of small rural companies. Source: Elaborated from MADR, 2009

In addition, it created the Agricultural Guarantee Fund (FAG), to support the credit system and diminish the levels of risk in the financial system. With the liberalization of agricultural credit, private banks began to perform credit activities using resources from FINAGRO. These resources in turn came from the establishment of agricultural development titles (7% of the total loans from the private bank), which members of the Colombian financial system were required to buy). According to Balcazar *et al.* (2001), in the first decade of the 21<sup>st</sup> century, through *Decree 1300 of 2003*, the Colombian Institute of Rural Development (INCODER) was created. This body was assigned to the Ministry of Agriculture, and took over the functions of the National Land Adaptation Institute (INAT), the National Fish and Aquaculture Institute (INPA), and the Integrated Rural Development Fund (DRI). INCODER continued working in a close relationship with the agricultural finance sector, promoting productive projects and supporting land redistribution processes.

In 2007, in conjunction with the FTA, the Agro Ingreso Seguro (Secure Agricultural Income, or AIS) program was created through *Ordinance 1133 of 2007*. This public program was focused on the competitiveness of the Colombian agricultural sector, through three lines of support. The first, the Special Credit Line (LEC), supported investments in key activities for the agricultural sector and its productive restructuring. The second provided production incentives through seven programs: co-financing of land improvement projects (irrigation and drainage); co-financing of research projects; support to the Technical Assistance for Coffee Growers in Colombia Service; the Forestry Incentive Certificate (CIF); Technical Assistance Incentive (IAT); the Rural Capitalization Incentive (ICR), which supports classic agricultural credit; and the Productive Transformation Program through the identification of key agricultural subsectors. The third line of support was directed at commercialization assistance, with measures including Livestock Sanitation Strengthening, the National Cattle Identification System, and Direct

Financial Assistance (AED). After 2007, the AIS made a basic distinction between measures for competitiveness and measures for rural wellbeing. Because of this, current Colombian agricultural policy is divided into two subgroups, one for programs directed at *increasing the competitiveness of the sector* and the other composed of programs aimed at encouraging *increased wellbeing in rural areas* (rural equity) (MADR, 2008).

In parallel with the AIS program in 2008, a concrete policy was defined in regard to the encouragement and regulation of the production of biofuels. In 2009, a program was put in place for the rationalization of the use of fertilizers and other agricultural components and “Environmental Management for Sustainable Agricultural Development” (MADR, 2008).

Beginning in 2008, the rural equity programs directed towards wellbeing in rural areas were consisted of five components: Land Convocation, directed at improving access to land for peasants; support to the Development of Rural Small Businesses, related to activity diversification; support to the Productive Alliances, aiming to link organizations of small producers with private companies; grants for Rural Youth that aim to provide education to prevent rural migration; and the Social Rural Housing Plan (MADR, 2008). **Table 2** details the lines of agricultural support and measures implemented in recent years in the rural sector in Colombia. The money for agricultural credit is directed at providing the work and investment capital needed in production, commercialization and primary transformation, through profitable projects that are technically and ecologically viable (FINAGRO, 2009). The basic characteristics and conditions of agricultural credit in Colombia, established by the National Commission on Agricultural Credit (CNCA), are illustrated in **Table 3**. For more information regarding the framework of the measures and the AIS’s complementary projects, see MADR (2008).

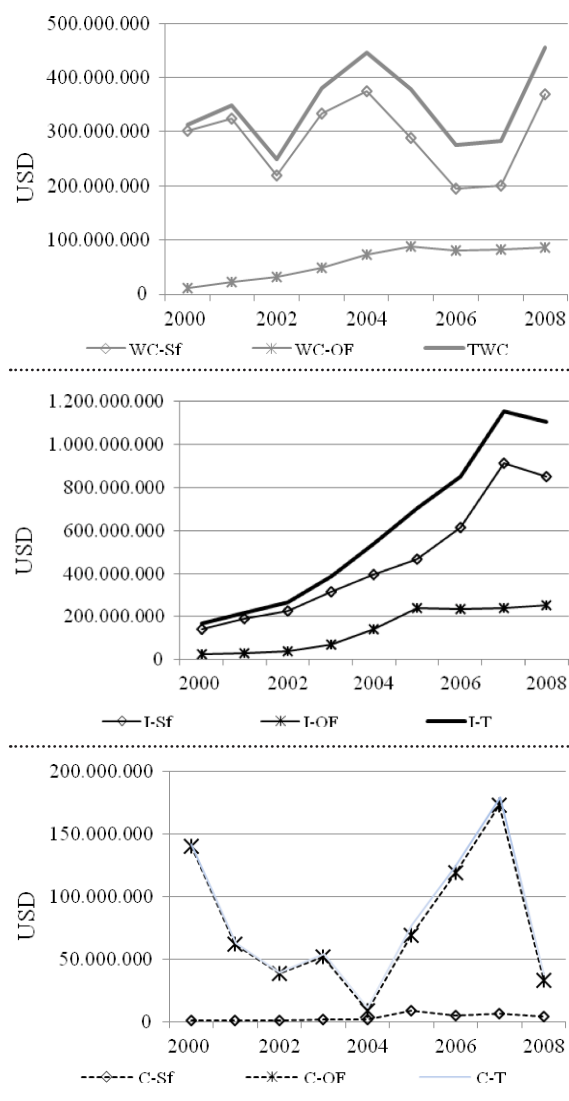
Since 1990, the Agricultural Investment Fund (FINAGRO) has continued to operate as an

administrator of credit support resources for the Colombian agricultural sector, handling both classic credit resources and the special credit line of the AIS program, LEC-AIS. A group of banks operates together in providing financial mediation and granting loans to the beneficiary, with the Agricultural Bank of Colombia at the top of this list, directing more than 65% of FINAGRO resources in 2006 (FINAGRO, 2009). The liberalization of agricultural credit increased the coverage of new areas, raising the number of loans provided in the 21<sup>st</sup> century, particularly for small farmers, and facilitating the democratization of access to credit in the agricultural sector. The Agricultural Guarantee Fund (FAG), the Rural Capitalization Incentive (ICR), the Forestry Incentive Certificate (CIF), and lastly, the Special Credit Line (LEC-AIS) have been key actors in the productive growth of the agricultural sector, having fulfilled their function as facilitators and motivators of agricultural investment. Financial mediation services in the Colombian agricultural sector represented 17% and 19.72% of global financial mediation services in the years 2000 and 2007, respectively, making up 8.02% of GNP in the year 2000 (DANE, 2010).

The evolution of credit lines and types of producers for the 2000-2008 period tended toward the completion of short term activities, to some extent, and to an increase in land-related investments (Figure 6). The behavior in regard to the distribution of resources in large credit lines at the beginning of the period reversed completely at the end of the period.

**Figure 6.** Distribution of FINAGRO credit resources, according to activity financed, period 2000-2008. Elaborated from FINAGRO, 2009

WC: work capital, Sf: small farmers, OF: medium and small farmers, I: investment, C: credits, T: total



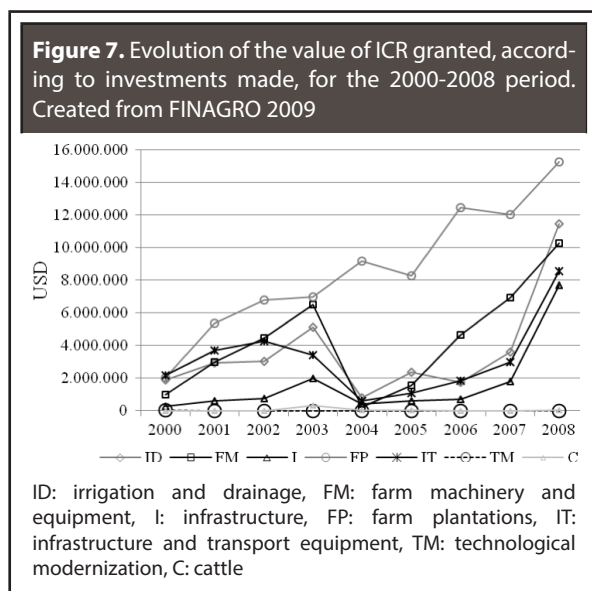
**TABLE 3.** AGRICULTURAL CREDIT CONDITIONS BY TYPE OF PRODUCER, BENEFICIARY, ASSETS, INTEREST RATES, AND FAG COVERAGE

Beneficiary	Assets	Interest Rates	FAG Coverage
Rural, low-income woman	TA ≤ \$20,126 (USD)	Up to FTD + 4%	Up to 80% of the value of the credit (Loans up to \$20,126)
Small producer	TA ≤ \$28,721	Up to FTD + 6%	Up to 80% of the value of the credit (Loans up to \$20,126)
Medium producer	TA ≤ \$260,498	Up to FTD + 10%	Up to 75% of the value of the credit (Credit up to \$91,143)
Large producer	TA ≥ \$260,498	Up to FTD + 10%	Up to 50% of the value of the credit

TA: Total assets in USD, FTD: Fixed Term Deposit. Source: Created from MADR, 2009.

At the beginning of the period in 2000, the most substantial line was that directed towards work capital, followed by investments and portfolio normalization activities. At the end of 2008, the heaviest credit line was directed toward investment activities, which experienced a significant increase, followed by the work capital line, which did not change greatly over the period. Portfolio normalization presented ostensibly low values throughout the period.

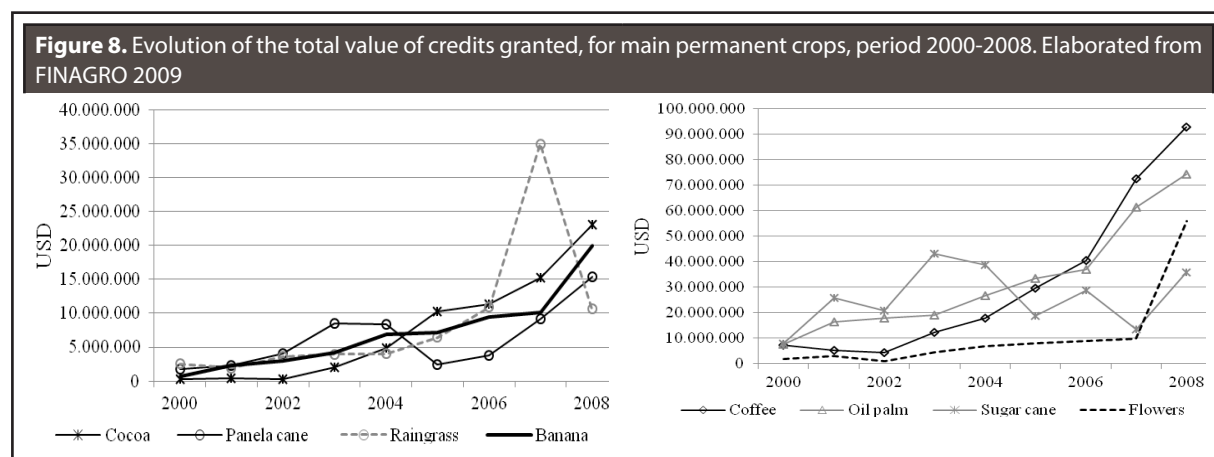
Agricultural Credit (CNCA). At the end of the period, the most substantial credit line was that directed towards investment activities and work capital lines for other producers (OP), with the total given to the SP forming a fifth of the total. For the entire period, investment in SP rose slowly, while the capital directed to OP increased by a much greater proportion. Portfolio regularization had little weight throughout the period.



**Figure 6** shows how financial activities evolved over the course of the 2000-2008 period (including the special AIS credit line), according to the type of producer and his/her level of capitalization. The greatest demand of medium and large-scale producers (other producers) is for credit for work capital, generally for the cultivation of temporary crops. In second place are loans for investment, directed towards the planting of wood crops or other useful permanent crops, and infrastructure for production. Third are portfolio normalization loans. Small producers (SP) have to finance these same activities, but there is less capital available, creating a serious disequilibrium in regard to resource distribution and access to credit for the different types of producers.

According to MADR (2009), during the first year of the execution of the AIS (2007), the LEC provided 12.02% of the total value of agricultural loans granted by FINAGRO. For the years 2008 and 2009, it financed 1.08% and 11.07% of the total amount of Colombian agricultural credit, respectively. For the years 2007, 2008 and 2009, small producers received 21.7%, 25.9% and 53.3% of the resources, respectively. For the years 2007 and 2008, the incentives provided for rural capitalization increased by US \$26.3 million and \$36.8 million, particularly for medium and small producers. Between 2007 and 2008, the land improvement and primary transformation lines suffered a drop of 20.6%, 3.1%, and 1.6% for large-scale, medium and small producers, respectively. For the years 2007 and 2008, subsidies to small producers increased by 27% and 75%, with a decrease of 16% for large producers, according to FINAGRO (2009), with more investment directed towards the cultivation of slow-yielding or wood crops. In 2005, the value of incentives for investments made for the acquisition of machinery and equipment gained importance, being complementary to investments in cultivation. In 2007, incentives for investments in equipment and transportation, infrastructure, and land improvement, increased substantially. The value of subsidies provided via ICR in the year 2000 was US\$7.4 million. In 2005, this value was around US\$13.7 million, and in 2008, it reached US\$53.2 million. However, low investment in farm modernization (infrastructure, machinery and equipment), compared with the high incidence of investments in new farms, was shown to be a weakness in the Colombian agricultural credit program (Soto *et al.*, 2006), see **Figure 7**.

This distribution by type of producer was established by the National Commission on



For the 2000-2008 period, the evolution of financing in investment lines and work capital for AIS funds and classic agricultural credit together showed a greater credit demand for coffee and palm oil plantations. The investment directed towards these two crops in 2008 was nearly ten times greater than the value in 2000. During the 2000-2003 period, sugarcane cultivation rose. It can be said that this behavior was consistent in the majority of investments for permanent crops during the whole period, though the level of increase varied (MADR, 2008; FINAGRO, 2009), **Figure 8**.

Sugarcane, cacao and coffee crops are those which require the largest number of loans to sustain the old plantations and establish new ones, mainly favoring small and medium producers who have a low accumulation of capital (Soto *et al.*, 2006). The percentage of total resources directed toward each crop for the 2000-2008 period was the following: “panela” cane (3.8%), banana (4.4%), cacao (4.6%), pasturing and fodder (5.4%), tropical flowers (6.9%), sugarcane (16%), palm oil (20.1%), and coffee (38.8%), statistics from FINAGRO (2009).

According to FINAGRO (2009) and MADR (2008), the relationship between financial resources and the behavior of the planted area in the case of coffee, as well as work capital investment, has been significant in the past decade. For the years 2000 and 2008 alone, US\$72.8 million and \$92.8 million, respectively, were invested. Despite this, the value

of individual loans did not drop as the number of loans increased. For banana crops grown for exportation, the planted area did not change greatly. For the period analyzed, the average planted area was around 44,000 ha. The cacao sector showed a strong process of renovation, demonstrated by an increase in credit amounts from US\$3.2 million in 2000 to \$23.1 million in 2008, which did not affect the planted area (the average area was 103,169 ha). For this crop, the finance system played an important role in its development as a revitalizer of small rural economies.

In the case of palm oil, in the middle of the 1960s, 18,000 ha were being produced, while in 2010, 360,000 ha were farmed in 73 municipalities, distributed across four zones (FEDEPALMA, 2012). At the beginning of the 21<sup>st</sup> century, the planted area for African palm was less than 150,000 ha. The change in credit conditions (a reduction of interest rates) allowed the planted surface area in Colombia to rise above 320,000 ha in 2008. In cases like this, associative loans for small producers can cover 80% to 100% of finances. These measures have been strengthened by systems of issuing endorsed crop titles (mortgage replacements), providing productive sales contracts, and creating a risk protection system (FEDEPALMA, 2000). Additionally, the appearance of the biofuels market makes the future of this crop look promising. The sugarcane sector is one of the sectors that least



changed in regard to the planted area, with an average of 204,528 ha for the period of study, and a decrease of 20,000 ha (in 2008), associated with a decrease in demand. The average amount of credit given for the past decade was US\$32.7 million.

In regard to temporary or short-term crops, the most marked effect occurred in the financing of rice and cotton production. In the case of cotton, the crop area decreased from 350,000 ha in the 1960s to 39,583 ha in 2008, with a decrease in investment of 86% for the 2000-2008 period. The decrease in planted area parallels the credit investment made. Despite state soft rate policies, the sector has not experienced a visible recovery process. Additionally, the subsidy policies of other countries and the disappearance of preferential treatment of this crop have made it less profitable. In the case of rice cultivation, state credit policies have led to a 125,000 ha increase in cultivated area over the past 15 years, with an increase in credit of 58%, showing a correlation between area planted and the volume of financing granted.

In terms of available credit resources and credit demand according to producer type for the most important crops in the country (2000-2008 period), a total of US\$1.79 billion was provided, of which 25% corresponded to rice (20,496 beneficiaries), 16% to coffee (170,146 beneficiaries), 16% to palm oil (2,161 beneficiaries), 9% to cotton (2,428 beneficiaries) and the other 20% to the other sectors. Credit tends to finance certain productive activities depending on the type of producer (level of capitalization). This has a visible impact on the relationship between the number of loans granted and the global amount of loans, both for investments and for capital to perform maintenance activities.

## 5. CONCLUSIONS

Latin America is struggling to develop the basic infrastructure necessary to maintain the farming population. The Latin American producer faces an unequal level of competition compared to other farmers protected by government subsidies, good

infrastructure, and policies aimed at modernization and agricultural improvements. Many Latin American agricultural policies continue to face high levels of subsistence agriculture, with it being hard to differentiate between public expenditure in the agricultural sector and on rural areas, and with an unclear understanding of the farmer as producer.

In Colombia, agricultural policies in the 20<sup>th</sup> century dealt with the agricultural and industrial sectors together. Since then, policies have been increasingly reoriented towards agreements with other countries that allow the agricultural sector to be opened up to the exterior. Nonetheless, only some sectors have managed to successfully penetrate the world market. In recent history, free trade agreements have been the alternative for boosting the Colombian agricultural sector. This strategy has clashed with a history of limitation, with low prices and low competitiveness in the markets, added to the social instability of recent years, which has been the most limiting factor for the development of Colombian agriculture.

With respect to the focusing and distribution of resources, agricultural credit has the biggest budget among state policies to assist the rural sector, while coverage and access facility these benefits have is different for small, medium and large producers. Despite an increase in the amount, number and national coverage of loans directed toward small producers, a significant segment of the farming population does not benefit. State credit resources only efficiently reach commercial agriculture and Consolidated Family Agriculture (AFC).

Factors such as a lack of mortgage guarantees or financial endorsements that financial intermediaries consider reliable mean that the poorest sectors cannot access conventional credit programs, which makes it necessary to strengthen microcredit programs, including the financing of non-agricultural rural diversification activities. Despite the increase in the amount of support given to the agricultural sector, the amount of investment in large-scale producers is substantially higher than that for

small producers. These values create an unequal distribution of public resources, making the mentioned difference in levels of competitiveness and use of technology even more notable, and creating disequilibrium between small and large producers. An enormous difference exists between the budgets for programs directed at rural wellbeing and those directed at agricultural investment, with measures directed towards competitiveness and modernization making up nearly 97% of total public expenditure in this sector, of which 84% corresponds to credit and 14% of the remainder is distributed in sanitation incentives for export sectors, research and technological development, land improvement programs, coffee land extension services, technical assistance incentives and direct financial support. The distribution of resources destined for agricultural loans is unequal, with 73% of resources benefiting 14% of users (palm oil, sugarcane, flower, banana, and cotton) and 16% of resources used for 71% of users (coffee producers). Meanwhile, sectors such as palm oil, with less than 1% of users, receive more than 16% of resources.

The Colombian armed conflict during the studied period effected a forced displacement from the rural areas to the cities, and this increased a social division in the agricultural sector, which, as result of the benefits it received from rural policies, have increased its heritage.

The principal failure of state investment programs in agriculture center on their ineffectiveness in benefitting the different subsectors of family or peasant economies. In the best of cases, these programs manage to benefit in two of the three segments of FA. Lastly, the experiences of countries that have created free trade agreements indicate that these policies should be reviewed more carefully, not just from a technical and economic viewpoint, but also taking into account the social costs of these treaties.

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