

## **The Colombian Bingo: reducing armed conflict through trade promotion and infrastructure policies**

My proposal is oriented to undermine the factors of Colombia's armed conflict using a set of policies focused on creating employment opportunities for rural households. These employment opportunities should be created by coordinating a trade promotion policy and the private-public partnerships to provide infrastructure increasing the country's competitiveness. This set of policies would provide a dual benefit: to address the historical challenges of shared prosperity in Colombia's economic growth model and second to bring stability to the country that is essential for the country's growth. Both factors, a more equitable growth model targeting the vulnerable regions where the conflict grows, and an increased investor's confidence derived from the country's stability, have the potential of bringing more Foreign Direct Investment, creating more employment, reducing forced migration, and expanding opportunities from the cities to the rural territories where development is still elusive.

Currently, Colombia faces concrete challenges in its economic development process. In 2015, the World Bank [1] indicated that poverty reduction was stagnating due to the low prices of commodities affecting important rent sources for the public budget and reducing Foreign Direct Investment (FDI) for the country. This foreign investment since 2002 has been essential in sustaining growth rates since 2002, but also in fostering employment, which was the main factor to reduce poverty in the country. In this context, the COVID-19 pandemic has represented an estimated setback of twenty years of progress in reducing poverty which has created a social instability characterized by violence in rural areas derived from the armed conflict, civil unrest, and difficult situations for the most vulnerable.

This combination of poverty, unemployment, and violence are factors that should be considered as pivotal in designing effective development mechanisms that address the current and historic uneven growth between rural and urban areas. Particularly, I argue that the lack of rural household unemployment has two important effects: it feeds the continuous migration to the cities, or it benefits the interests of armed guerrilla groups and narcotraffic producers. Both

phenomena, migration due to lack of opportunities and the involvement of rural household in the armed conflict, undermine Colombia's democracy and economic growth: a country with "independent republics" controlled by illegality and poverty.

## Overview

The most recent data regarding Colombia's economic structure for 2020 show the primary sector has a 12.9% weight within the GDP: the production is composed of coffee, bananas, flowers, sugar cane, cattle, rice, oil, and mines production. Complementary, the secondary sector occupies 17.6% and it is integrated by textiles, metals production, concrete, beverages, and plastic resins. The service sector represents 69.5% of the PIB with a concentration in the services sector, and tourism [2]. Colombia's employment depends mainly on the primary and tertiary sectors.

Historically, Colombia's growth has been connected to international trade and domestic factors as is the case of armed conflict dynamic. Colombia started the 1990s by cutting substantially high tariffs over imported goods and facilitating the venues for the domestic underdeveloped capital market system to receive foreign capitals. Initially this liberalization period benefited the financial sector: from 1990-1994, the banking system received more liquidity which at the same time facilitated resources for the productive sectors; this yielded a virtuous cycle of growth until the variability of the international monetary system and the internal problems created one of the most difficult economic and social crises by the end of the 90s decade. In 1999, Colombia experienced one of its hardest crises due to a concentration of international and domestic factors. Particularly, the effect of the 1997 Asian financial crisis affected the country's investment rates: the exodus of capitals exiting Colombia as a direct result of the uncertainty and perceived risk; a phenomenon known as "fly to quality". In addition to the international crisis, Colombia's real estate crisis created a liquidity crisis for the financial and productive system: most of the low and middle income debtors between 1999-2000 faced unemployment conditions and difficulties paying their mortgages (UPAC crisis). Furthermore, the internal armed conflict with several guerrillas undermined foreign and domestic investor's expectations which deepened even more the social and financial crisis for both the financial and real sector.

From the public expenditure point of view, the international prices of the oil barrel constrained an important source of rents for the state, limiting possible actions against the crisis using public funds. In this sense, the 1999 crisis exposed the lack of social protection mechanisms: Colombia did not have welfare mechanisms like unemployment insurance to deal with 15.2% [4] unemployment rate and the difficult conditions for the working populations affecting both domestic consumption rates and savings.

The economic crisis was aggravated by the difficult conditions of Colombia's internal conflict derived from the narcotraffic period with the Medellin and Cali cartels, the Marxist-Leninist guerrillas, and the state-affiliated actors who entered the lucrative narcotraffic business, connecting their money, weapons, and political interests to the intense and bloody Colombian conflict. The 1998-2002 government failed at containing the armed conflict away from urban and rural populations. Violence and all kinds of crimes against humanity were not only perpetrated by the guerrillas, but also by corrupt state-armed armies.

In synthesis, an internal financial crisis aggravated by an international environment and the internal conflict phenomena shaped what was about to come in terms of economic and political strategy for the next twenty years [4].

### **A brief description of Uribe's and Santos' era: 16 years, two presidents, and one recipe for economic development**

The crisis of the end of the 90's continued for Colombia. However, Uribe and Santos' governments were about to radically change the grim future of a country with a failing state. The economic growth of Colombia during 2002 to 2015 shows the Uribe and Santos government as the most important government period for its development. This growth can be synthesized in graph 1. As it was described, the beginning of the 2000 decade was difficult for Colombia socially and economically, but a substantial recovery period came during 2002-2009.

In addition, table 1 shows the main priorities for both governments in terms of resource allocation. Aside from the percentages of each column, table 1 contains numbers ranging from 1

to 5 where 1 was the most important sector of public expenditure for a certain period, and 5 was the least important.

In this sense, based on table 1, President Uribe and Santos' (2002-2016) principal policies consisted in increasing substantially defense expenditures; coded with a 1 aside of the percentages in table 1. The success of this strategy was evident by a stabilization of the internal security environment that allowed to attract foreign direct investment:

“The total investment in the economy increased from 16.1% in 2001 to 22,6 between 2007-2008. This change can be attributed mainly to the private investment and the FDI mainly allocated to the minery and oil and industrial sectors. These positive shocks were reflected in the construction and transportation sector's result whose growth was above 10%, and the dynamic internal consumption that achieved historic peaks with growths of 7.3% [3].”

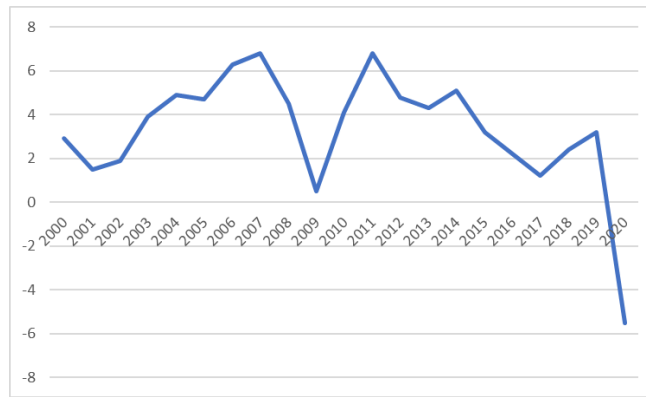
This sustained economic growth stopped in the subprime crisis in 2009. Afterwards, there was a recovery period between 2008-2010 with growth rates during Santos Government (2009-2011) attributed to a substantial increase in the international crude price for Colombia; Brent reached historic prices of 110 per barrel between 2010-2011.

**Table 1**  
Government priorities by budget appropriations (% of the PIB)

Year	2000-2002		2003-2006		2007-2010		2011-2014		2015-2018	
Health and social welfare	3,0%	4	4,1%	1	4,6%	1	4,7%	1	4,7%	1
Education	3,1%	2	3,7%	2	3,6%	3	3,7%	3	3,8%	2
Defense	3,4%	1	3,6%	3	3,9%	2	3,8%	2	3,3%	3
Finance and public credit	3,1%	3	2,0%	4	1,8%	4	1,8%	4	1,9%	4
Social inclusion and reconciliation	0,4%	7	0,5%	7	1,1%	5	1,3%	5	1,3%	5
Transportation	0,7%	5	0,6%	6	0,7%	7	1,1%	6	0,7%	6

Source: [3]

**Graph 1**  
Real Growth rate of Colombian GDP



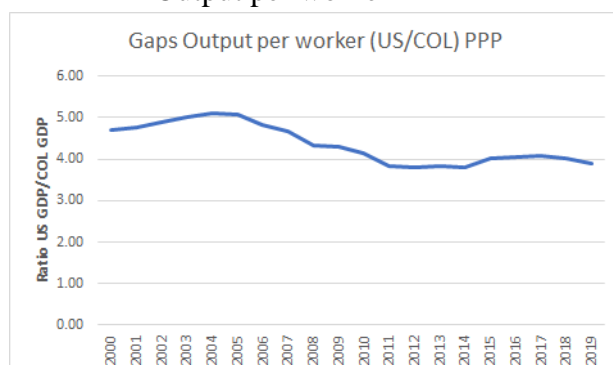
**Source: Pen Tables 10.0**

Based on table 1, a general insight of President Santos' is that his spending priorities used almost the same Uribe's economic strategy: defense occupying top positions within the other priorities. During 2002-2009, Colombia experienced the convergence of two beneficial factors: a period of international integration via FDI, but also an economic abundance derived from the boom of an export sector whose main product, the oil barrel, was reaching historic price records. This abundance allowed both governments, Uribe and Santos, to increase the safety net without engaging in substantial tax reforms modifying the unequal distribution of income and resources that has undermined its social stability since the creation of the republic. In this sense, Colombia as a rentier state, has enjoyed and suffered from being highly dependent on the commodity's price variability.

### A diagnostic of Colombia's growth trajectory using developing accounting

An important tool to discern the gaps of an economic growth model is the analysis using developing accounting tools. In this sense, a useful lens is to compare Colombia's economy with the US economy to observe how the factors explaining the economic growth improve or worse relative to this benchmark over time. In graph 3, it is shown the gap in the output per worker which basically divides the economic production per worker in the US by the economic production per worker in Colombia.

**Graph 1**  
Output per worker in PPP



**Source: own calculations with data from (Pen Tablet-10.0)**

The gap in the output per worker has been declining from 2005 to 2011 and has remained stable from 2012 to 2019. This supports the description of the economic trajectory during the last 16 years provided in the last chapter: growth has been positive and propelled by investment.

The factors explaining the output per worker are analyzed using a Cobb-Douglas function that uses output elasticities to account the economy dependency to changes in the capital or labor factor. Graph 2 compares the capital gap of Colombia relative to the US. Initially, this gap is calculated by adding an initial stock of physical investment and its growth defined by an average rate per each country. Once, both capital per worker in each country have calculated, the US capital per worker is divided by the Colombian and this fraction is elevated to the corresponding output elasticity for the capital factor; in this case, this elasticity is 0.33.

In case of the human capital per worker, an exponential function is used to calculate how this factor accumulates over time. The exponent of the function is the product of the average years per country multiplied by an expected return for education in both countries of 10%. Once human capital has been calculated per country, the US human capital is divided by the Colombian one and the result is elevated by the human capital elasticity; in this case, the elasticity is the complement of 0.33 or 0.66.

The graphs 2,3, and 4 (see page 8) shows the improvement of the Colombian economy based on reduction in the output, capital, and human capital gaps. It is observed that the improvement in the human capital gap started earlier than the reduction capital per worker gap. This might indicate that the social policies implemented by the government yielded early benefits.

An important program that explains this trend of human capital improvement was the implementation of new welfare mechanisms, as it is the case of the conditional cash transfers in 2002. This was an important social policy contributing to address the informality conditions in the labor market.

Colombia’s conditional cash transfer flagship resembled the initial experiment in Mexico with *Progresa*. For this case, Colombia implemented in 2002 “Familias en Acción” (FeA) whose main target was providing cash assistance to family’s contingent on the schooling status of their children. According to [5], FeA effect was effective at reducing poverty, but also improving school attendance, and a broader set of non-targeted long-term outcomes as it is the case of criminality, pregnancy, and crime:

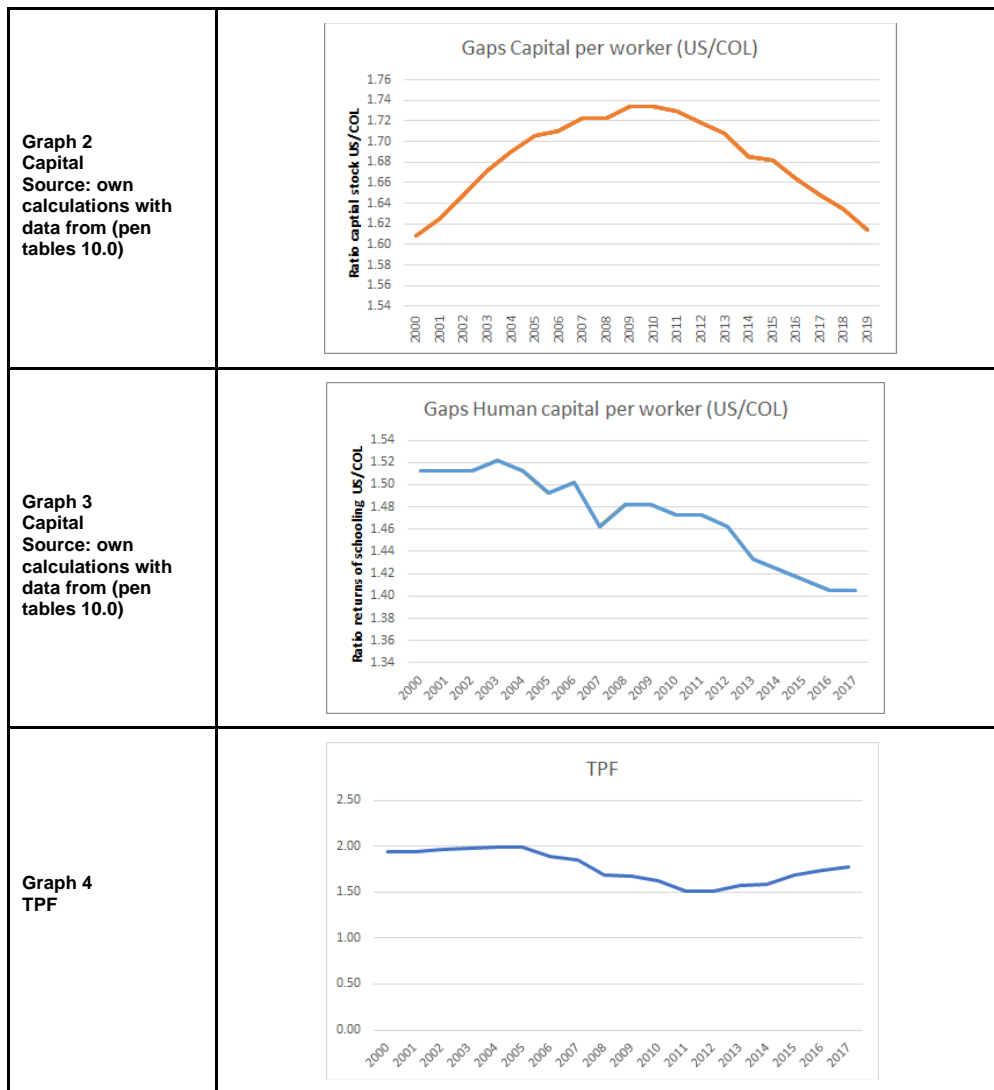
“Our findings offer strong evidence of broad beneficial effects for these programs. Specifically, for the sample of men, we find a substantial reduction in crime: intent to treat estimates (ITT) indicate a reduction of arrest rates by 2.7 percentage points (pp), from a basis of 6.2% in the control sample. For women, we find a reduction in teenage pregnancy by 2.3pp from a control average of 8.5%. For both men and women, we find a 5.8pp reduction in high school dropout rates, from a basis of 61% and 50% respectively in the control sample. Finally, for the male sample, we find an increase in college enrolment of 1.7pp from a basis of 11%” [5]

From 2004 and 2008, there is a considerable decrease in the output gap (graph 3). Social programs like FeA granted better conditions for the Colombian population to develop their capabilities, in conjunction with an internal environment of social stability where violence in urban and rural context was reduced.

On the other hand, a possible cause for the improvement of the capital factor after 2009 (graph 4) might probably be attributed to the effect of 2007 financial crisis over the investment rates in the developed countries. International investors reallocated their investments in emergent markets with less damage derived from the subprime crisis; this is a plausible explanation considering that the FDI as a percentage of the GDP improved 212 basis points between 2010-2011 [world bank].

Finally, in the case of the Total Factor Productivity, it seems to have a constant behavior at the beginning of the 2000s decade. Based on graph 6, from 2005 and 2010, the TPF decreases showing that possibly, work and capital were having a more predominant role in the economic output. From 2010 to 2017, the TPF increased, possibly indicating the participation of other sources of growth.

Title	Graph
-------	-------



In synthesis, the development accountability confirmed the core dynamic of the Colombian economy improvement during Uribe and Santos' governments. An important source of closing human capital and capital gaps were derived from the improved conditions of investment. However, there are remaining challenges that reveal the fragility of a system with problems at solving the source of its internal conflict: employment and shared prosperity.

### Encompassing trade, investment, and employment for the rural households

The provided economic overview and the growth analysis using developing accounting shows that Colombia has been improving its economy by reducing its relative gaps with the US in terms



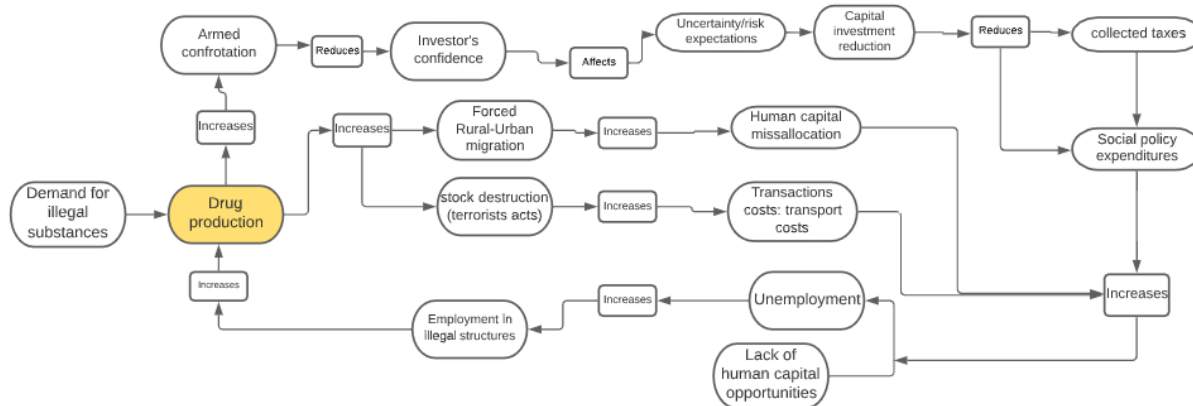
of capital and human capital accumulation. However, this improvement has been stagnated in 2015 and is currently suffering a setback with the pandemic: there is a strong contraction in the growth rate directly affecting the reduction of poverty.

Colombia’s economic and social stability depends on the reactivation of its economy, and a social stability that guarantees investor’s confidence.

Diagram 1 indicates how the drug production affects the country’s stability and growth factors. The effects of the armed confrontation primarily destroy human capital and capital directly in the number of murders, kidnappings, and damages against physical assets like roads, pipelines, and public goods.

**Diagram 1**

Direct and indirect effects of drug production over the economic growth



Sources: own elaboration based on [5]

Furthermore, the armed confrontation affects the investors’ expectations: investors react negatively, reducing their investment and participation in public-private partnerships or supporting Colombian companies by acquiring stocks or bonds. As a result, declining investments reduce the economic activity: new companies offer less employment opportunities, less taxes are collected to fund welfare programs, and transportation costs of goods are increased because of the assumed risk assumed by transporters in expectation of dangerous routes. All these factors affect directly the most vulnerable: poor Colombians whose main tool to leave poverty have been labor income and welfare programs like Familias en Accion (FeA).

Based on this description, my first policy proposal aims to break the pernicious cycle created by increments of drug production and the reduction of employment opportunities generated by an export-led strategy.

The study Atkin, Kandewal and Osman [6] supports the idea that exporting provides concrete profit margins, technological efficiency, and learning curves. Complementary, in the work of funding rural income generating industries, Glaeser and Poterba [7] suggest that public-private partnerships are a good solution to incentivize investments in infrastructure. For this reason, the Colombian government needs to focus its efforts in promoting trade and at the same time create conditions to foster private investments in infrastructure and technology in producing and exporting competitive products to the international markets. Using this lens, both trade and infrastructure should be aligned to maximize the amount of exported goods, but also to bring and develop all the necessary capital that would allow Colombia to reach this production goal.

### **Aligning trade, infrastructure investment, and agroindustry**

Agroindustry has been showing positive results for Colombia's development and trade diversification. In particular, diversification should be a priority considering its effects over output: exporting goods with high added value would allow Colombia to receive more dollars per each produced unit which is beneficial in terms international reserves and output per worker. Feyrer's [8] study describes the impact of trade over output including country fixed effects and exploiting the variation of air-transported goods. His findings show that trade had an impact over output "with an elasticity of roughly one half" in a cross-country comparison between 1960-1995. This finding goes beyond supporting trade promotion as a strategy to foster growth in Colombia; geography and distances matter; the country has an important potential in using trade given its strategic location between North America and South America. Furthermore, Feyrer [9] finds in another study that distance influences a country's income considering the negative impact of distance on bilateral trade; this implies that Colombia has an opportunity to deepen its commercial relationships on both sides of the continent, but specially with economies with greater purchasing power like Mexico, US, or Chile.

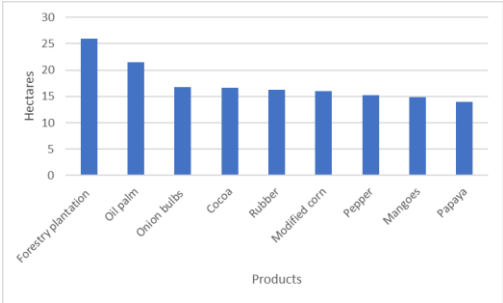
In addition to the macroeconomic benefits, expanding the agro-industrial sector as a strategy to accelerate growth might be the vehicle to empower rural communities with labor income. However, based on the lessons learned from palm oil expansion, industrialization requires government involvement because an agroindustry expansion might enhance private benefits creating undesired externalities, as is the case with the positive significant causal relation between palm plantations expansion and forced displacement of farmers [10].

The public involvement in expanding the agro-industrial sector serves as a guarantee to benefit communities, but also as an incentive for the private sector to participate in providing funds for the provision of key infrastructure that supports agro-industrial expansion. In this sense, the specific investments should be aligned with the required inputs of those products that would allow Colombia to increase and diversify its current balance of payments.

Colombia has ten specific agro-industrial products with the potential of increasing the country's exportation capacity. From 20 million of hectares with potential conditions to cultivate, Colombia is only using 7 million [11].

**Graph 5**

Products with greater potential to grow



**Source: [11]**

Those remaining 13 million hectares according to Colombia's Agriculture Ministry, should be cultivated with the products whose price or quality provide an advantage for the country. Graph 5 shows the products with more potential to grow based on the land quality, but also because of their competitiveness in the international markets.

Forestry, palm oil, cocoa, corn, rubber, mangoes, and papaya are capital intensive crops that require extensive farming zones to produce a positive margin. Furthermore, both forestry and palm oil plantations require higher initial investments in water, fertilization, and agricultural extension services. Finally, the onion bulb production is a product that supports the small and middle scale farming; it requires associativity of small and middle producers to fund small infrastructure projects, but also to obtain profits derived from economies of scale.

### **What kind of investments should be the focus of these public-partnership projects?**

Based on the previous chapter, there exists a defined number of products with the potential of maximizing Colombia's production guaranteeing employment opportunities for communities. This strategy works if the country can develop the necessary infrastructure that would allow it to compete by price or product with other producers of similar agro-industrial goods. Therefore, a pertinent question to solve is: what are the infrastructure investments that would allow to Colombia to export more? Some answers to this question can be found in Restrepo's work [12], who uses a propensity matching score to assess the impact of existing public goods over the agricultural productivity in the regions with key infrastructure and without infrastructure. His findings illuminate the infrastructure that improves yields in products like palm oil, rice, tomatoes and significantly increases their average treatment effect in the treated (ATT). Irrigation districts, cross-docking centers, and tertiary roads are the public goods that affected the production in the regions contained in the treatment group. The ATT for palm oil was estimated to increase by 0.32 tons when in a determined region and in presence of irrigation districts. For other products not included in the export basket, results are significant and greater: tomatoes by 15.17 tons or rice by 4.1 tons.

In the case of cross-docking centers-- whose main purpose is serving as places where produce gets accumulated, organized, and distributed-- yields are less impressive than those observed with the impact of irrigation districts. Citruses were the most benefited by cross-docking infrastructure at the regional level with increments in 0.0212 tons.

The previous benchmark is relevant for the prospective exportation basket described before (cacao, palm oil, bulb onion among others) considering that most of these crops are more intensive in capital in comparison to subsistence crops. Finally, for the case of tertiary roads the estimated average impact was primarily beneficial for citruses with increments of 0.042 tons.

The previous findings provide a hint of the importance of what prioritizing the water, commercialization & logistic infrastructure might provide to improve Colombia's exportation rates. Related to aspect, the country has not invested in renovating its irrigation infrastructure since the 90s; this positions the country in the least developed in terms of water management according to the FAO [11]:

“Although the country has 18.4 million hectares with an agricultural aptitude with potential to be developed with ADT, only 1.1 million hectares have this service, which represents a coverage of 6%? This situation contrasts with Mexico with a coverage 66%, Chile with 44%, Peru with 40%, Brazil with 18% and Argentina with 15% (Conpes, 3926, 2018)”

In synthesis, it is necessary to channel investment coming from public-private partnerships primarily in infrastructure projects oriented to provide irrigation district. However, this ambition of funding infrastructure projects using private and public funds in Colombian vulnerable zones might require a middle or long-term scope which does not offer a short-term solution to address the aftermaths of the pandemic in terms of poverty, unemployment, and growth stagnation. An evidence-based solution is extending the use of Colombia's most efficient social policy: *Mas Familias en Accion* conditional cash transfer. This policy has proven, as it was described previously, to be an effective tool in reducing poverty. Considering the difficult fiscal situation derived from the pandemic, in the following chapter is described two potential targeting mechanisms to reduce more poverty using less resources: focusing on rural young women and using rural associations to provide human capital services to improve decision-making in rural households.

### **The role of conditional cash transfers and farmers associations**

Addressing the causes of unemployment in rural zones where the armed conflict takes place through income-generating opportunities might require a middle-term scope. In the short-term, it

is required to support the transition of the rural population to be productive by supplementing their incomes and improving their children's long-term outcomes. Particularly, the conditional cash transfer FeA, should target rural young women because they are the most impacted by the pandemic, but also, they remain to be the least benefited by the last 20 years of social policy and economic growth. According to the World bank:

“Households headed by young, uneducated or female heads had lower chances to escape poverty during the 2008-2016 period [...] compared to the vulnerable and middle-class populations, the poor in Colombia are characterized by larger households, lower levels of educational attainment, less likely to work, and more likely to be unemployed” [13]

Protecting rural women and rural women head of household represents not only an increase in the program's efficiency by targeting a vulnerable population that does not have other sources of income, it represents the opportunity to reduce the likelihood of children enrolled in the lines of a guerrilla or paramilitary group. Furthermore, according to Atanassio [4], targeting CCT by providing income to women empowers her role, and also improves the household investments, increasing the consumption of a healthy basket of goods like vegetables and proteins.

The rural associations would play an important role in targeting women head of household considering these community-based organizations are sources of information in understanding the rural communities. According to Fedesarrollo [14], Colombian agriculture is characterized by small farms of less than 5 hectares; 55.3% are productive units with less than 1 hectare. In this sense, the small farming-- where most likely the rural women work-- is at a disadvantage in relation to big scale agricultural and agribusiness. Therefore, promoting associativity among rural community-based organizations led by women is not only a way to improve efficiency in the CCT, but also a way to level the playing field for the small farmers considering that these associations might be useful in distributing extension and technological services or funding small infrastructure projects.

## **Conclusions and limitations**

The proposed policy centers on the urgent reality of Colombia's armed conflict that primarily affects the poor, and, specifically, those who are in the rural areas. In this sense, the first policy

proposal is to promote income-generating opportunities in these vulnerable zones by creating public-private partnerships that foster the production of cash crops. This first component might require a middle or long-term implementation to produce benefits due to the special conditions of the pandemic. In the short-term, it is necessary to protect the rural women and specifically the young rural woman head of household considering her role in improving the future for her children and preventing them from falling into the cracks of the Colombian conflict. In this sense, the second proposed policy consists in extending FeA conditional cash transfer to the rural women by using rural associations, and also by promoting associativity among small farmers and households led by women. Involving community-based organizations might equip small farmers better to receive benefits from the economy of scale. Also, associativity might have the potential of reducing the information asymmetry of understanding what is the most urgent infrastructure investment to create income for the community.

The previous analysis still does not address the unequal distribution of the land and the limitations that this imposes in the small-scale farming community. Colombia is the second most unequal country in LATAM in terms of land with a Gini coefficient of 0.58; this factor historically and as a colonial heritage from the *hacienda* model has been a relevant factor to explain the armed confrontation in Colombia's rurality.

A second omitted variable is the importance of social stability and the monopoly for violence concentrated in the legitimate use of government agents. As it was demonstrated by both Santos' and Uribe governments, Colombia was able to attract FDI based on the investor's trust derived from an internal stability. This environment of stability, in combination with trade promotion and human capital policies, has the potential of creating a virtuous cycle of growth for Colombia

## **Bibliography**

[1] World Bank, "Social Gains Show Signs of Stagnation in Latin America". World Bank, 2017, <https://documents1.worldbank.org/curated/en/504151496061690882/pdf/115322-WP-Social-Gains-Show-Signs-of-Stagnation-in-LAC-PIM-PUBLIC.pdf>.

[2] Oficina de Estudios Económicos- Perfil Colombia. Ministerio de las Telecomunicaciones, <https://www.mincit.gov.co/getattachment/1c8db89b-efed-46ec-b2a1-56513399bd09/Colombia.aspx>. Accessed 30 Oct. 2021.

[3] Caballero Argaez, Carlos, and Germán Darío Machado Rodríguez. “De La Crisis de ‘fin de Siglo’ a la del ‘Coronavirus’. La Economía Colombiana En Las Primeras Dos Décadas Del Siglo XXI (From the ‘End of the Century Crisis’ to the ‘Coronavirus’ Crisis. The Colombian Economy in the First Two Decades of the XXI Century).” SSRN Electronic Journal, 2020. DOI.org (Crossref), <https://doi.org/10.2139/ssrn.3596168>.

[4] Attanasio, Orazio, et al. “Long Term Effects of Cash Transfer Programs in Colombia.” SSRN Electronic Journal, 2021. DOI.org (Crossref), <https://doi.org/10.2139/ssrn.3896427>

[5] Betancur, Sebastian, et al. *Beneficios económicos del Acuerdo de Paz en Colombia*. Fedesarrollo, June 2023  
[https://www.repository.fedesarrollo.org.co/bitstream/handle/11445/4056/Co\\_Eco\\_Diciembre\\_2020\\_Betancur\\_Libros\\_y\\_Orti%cc%81z.pdf?sequence=6&isAllowed=y](https://www.repository.fedesarrollo.org.co/bitstream/handle/11445/4056/Co_Eco_Diciembre_2020_Betancur_Libros_y_Orti%cc%81z.pdf?sequence=6&isAllowed=y).

[6] Atkin, David, Amit K. Khandelwal, and Adam Osman (2017), “Exporting and firm performance: Evidence from a randomized experiment,” *The Quarterly Journal of Economics*, 132(2): 551-615

[7] Glaeser, Edward L., and James M. Poterba. *Economic Analysis and Infrastructure Investment*. University of Chicago Press, 2021. National Bureau of Economic Research, <https://www.nber.org/books-and-chapters/economic-analysis-and-infrastructure-investment>.

[8] Feyrer, James (2019), “Trade and Income: Exploiting Time Series in Geography,” *American Economic Journal: Applied Economics*, 11(4): 1-35.

[9] Feyrer, James (forthcoming), “Distance, trade, and income: The 1967 to 1975 closing of the Suez Canal as a natural experiment,” *Journal of Development Economics*.



[10] Rey Sabogal, Camilo. “Análisis espacial de la correlación entre cultivo de palma de aceite y el desplazamiento forzado en Colombia.” Cuadernos de Economía, vol. 32, no. 61, Sept. 2013, pp. 683–718, <https://revistas.unal.edu.co/index.php/ceconomia/article/view/42494>.

[11] S.A.S, Editorial La República. “Colombia solo tiene cultivado 17,5% de hectáreas del total de su potencial agrícola.” Diario La República, <https://www.larepublica.co/economia/colombia-solo-tiene-cultivado-175-de-hectareas-del-total-de-su-potencial-agricola-3226800>. Accessed 8 Dec. 2021.

[12] Restrepo, Juan Camilo, and Ignacio Lozano-Espitia. *El papel de la infraestructura rural en el desarrollo agrícola en Colombia*. Fedesarrollo, 20 Nov. 2016, [https://www.repository.fedesarrollo.org.co/bitstream/handle/11445/3351/Co\\_Eco\\_Junio\\_2016\\_Lozano\\_y\\_Restrepo.pdf?sequence=2&isAllowed=y](https://www.repository.fedesarrollo.org.co/bitstream/handle/11445/3351/Co_Eco_Junio_2016_Lozano_y_Restrepo.pdf?sequence=2&isAllowed=y).

[13] Latin America Overcomes Poverty with Better Wages.” World Bank, <https://www.worldbank.org/en/news/feature/2015/06/08/latinoamerica-supera-la-pobreza-con-mejores-sueldos>. Accessed 31 Oct. 2021

[14] Parra-Pena, Rafael, et al. Análisis de la productividad agraria en Colombia.. Fedesarrollo, 2020, [https://www.repository.fedesarrollo.org.co/bitstream/handle/11445/4092/Repor\\_Marzo\\_2021\\_Parra-Pe%c3%b1a\\_Puyana\\_y\\_Yepes.pdf?sequence=9&isAllowed=y](https://www.repository.fedesarrollo.org.co/bitstream/handle/11445/4092/Repor_Marzo_2021_Parra-Pe%c3%b1a_Puyana_y_Yepes.pdf?sequence=9&isAllowed=y).