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GUATEMALA: THE IMPACT OF COVID-19 AND OTHER SHOCKS, AND POLICY IMPLICATIONS

FINAL REPORT

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1. INTRODUCTION

Two previous reports (Díaz Bonilla, Laborde and Piñeiro, 2021, and Diaz-Bonilla, Flores, Paz, Piñeiro, and Zandstra, 2021) covered the evolution and impacts of the pandemic on food systems in Guatemala until the time of their writing (which together covered from the start of the pandemic in early 2020 until about October 2021. This third report concludes the analysis of the impact of the COVID-19 pandemic on food systems in Guatemala. It summarizes the previous reports and updates the analysis until the end of May 2022. However, this country and its food systems have also been affected by other events since the pandemic started in early 2020. Between 3 and 17 November 2020, tropical storms Eta and Iota hit Guatemalan territory with heavy rains that led to floods and mud landslides, affecting 16 of the country's 22 departments. Later, in 2021 the strong world economic rebound due to expansionary fiscal and monetary policies in the USA and many other developed and developing countries combined with persistent strains on value chains due to COVID19 to lead to increases in transportation costs and the prices of food, energy, and fertilizers. In the case of agricultural products, those increases were compounded by adverse climate events in some important producers, particularly in South America. Finally, the Russian-Ukraine Conflict (RUC) on February 24, 2022, has added further pressures on the prices of energy, fertilizers and food products including wheat and vegetable oils.

Therefore, the pandemic's specific impact on Guatemala's food systems has been interacting with the other developments mentioned, making it very difficult to differentiate among them. Policymakers, however, need to respond to the overall impact of the conditions affecting the population, whatever the leading causes may be. Therefore, this final report, while emphasizing those aspects linked to the pandemic, will discuss the conditions in Guatemala considering those other factors.

This report is structured as follows. First, it summarizes the main policy responses, costs, and financing related to the COVID-19 shock. Second, it brings up to date the evolution of the pandemic, using different indicators. Third, it updates the evolution of key economic and nutritional variables. Fourth, there is a brief discussion of the implications of RUC for food systems.. Fifth, the report continues with a more specific analysis of the evolution of some food value chains that are central for food consumption in Guatemala. The next section discusses policy considerations for health, poverty and nutrition, and food value chains, based on the updated analysis of the previous sections, including cost and financial aspects. A final section concludes.

2. POLICY RESPONSES

The country decreed travel bans from China in January 2020, which were later expanded to other countries. The country had the first confirmed COVID-19 case on March 13 and the first death on March 15. Some days before that, on March 5, the government had declared a “state of calamity” (Declaración del

Estado de Calamidad Pública - Decreto Gubernativo Número 5-2020), which allowed the government to limit some activities,[1] and to take different actions[2] to protect the health and safety of all persons in Guatemala.

Those measures can be separated into four groups:

*The general legal and organizational framework to confront the pandemics

* Policies and interventions that address the health problems

* Policies and interventions that sustain incomes and demand through social safety nets

* Policies and interventions that operate on the supply side, focusing on production and employment

They are briefly summarized in what follows.

2.1. General legal framework and governance

Basic requisites to confront the pandemic are having a general legal framework for the policies and interventions that will be required, and a coordinating mechanism for decision making, implementation, and monitoring.

State of Calamity

As noted, the government decreed the "state of calamity" ("state of emergency") in early March, and the general legislative framework has continued since then, being renewed on September 9 for another 30 days (Decreto 29-200 del Congreso de la República, which ratifies the Decreto Gubernativo No. 17-2020, and extended the "Estado de Calamidad Pública" en Guatemala).

The State of Calamity was lifted in September 2020, leading to the reopening of the economy (see below), but with recommendations to maintain physical distancing.

Central coordination

On May 24, 2020 the government formed the "Comisión Presidencial de Atención a la Emergencia Covid-19" (COPRECOVID, Acuerdo Gubernativo Número 65-2020), with the objective of advising the President about mechanisms and protocols that the Executive Branch can implement to mitigate the

[1] The "Decreto Gubernativo Número 5-2020" mentioned in particular, freedom to operate ("libertad de acción," art. 5 of Constitution), to circulate and move ("libertad de locomoción," art. 26), to meet and demonstrate ("libertad de reunión y manifestación," art. 33) and strike by public employees ("libertad de huelga de los trabajadores del Estado," art 116).

[2] For instance, the same "Decreto Gubernativo Número 5-2020" authorized the purchase of goods, supplies and services without being subject to the requirements established in the State Procurement Law.

pandemic. The Commission is integrated by several Ministers (Finance, Labor and Social Welfare, Social Development, and Agriculture, Livestock and Food), and the Secretariat of Planning and Programming of the Presidency. An Executive Director was appointed to support the work of the principals.

Once vaccines became available in 2021, the government created the National Coordination Committee for Vaccination against COVID-19, with the participation of the Ministry of Health, the head of COPRECOVID, and other public organizations, academia, and civil society involved in public health.

2.2. Policy responses related to health aspects

Obviously, when confronting a pandemic, health-related policies are central. In the initial report they were separated into three main categories: a) those designed to prevent or reduce contagions; b) those designed to track and isolate existing cases; and c) those designed to treat the sick. With the development of vaccines, a fourth category was included in the second report: the advances in the vaccination program.

Policies to prevent or reduce contagions

While these policies and interventions have been crucial to controlling the pandemic initially, they have also been the ones with a more direct impact on the economic slowdown in 2020. Guatemala implemented a variety of measures that included the shutdown of economic activities; curfew, restrictions of movement and transportation, internally and externally; closure of schools, universities and public places; restrictions on religious gatherings, sports and entertainment events, and public gatherings in general; sanitary practices in workplaces, and preventive measures such as masks and social distancing.

The more drastic measures took place between March and June 2020. Since then, the government started to reopen the economy. On June 2, 2020 the “Estrategia Nacional de Control de la Epidemia de SARS COV-2 y Bases para la Desescalada de las Medidas de Reapertura Condicionada del Confinamiento - Acuerdo Ministerial 146-2020 del Ministerio de Salud Pública y Asistencia Social”) was announced. The phasing out of the stricter confinement measures was determined according to the decrease in the number of positive cases, suspected cases and positive tests, evaluated in periods of 14 days. Four phases were defined: “Phase 0,” which was the preparation for the phasing out of control measures; “Phase I,” with the start of the phasing out; “Phase II,” with intermediate opening; and “Phase III,” the opening to the new normal. These phases were predicated on the evolution of the population’s behavior, in turn related to the behavior of the population regarding the implementation of a series of measures to prevent the transmission of COVID-19.

Then, on July 25, 2020, through the “Acuerdo Ministerial Número 187-2020 del Ministerio de Salud Pública y Asistencia Social,” it was determined that the restrictions imposed on a specific location will depend on the current health alert there. Those locations were to be classified as "red-maximum", "orange-high", "yellow-moderate" and "green-new normal,” based on the number of active cases per 100,000 residents. Conditions were to be assessed every 15 days. That classification would determine when each location could reopen.

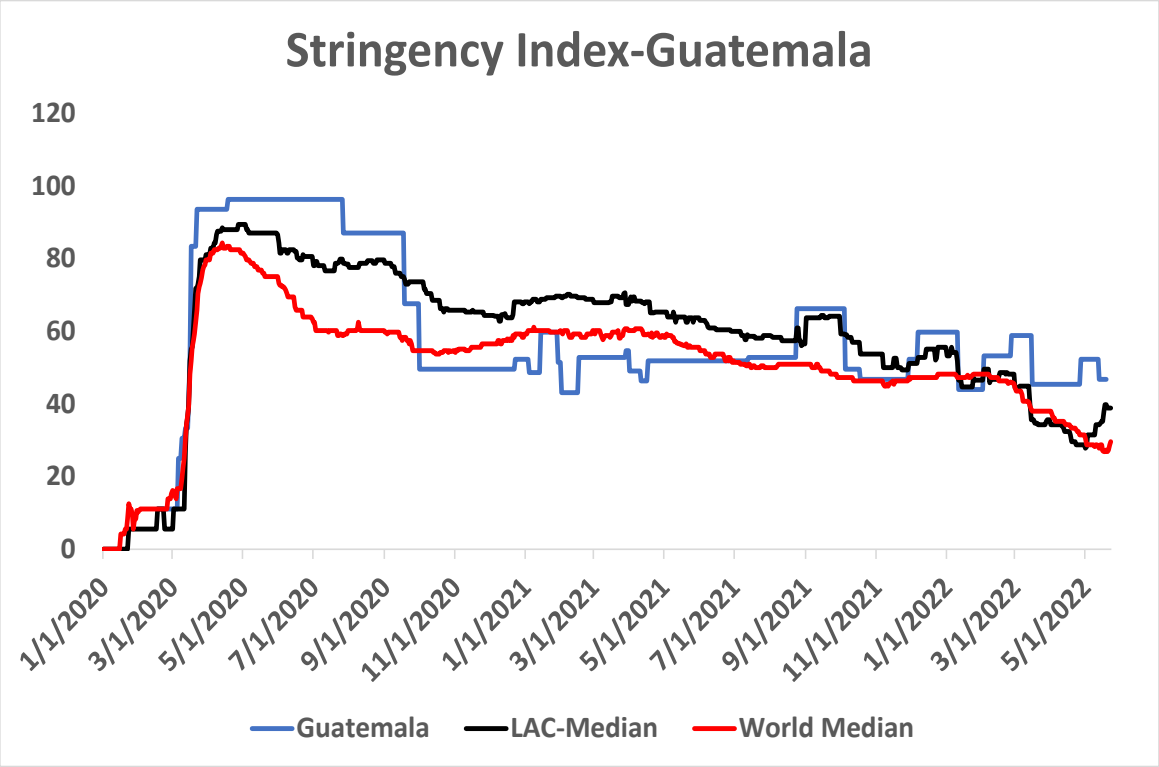
The specific measures until about the third quarter of 2020 were detailed in the initial report (Díaz-Bonilla, Laborde, and Piñeiro, 2021). In September 2020, the government started to lift restrictions to movements. The change can be appreciated visually using the “stringency index” calculated by the Blavatnik School of Government of Oxford University (Chart 1),[3] which presents in a compact way the number, coverage, and strictness of the restrictions applied. The indicators included in the index include a) closings of schools and universities; b) closings of workplaces; c) canceling of public events; d) restrictions on gatherings (by the number of people involved); e) closing of public transportation; f) stay at home requirements; g) restrictions on internal movements; and h) restrictions on international travel. The overall index ranges from 0 (the country fully open) to 100 (fully closed).

The chart compares the value of the index for Guatemala with the median of values in the database for LAC countries and for the world.

While initially Guatemala applied stricter controls to movements and activities compared to the median of the world and LAC, the index dropped (indicating less restrictions) since about October 2020 and has remained relatively stable since then. However, because the stringency index at the world and LAC levels was changing, there are three distinct periods when compared to those other groups of countries: Guatemala was below both comparators until late in 2021; then, it was at about the same level; and lately in 2022, because the stringency index continued to decline in LAC and the world, while in Guatemala remained stable, now the country is above the world’s and LAC’s median (see Chart 1).

[3] See the project by Oxford University “COVID-19 GOVERNMENT RESPONSE TRACKER” https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker.

Chart 1. Stringency Index-Guatemala



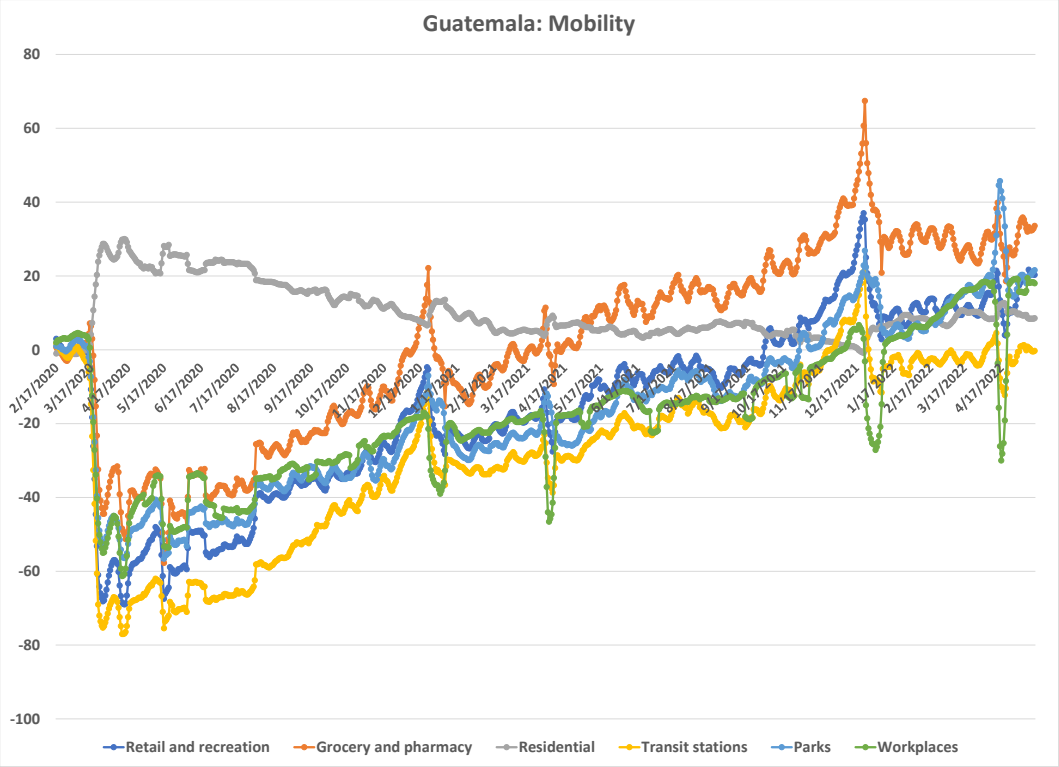
Source: authors using Oxford University "stringency index"

Besides the policies restricting movements, it is essential to consider the reaction of the people. That can be assessed using the indicator of people's mobility calculated by Google. The cycle of stricter controls in the first half of 2020 and the subsequent easing of restrictions can be appreciated from the data on mobility in Chart 2. The data tracks mobility trends for six categories of activities.

- "Retail and recreation" (places like restaurants, cafes, shopping centers, theme parks, museums, libraries, and movie theaters);
- "Grocery and pharmacy" (places like grocery markets, food warehouses, farmers markets, specialty food shops, drug stores, and pharmacies);
- "Parks" (places like national parks, public beaches, marinas, dog parks, plazas, and public gardens);
- "Transit stations" (places like public transport hubs such as subway, bus, and train stations);
- "Workplaces" (mobility trends for places of work); and
- "Residential" (mobility trends for places of residence) (see details in https://support.google.com/covid19-mobility/answer/9825414?hl=en).

It shows mobility compared to the previous period without COVID-19. Negative, zero, or positive values indicate that mobility for the category considered were below, equal, or above, respectively, compared to the levels before the pandemic.

Chart 2. Changes in Mobility (Percentage from Baseline)



Source: Google COVID-19 Community Mobility Reports

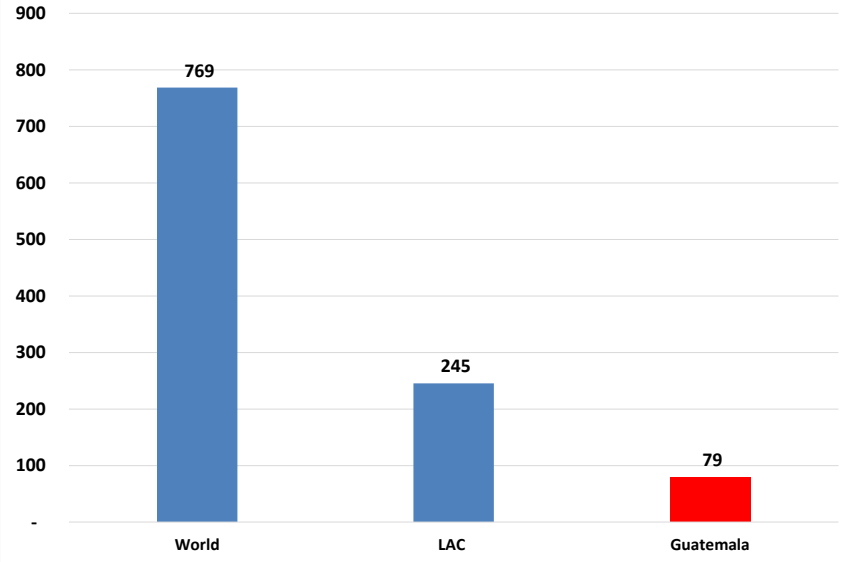
Chart 2 presents the daily values for the indicators, starting with February 17th, 2020 and ending in May 2022. In February 2020, when no measures of containment were in place, there were no visible changes concerning the baseline mobility. But in March 2020, there was a substantial decline in mobility that reached its bottom in April and May, with values between 20% to about 80% below the levels before the pandemic (the indicator related to residential mobility increased is reflecting the fact that people stayed at home and therefore there was more traffic there). Since then, with the easing of restrictions, mobility has been increasing, getting now (April/May 2022) above the pre-pandemic values (with a correlated decline in residential mobility).

Policies designed to track and isolate existing cases

On July 25, 2020 through "Acuerdo Ministerial Número 187-2020 del Ministerio de Salud Pública y Asistencia Social," a system of periodic measurement of the incidence, the intensity of contagion, and

the trend of COVID-19 was established, so that the risk for the population would be determined by location.

Chart 3. Cumulative Total COVID-19 Tests per 1000 people



Source: Our World in Data

Chart 3 compares total cumulative COVID-19 testing per 1,000 people in Guatemala with average testing across the LAC region and the world (until early June 2021). At that time, Guatemala was clearly below the values for LAC and the world (if instead of the average, the median is used the values for the world are 366 and for LAC, 161, which are still clearly above Guatemala). It meant that the comparatively lower level of testing means that it is possible that a few cases are unreported. More recently with the broader availability of test kits that can be bought by households and used domestically, it has been more difficult to have an adequate count of the number of tests administered in many countries, including Guatemala. This also affects the validity of statistics about the number of cases.

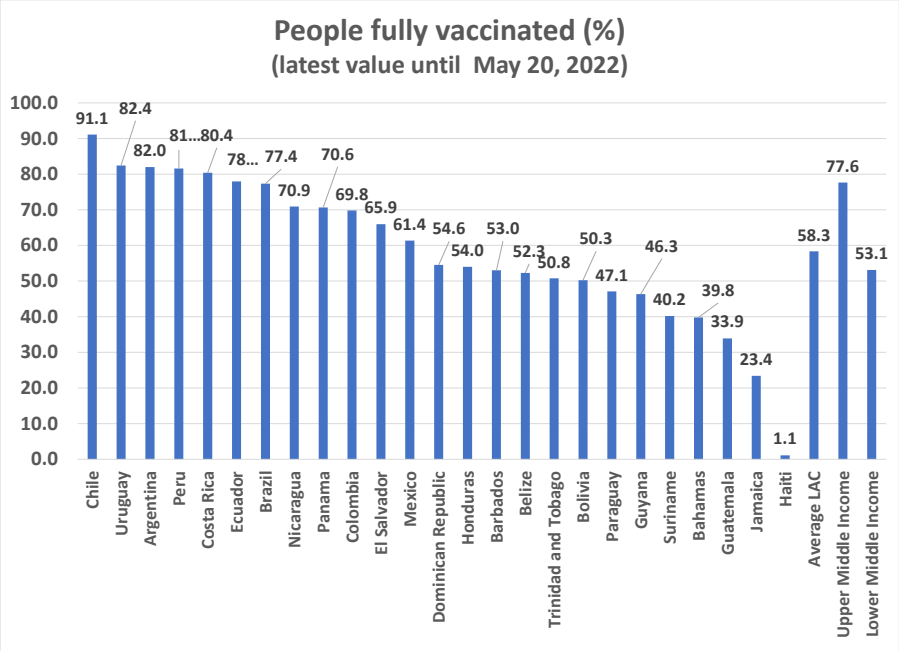
Policies designed to treat the sick

The main initiatives related to treatment that the Government took in 2020 were detailed in Díaz-Bonilla, Piñeiro and Laborde, 2021 (using data from IFPRI Policy tracker). Since then, the pandemic has been transitioning to a more endemic condition, and the treatments have been incorporated into normal protocols for health services.

Vaccination program

The next Chart 4 shows the advances in vaccinations measured as the percentage of the population with two doses, comparing Guatemala with the median of the world and LAC.

Chart 4. COVID-19 Vaccinations



Source: Our World in Data

Guatemala began vaccinating in February 2021, starting later than other countries in the region and in the world. The latest data (May 2022) shows that Guatemala is clearly below the comparators and the plans announced by the government (which expected to vaccinate 100% of the adult population through August 2021; IMF, Policy Tracker).

2.3. Policy responses related to safety nets[4]

These are basically policies and interventions oriented to sustaining incomes and crucial expenditures of vulnerable populations, separate from the productive activities discussed in the following section. The main initiatives include the following:

*"Bono Social" (a conditional cash transfer). The government waived conditionality and made payments easier by opening banking accounts and other measures.

*"Bono Familia," a new emergency cash transfer that had the objective of reaching 2 million beneficiaries receiving US $130 for 3 months (about US$ 780 million or 1.0% of GDP). Targeting was based on electricity consumption below 200 kWh; and also poor households living with a single parent, elderly or malnourished children.

*Risk Cash Bonus. Grants to health professionals and health personnel exposed to COVID-19.

[4] This is based mainly on the data collected by Ugo Gentilini et al. 2021.

*“Adulto Mayor” (a social pension). It is a non-contributory program that was expanded (with a total amount of some US$ 13 million).

*A program of food transfers and vouchers for food, medicine and inputs to prevent COVID-19. The program focused on vulnerable families, including the elderly. It was jointly implemented by Ministry of Social Development and Ministry of Agriculture (with a budget of about USD 91million).

*School lunches. Given that schools were closed during a period when students could not receive their lunches (and/or breakfasts), a system was organized with parent associations through which the meals program were converted into take-home rations for pick up at the same schools. It was expected to reach 2.4 million children to receive food. Restrictions on the closing of schools were eventually lifted.

* There were some increases in the coverage and amount of electricity subsidies, and some targeted measures to support low-income housing (IMF, Policy Tracker).

A report by the World Bank (2021c) estimated that the mitigation measures in Guatemala appeared to have had a large coverage (about 85% of the population) with the value of the transfers representing about 12% of the income pre-Covid19 of the households involved. This placed Guatemala in the top three countries regarding population coverage but lower than the LAC average for transfers as percentage of pre-pandemic income (17.6% for all 16 countries with data, and 14.5% if Brazil is excluded[5]). In fact, regarding coverage, a more recent report from the World Bank considered that it was the largest expansion of social assistance programs in Guatemala’s history and in the LAC region: it increased from less than 200,000 of the households (about 5% of households) before 2020, to some 2.7 million households (or 80% of the families) with the temporary Bono Familia (the cash-transfer program) (World Bank, 2022).

With the cash transfers implemented because of the pandemic there was a further convergence of social assistance programs (like the “Bono Social”) and more temporary humanitarian programs (such as the “Bono Familia”) (as discussed later; see also Chapman et al, 2022 about that convergence in several countries in LAC).

2.4. Policy responses related to production and employment

Here the focus is on policies and initiatives oriented to maintaining production and employment, which support the supply side of the economy. But, to the extent that those productive activities generate incomes, they also contributed to strengthening the demand side of the economy.

Credit and banking facilities and regulations

[5] Brazil has implemented a very generous program of mitigation measures, that covered 53% of the population with transfers that represented 64% of the pre-Covid19 income.

The main initiatives in this regard included the following:

*“Fondo de Crédito para Capital de Trabajo” for up to 3,000 million of quetzals, to provide credit in favorable conditions (up to 250,000 quetzals by operation) to individuals or firms to finance working capital to support the continuity of the operations of a business or firm.

*“Fondo para las Micro, Pequeñas y Medianas Empresas” for up to 400 million of quetzals, to extend loans for entrepreneurs and business owners of MIPYMEs, through the Rural Development Bank (BANRURAL).

* The Superintendency of Banks relaxed credit risk management regulations until the end of 2020 to facilitate debt restructurings, loan payment moratoriums, and other aspects easing negotiations between banks and borrowers that face temporary liquidity constraints as a result of the pandemic.

Monetary policy

The Banco de Guatemala (the central bank) lowered its policy rate by 75 basis points to 2% on March 18, 2020, and on June 24,2020 implemented another cut to its policy rate by an additional 25 basis points to 1.75%. The bank decided in March 2021 to maintain the rate at that level. Early in the pandemic the bank eased credit regulations to facilitate loan restructuring for stressed borrowers; those measures were being gradually phased out since January 2021 (IMF, Policy tracker).

Employment

*The government announced a “Fondo para la protección del empleo,” with a budget of up to Q2,000 million of quetzals or (US$260 million, 0.3% GDP), to provide a wage subsidy to formal workers in private sector whose contract has been legally suspended with the approval of the Ministry of Labor. The payment was set at 75 quetzals or 9.7 dollars per day.

*A “Procedimiento Electrónico para Registro, Control y Autorización de Suspensiones de Contratos de Trabajo (Acuerdo Ministerial Número 140-2020 del Ministerio de Trabajo y Previsión Social) was created, a mechanism through which formal employers can request authorization to suspend the work agreements with the employees as a result of the pandemic. The Ministry of Labor would then analyze if the conditions are such that as an exception the work agreements can be suspended.

Agriculture

In March 2020, the government announced a price support system to farmers through public purchase of products from local producers by the Ministry of Agriculture.

Tax extensions and exemptions

The deadline for filing certain tax returns (like VAT) was postponed in 2020 due to the pandemic.

Other tax-related measures included a) streamlining tax credit refunds to exporters; b) time-limited tax postponements related to income tax payments and social security contributions; c) waiving of VAT on medical supplies; and d) exemption from VAT and customs duties on all imports received as a donation in favor of certain civil society, charitable and religious organizations which were duly registered in the Registry of Legal Persons of the Ministry of Government.

2.5. Costs and Financing

To confront the pandemic the Executive proposed and Congress approved three fiscal packages, totaling about 3.3% of GDP.[6] Table 1 shows the breakdown between health and non-health fiscal expenditures as percentage of the GDP,[7] compared to the average and median for LAC and for developing countries.

Table 1. Fiscal Expenditures for COVID-19 (% GDP)

	Total	**Health**	**Non-health**
Guatemala	3.3	0.2	3.1
Average LAC	3.8	0.8	3.1
Median LAC	3.1	0.5	2.7
Average Developing Countries	3.9	0.9	2.9
Median Developing Countries	2.9	0.6	2.1

Source: authors with data from IMF Covid19 policy tracker.

In total COVID-related (health and non-health) Guatemala was above the median for developing countries and LAC, but below the respective averages.

Within the non-health expenditures about 1.2% of the GDP represented social protection (cash transfers and similar programs), while the rest was salary subsidies (0.3% of the GDP), funding for SMEs (0.6%) and other programs (IMF, Policy Tracker).

The program was financed mainly through three sources (IMF, 2021):

*Multilateral loans: mainly US$250 million from IADB (Budget Support loan), US$200 million from the World Bank (Disaster Risk Management loan), and US$594 million from the IMF.

*Borrowing in private international and local markets. Guatemala borrowed US$1,200 million from international markets on April.

[6] Data from IMF tracking of policy responses to COVID-19; https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19

[7] There were monetary, tax postponements, utility waivers, and other economic measures in addition to the fiscal expenditures shown in Figure 11.

*Money financing from the Banco de Guatemala, which received special authorization from Congress to purchase Treasury Bonds (as established in article 133 of the Constitution) for up to 11,000 million quetzals (some US$ 1.5 billion).

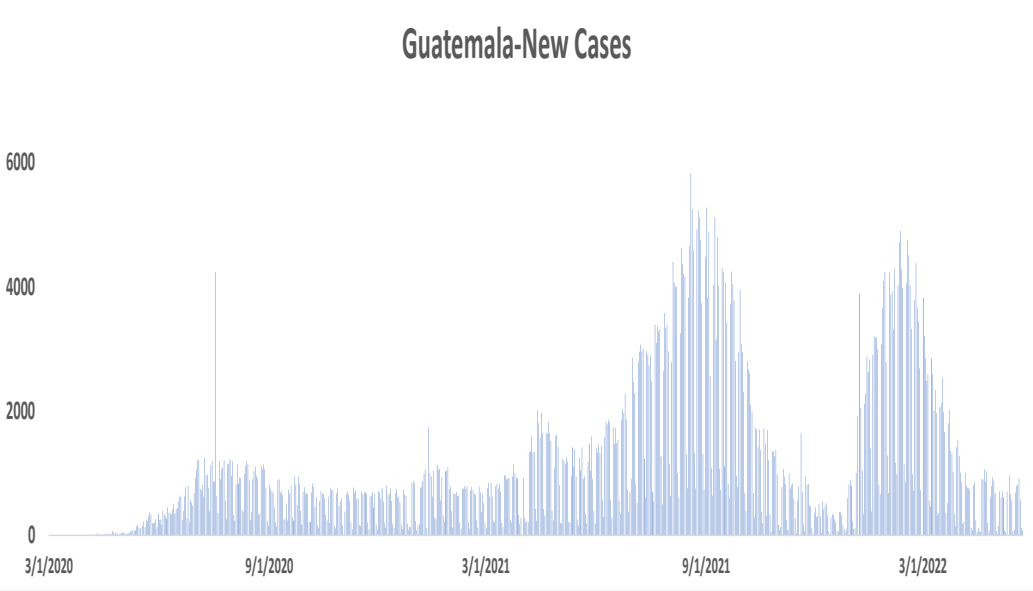
The fiscal stimulus financed through increased indebtedness and money printing has been necessary to expand health services and investments and to avoid a larger breakdown in economic activity and social conditions. As for many countries worldwide, questions regarding how to deal with increased debt to GDP ratios and the monetary expansion would have to be addressed only once the pandemic is fully under control (see section 8 on macroeconomic and financial aspects).

3. EVOLUTION OF THE PANDEMIC

Since the beginning of the pandemic and until late May 2022 there have been some 860,000 confirmed cases of COVID-19 and about 18,000 deaths (WHO, 2021).

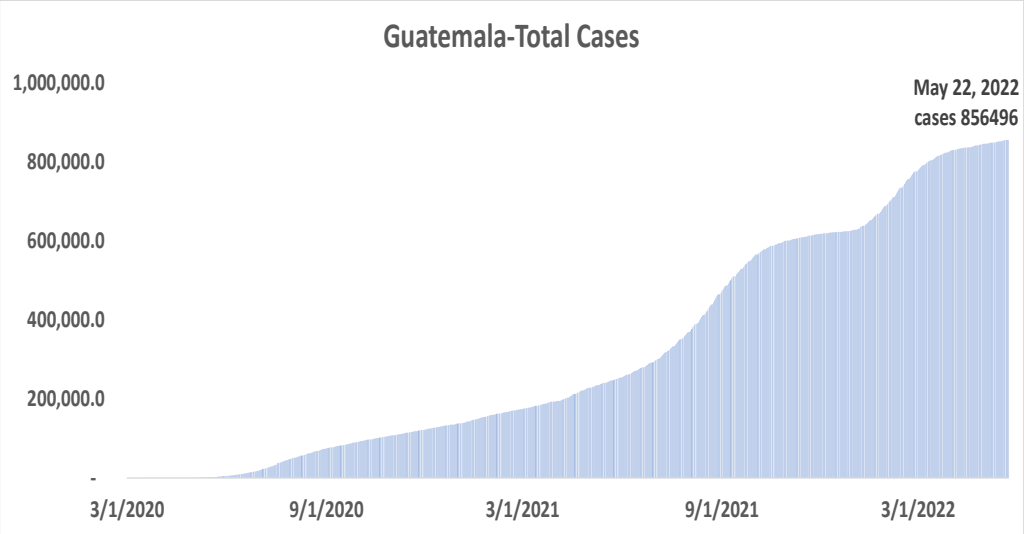
Charts 5 and 6 show the evolution of daily COVID-19 cases and the cumulative value of those cases. Then Charts 7 and 8 show the evolution of daily deaths related to COVID-19, and the accumulated number of deaths.

Chart 5. Daily Evolution of Cases Related to COVID-19



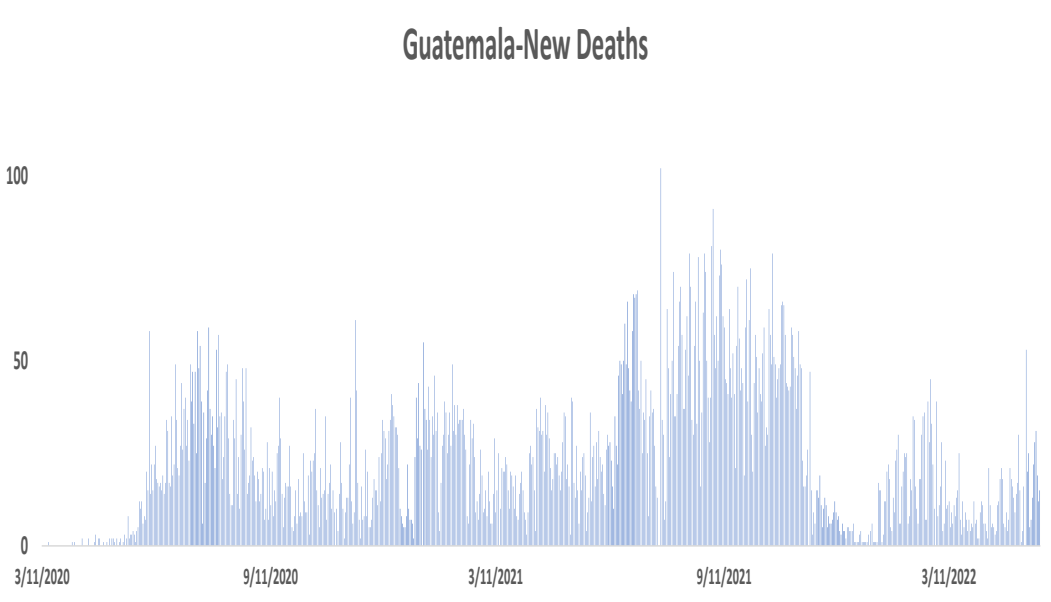
Source: Our World in Data.

Chart 6. Cumulative Value of Cases Related to COVID-19



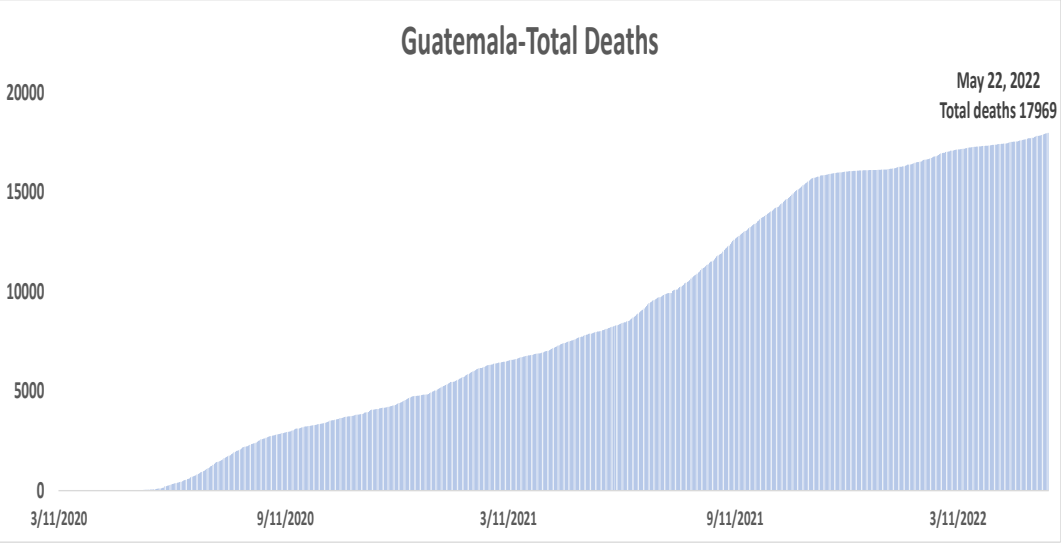
Source: Our World in Data.

Chart 7. Daily Evolution Deaths Related to COVID-19



Source: Our World in Data

Chart 8. Cumulative Value of Deaths Related to COVID-19

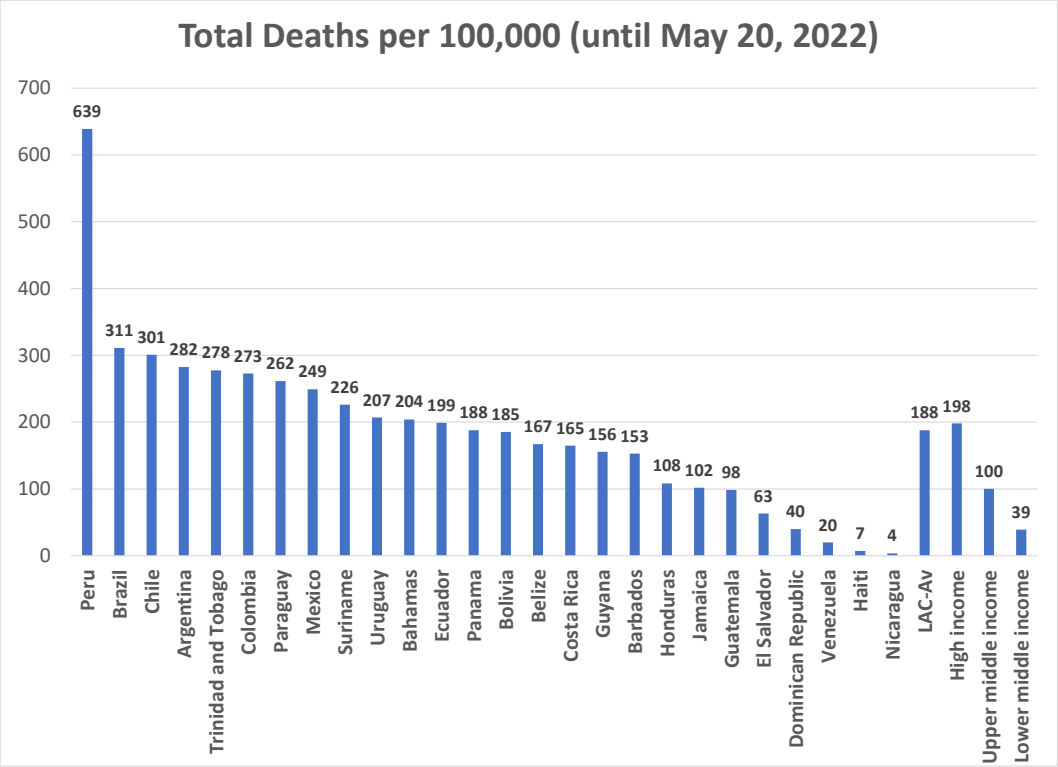


Source: Our World in Data.

Considering COVID-19 cases two main waves can be seen in Chart 5 with daily values. Those two waves can also be observed in the accumulated values in Chart 6 as the acceleration of the increase and the two humps. Regarding deaths, there have been an initial wave in early 2020, a smaller one around the end of 2020, a big wave towards the end of 2021 and then two small ones in 2022 (Chart 7). Therefore, the accumulated number of deaths, although still increasing some, has shown a flatter trend than the number of cases (Chart 8). It seems that the strong wave of cases in 2022 did not result in a similar wave of deaths, while there was a tighter correlation in 2021. The decline in daily death rates may be related to several factors, such as improvements in diagnosis and treatments, possibly some increases in herd immunity (resulting from the strong impact of the previous waves), and that, after a very uneven start, the program of vaccination has been advancing. It may also be the case that the statistics did not capture well the cases in the first waves, and/or differences in the ages/vulnerability of the population affected (with more people vulnerable affected and dying in the first wave).

Chart 9 shows death per 100,000 population to compare the conditions in Guatemala to those in the world and LAC (data for May 2022).

Chart 9. Deaths per 100,000 Population

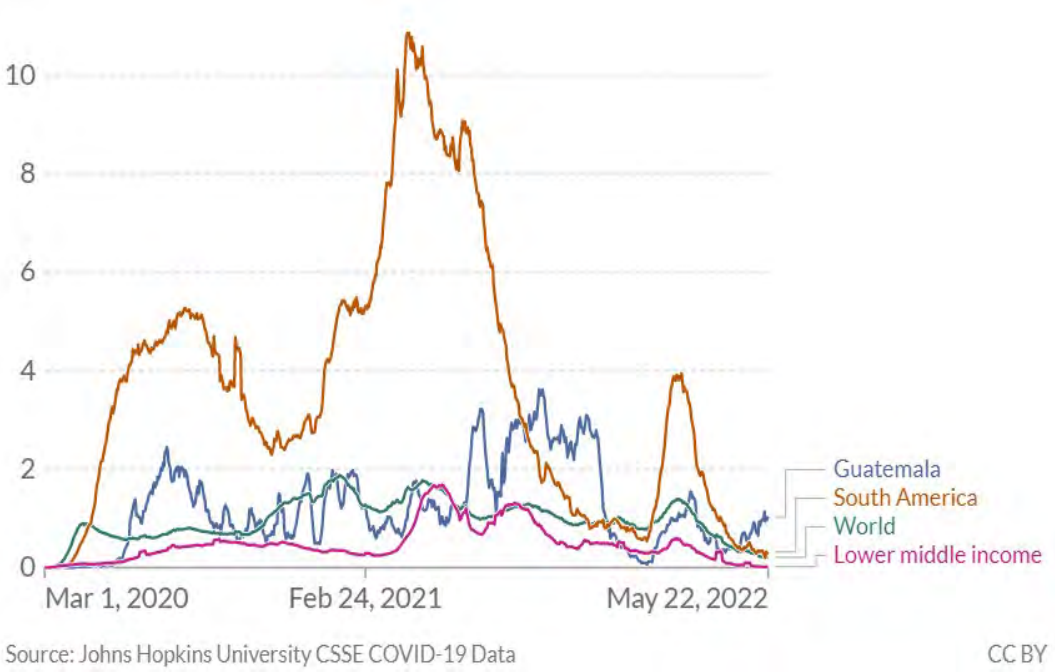


Source: Our World in Data

Considering the indicator of deaths per 100,000 population, Guatemala shows one of the lowest indicators in LAC, about in line with values for upper middle-income countries but higher than lower income ones (with Guatemala being in between those income brackets).

Chart 10 shows the evolution of deaths per million compared to South America, the world, and low-income countries. Although the deaths have been declining (as mentioned before), currently (late May 2022) Guatemala shows a worse indicator than the comparators in the Chart.

Chart 10. Death per million people



Considering both Chart 9 and 10 there are some puzzling aspects that may need further analysis in preparation for future pandemics. On one hand, Guatemala shows a relatively lower level of accumulated deaths (Chart 9) compared to LAC, even though the country is also on the lower side in the region regarding health expenditures as percentage of GDP and the percentage of population vaccinated with two doses. Certainly, it may be just a matter of undercounting the deaths. But also, the fact that Guatemala is relatively less urbanized and less obese (two factors that appear associated with more infections and deaths) may help explain the lower percentage of accumulated deaths. On the other hand, the daily rates of deaths since February 2022 (Chart 10), although far lower than before, are above Guatemala's comparators, even though, as noted, the stringency index is somewhat higher than the median in LAC.

In general, these observations show the uncertain aspects associated to this pandemic: in a separate exercise for all LAC, the authors did not find a correlation between the number of accumulated deaths per million of population with health expenditures as percentage of the GDP. Further, while strictness of lockdowns has had a negative impact on overall GDP, the authors did not find a correlation of the stringency index with death rates related to COVID-19. Some preliminary studies at the global level suggested that lockdowns slowed the spread of the virus, but their effectiveness differed across continents, and in fact the LAC region in those analyses showed less (or no) effects on deaths from lockdowns (Sulyok and Walker 2020).

It may also be the fact that given the characteristics of LAC such as greater urbanization and employment in the urban informal sector, the population was unable or unwilling to fully comply with the lockdown and other restrictions, and therefore at least some continued to move around (although the data on mobility shows that lockdown policies did have an impact).[8] A more time-detailed analysis would be required to determine the combination of factors that explain the puzzles noted for Guatemala, and those related to why LAC became the epicenter of the pandemic for some periods in 2020 and 2021.

4. ECONOMIC AND SOCIAL CONDITIONS

4.1. Background

Guatemala is the fifth poorest country in LAC (measured by GDP per capita), while the percentage of domestic poverty (measured at 5.5 PPP dollars/day per person) was close to 49% and about 59.3% using the national poverty line (with data from the last household survey of 2013/4). Guatemala is also one of the more unequal countries in LAC (itself a very unequal region) with a GINI of 48. Furthermore, food insecurity has been a persistent problem in Guatemala, with the country having the fourth highest rate of chronic malnutrition in the world and the highest in LAC, conditions that affect more indigenous children and those in the lowest income quintile (World Bank, 2021b). Part of the problem is the limited provision of adequate infrastructure and basic public services due to the low level of central government revenues (which perpetuates low growth, poverty and inequality). In fact, in Guatemala government revenue was somewhat more than 11 % of GDP on average in the last five years before the pandemic, while the equivalent value for LAC is about 24% and for all developing countries is close to 20% (data from the World Bank, World Development Indicators).

In the next sections there is a brief discussion of some key economic and social variables during the pandemic.

4.2. GDP growth

Table 2 shows the actual rates of the total GDP growth in 2019 and 2021, and the estimates by the IMF in 2022 and 2023.

[8] It may be possible that even though mobility declines, it would take just one member of the family to get infected to affect the rest of the household given the context of crowded housing.

Table 2. Real GDP Growth

Real GDP (% growth)				
Average 1980-2018	**2019**	**2020**	**2021**	**2022**
3.0	3.9	-1.5	8.0	4.0

Source: IMF

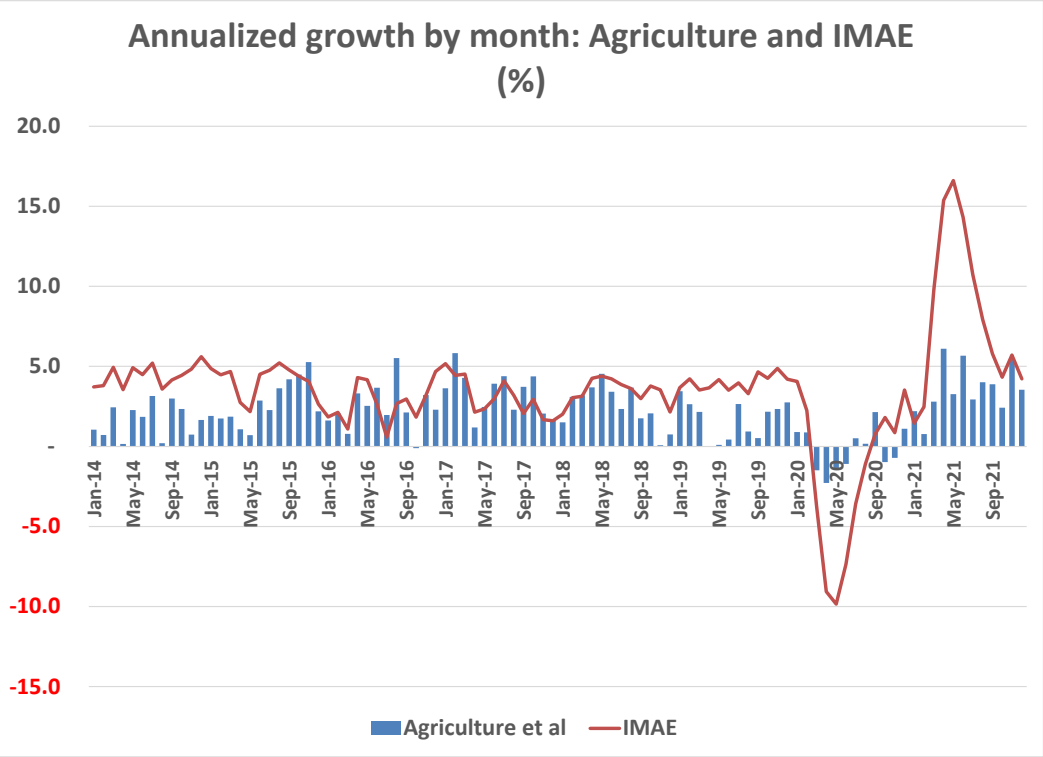
Although declining in 2020, Guatemala's drop in total GDP (-1.5%) was less dramatic than for the rest of LAC (about -6.7%) and the rebound (8% growth in 2021 and an estimated 4% in 2022) also appears stronger than what the IMF is projecting for the whole region (about 6.8% and 2.5%, respectively for 2021 and 2022).

The recovery was helped by the important fiscal package implemented by the Guatemalan government to counterbalance the pandemic in 2020 (as discussed before), and, also, by the strong rebound of the US economy which helped both to increase Guatemala's exports and, particularly, the incoming levels of remittances.[9] The latter that were about 13.6% of the GDP in 2019, increased to 14.6% in 2020, and jumped to about 17.8% in 2021.

Chart 11 shows the annualized growth rate of the monthly index of economic activity (IMAE in Spanish) and for the agricultural sector, calculated by the Banco de Guatemala from January 2014 until December 2021 (the last data available as of this writing). It shows the strong impact of the containment measures, with a decline in growth from April to August of 2020, and a rapid recovery afterwards. It can be seen as well that agriculture performed better than the aggregate economy and it would have been even more positive had not been for the impact of Hurricanes Eta and Iota, which can be seen in the declines of the last months in 2020.

[9] In the initial report (Díaz-Bonilla, Piñeiro, and Laborde, 2021) we presented simulations for 2020 to 2023 using the MIRAGRODEP model with epidemiological adjustments. They were performed around October 2020, with the information available at that time, and without including governments' policy responses, to try to isolate only the potential impact of COVID. IFPRI's projections for 2020 have resulted similar to the actual numbers. However, as noted in the two previous reports, the actual rebound after 2020 has been stronger than the initial estimates, due to the two factors mentioned in the text (the strong fiscal response and the increase in remittances) and that were not included in the original simulations.

Chart 11. Monthly Annualized Growth Rate Economic Activity & Agriculture



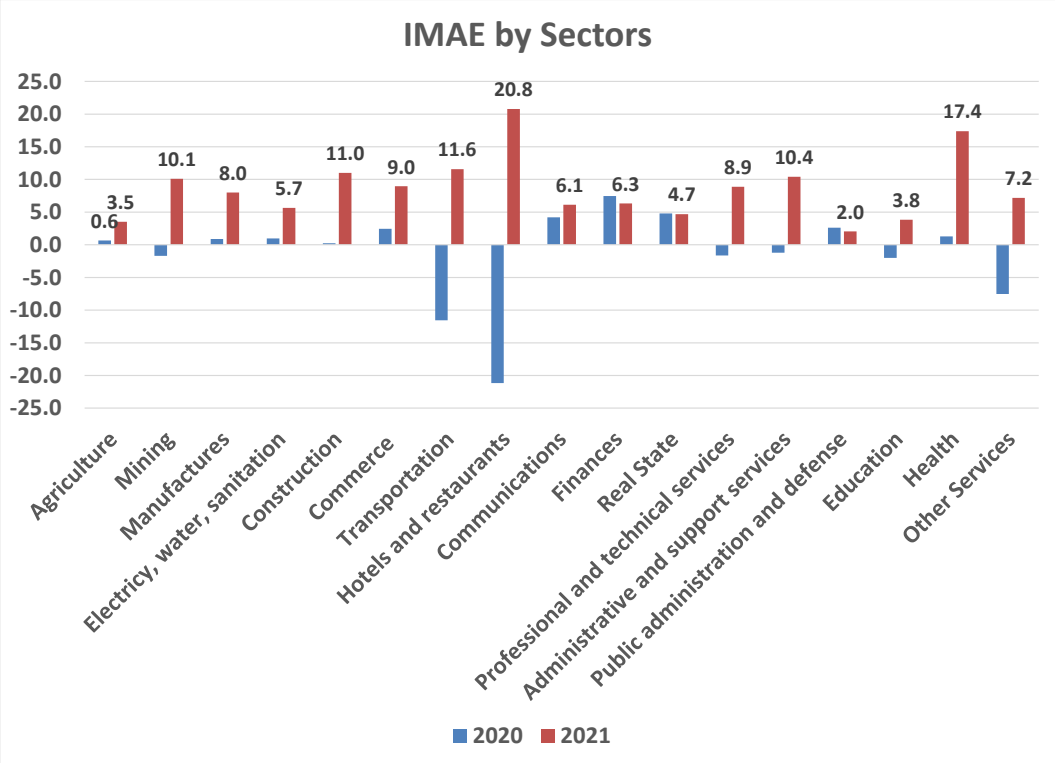
Source: Banco de Guatemala 2022.

Chart 12 shows the evolution of the economy in 2021 and 2022 by sectors (latest data from the Banco de Guatemala covering until March 2022). The Chart shows that the largest decline in 2020 was in hotels and restaurants, followed by transportation, other services, and education. On the other hand, agriculture grew (even with the impact of the hurricanes mentioned), as well as other sectors such communications and finances.[10]

In 2021 the sectors more affected in 2020 (such as transportation and hotels and restaurants) have been the ones rebounding more noticeably.

[10] From the sectoral point of view, the IFPRI simulations showed that the agricultural sector would have had positive growth in 2020, while the affected sector were industry and services (which is what happened). For 2021, the simulations suggested that the agricultural sector could have been affected negatively by the delayed impact of the pandemic, while the other sectors would have rebounded. Data shows that agriculture grew in 2021 but less than the economy as a whole, in part helped by better prices of agricultural commodities in world markets.

Chart 12. Annualized Growth Rates of Economic Activity by Sector

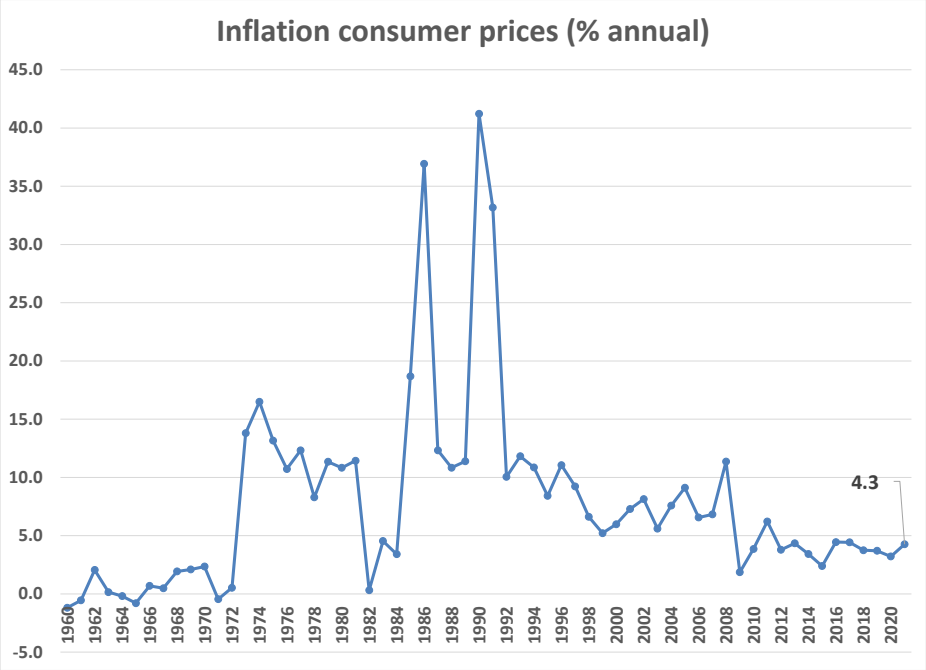


Source: Banco de Guatemala, 2022.

4.3. Inflation

There were concerns at the beginning of the pandemic about jumps in inflation due to the disruptions in supply of a large variety of products. However, as shown in Chart 13 (with the Consumer Price Index), in 2020 there was rather a small decline in the average annual inflation (from 3.7% in 2019 to 3.2% in 2020), reflecting the drop in demand because of the decline in incomes and employment. However, in 2021, with the strong economic rebound mentioned before, inflation increased to about 4.3%, still in line with the last years, and below longer-term averages (the average inflation for the period 2000-2019 has been 5.5% per year).

Chart 13. Annual Inflation (CPI, annual % change)

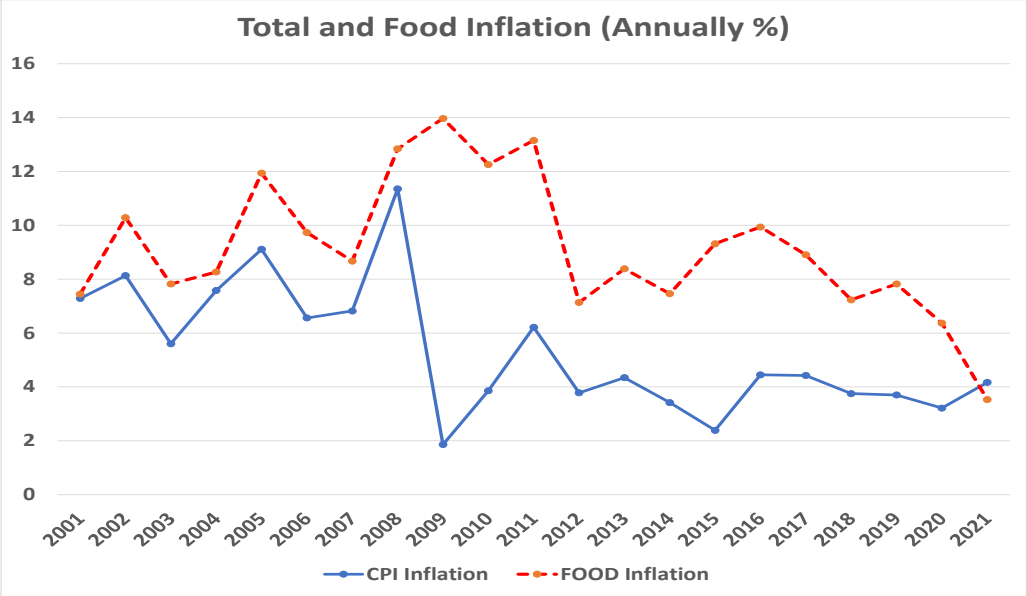


Source: authors with data from INE and the Banco de Guatemala, 2021c

In April 2022 (the last data available as of this writing, published in May 2022) the annual inflation rate measured by the CPI was 4.6%, still in line with the last years.

Chart 14 shows a comparison of total inflation and food inflation. During the pandemic it seems that food inflation declined compared to total inflation (FAOSTAT data).

Chart 14. CPI & Food Inflation

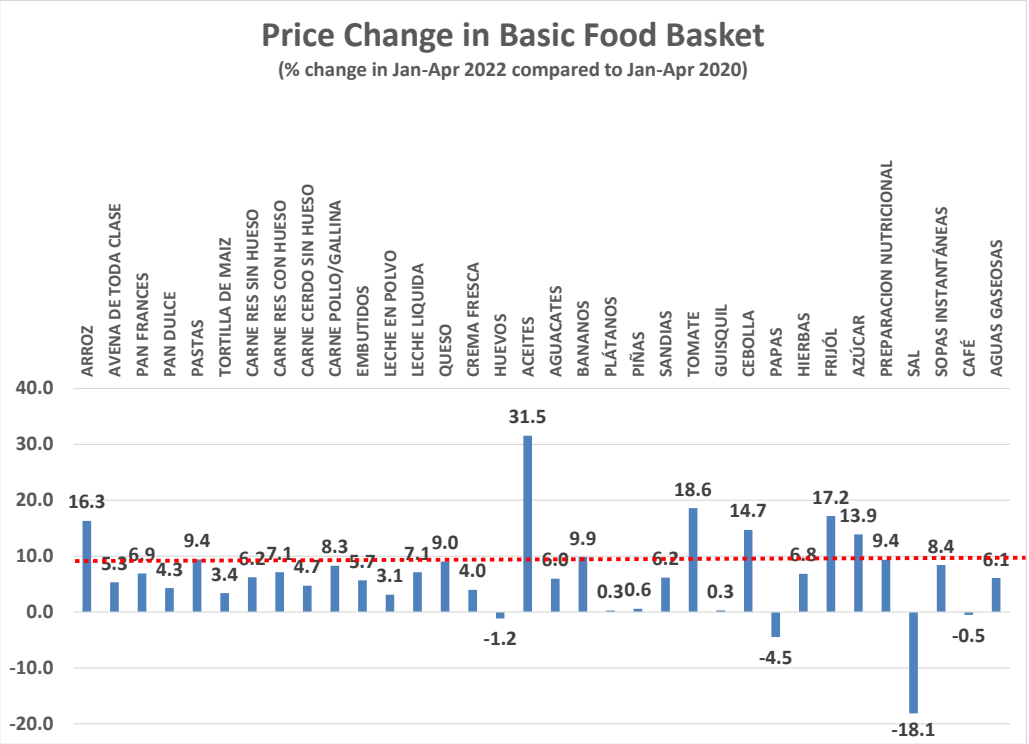


Source: FAOSTAT

However, in the early 2022 there has been some acceleration in the prices of food (annualized increase of 5.6% in April 2022). Transportation also increased significantly (8.8%) (data from INE, Indice de Precios al Consumidor, Mayo 2022). These jumps appear to be reflecting already higher world prices for fuels and some agricultural commodities, which were taking place even before RUC and have been further pushed up by the war (see later).

Chart 15 goes deeper into the components of the basic food basket, which includes 34 items (INE). The Chart compares the average prices in January-April 2022 with the same period in 2020 (i.e., it is a two-year price increase). It also includes the average increase in the CPI between those two periods (broken red line, which is an accumulated of about 9.4% for the two-year period).

Chart 15. Price Change in Products of the Basic Food Basket



Source: INE Canasta Básica Alimentaria

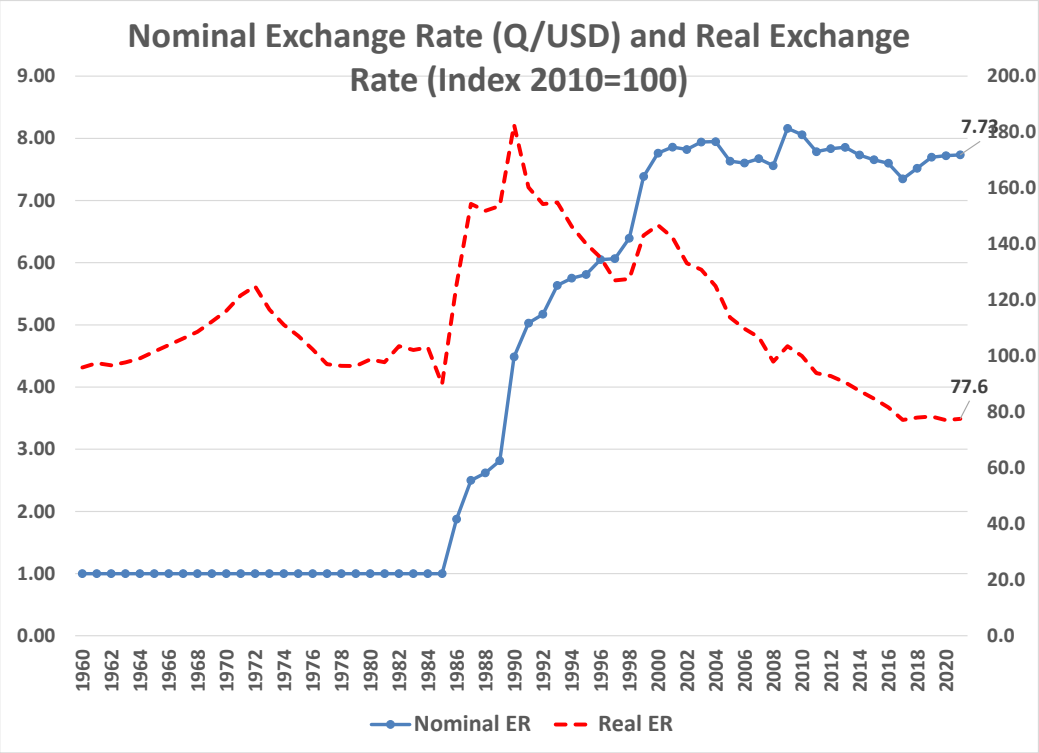
Vegetable oil (affected by the high jump in global prices of those products due to droughts in South America and then by RUC, and export restrictions in some main exporters), rice, beans, tomatoes, onions and sugar have shown increases above the average increase in total CPI. At the same time there are other staple food products (such as corn tortillas, milk, several meat products, and eggs) that have shown smaller increase than the CPI (or even declines such as the case of eggs, potatoes, salt, and coffee).

As a point of reference, it can be noted that the minimum wage in 2021 was adjusted up by 4.75%, but there were no increases in 2020 due to COVID-19. Therefore, the minimum wage may not have kept pace with increases in the prices of food items. On the other hand, as discussed before, the coverage of the social assistance programs increased significantly during thee pandemic, from 5% of the households (or less than 200,000) before 2020, to some 80% percent (2.7 million) with the temporary Bono Familia (the cash-transfer program) (World Bank, 2022).

In analyzing the impact of the pandemic on food consumption it is also important to consider the exchange rate, given that most of the food products (and energy) are tradeable internationally. The nominal exchange rate (solid line) has been relatively stable (Chart 16; it should be noted that the last dot is for 2021). This helped to stabilize inflationary expectations and the cost of imported items.

Chart 16. Nominal Exchange Rate (Quetzales/US dollar) and Real Exchange Rate (index)

Source: authors with data from Banco de Guatemala



The nominal ER at end of May 2022 was about 7.7 Q per US dollar, similar to the average of 2021.

What must be noticed, however, is that the real exchange rate[11] (broken line measured on the right-hand axis from the reader), has been appreciating against the US dollar, which affects growth and employment perspectives in the whole economy. This is a common problem in developing countries that try to keep relatively fixed the nominal ER to help stabilize domestic prices and the functioning of the financial system, but because the inflation rate does not converge to that of the trading partner (in this case the US), the real ER continues to appreciate, affecting the tradeable sector. In 2022, however, the acceleration of inflation in the US, which seems higher so far than in Guatemala, may lead to some real depreciation of the Quetzal versus the US dollar, restoring part of the lost international competitiveness (this analysis needs to consider also other currencies and not only the USD).

[11] It is calculated in a way that a decline indicates a loss of international competitiveness (appreciation of the domestic currency). Sometimes the RER is calculated as the reverse. And in addition, some calculations include other currencies and not only the US dollar (called the "effective" exchange rate) (see the definitions in Díaz-Bonilla, 2015).

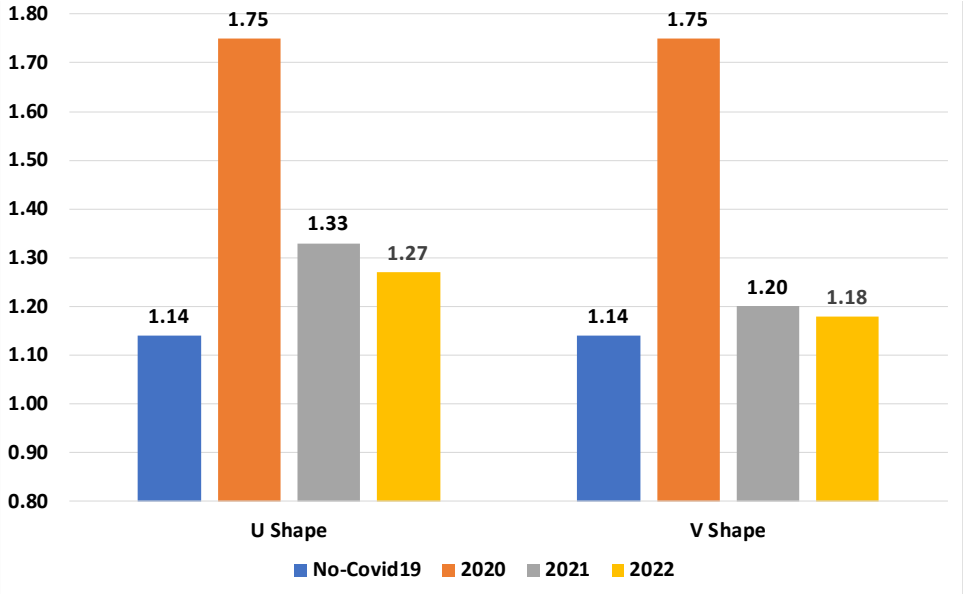
4.4. Poverty and malnutrition

In the previous IFPRI reports we presented simulations for 2020 to 2023 using the MIRAGRODEP model with epidemiological adjustments, performed around October 2020, with the information available at that time, and without including governments' policy responses (see Annex A).

The simulations compared changes in consumption, measured against a baseline without COVID-19. Food consumption in 2020 was estimated to decline compared to the baseline without the pandemic, but not equally across food items (Díaz-Bonilla, Piñeiro, and Laborde, 2021). Consumption of dairy, meat and fruits, vegetables and pulses (FVP) were expected to decline more than grains and sugar, while processed foods did not decline in the simulations. The simulation for 2021 consumption of most products still showed declines compared to the baseline. Therefore, it was noted then that the simulations suggested both a decline in food consumption and a shift in composition towards less adequate diets continuing in 2021. However, an important aspect to be noticed is that the simulations (as was explained before) were done without considering the policy responses, which were still evolving at that time. It was shown in previous sections that the government of Guatemala expanded social protection and other related programs, which should have certainly cushioned the economic shock of the pandemic on employment and incomes, and therefore food consumption.

Chart 17 shows the estimated evolution of extreme poverty (at 1.9 PPP dollars/capita/day) in the initial report (Díaz-Bonilla, Piñeiro, and Laborde, 2021).

Chart 17. Guatemala, Extreme Poverty (millions of people)



Source: authors based on MIRAGRODEP.

Extreme poverty was estimated to increase to some 1.75 million people in 2020,[12] or somewhat more than 600,000 persons above the about 1.14 million that were calculated to be in that category in 2019. Then with the recovery it was considered that the number of extreme poor would drop to between 1.2 and 1.33 million people (optimistic and pessimistic scenarios respectively) in 2021 and to between 1.18 and 1.27 million people (optimistic and pessimistic scenarios, respectively) in 2022. Therefore, the prevalence of extreme poverty was estimated to remain in 2022 above the 2019 levels.

A report of the World Bank (2021c) estimated the difference in what would have been the poverty levels at 5.5 PPP dollars/capita/day during 2020, considering the situation without and with policy responses. It estimates that pre pandemic the number of poor at that poverty line would have been around 7.2 million people, which would have increased some 8.4 million people without considering the policy response, but with the strong expansion of the safety net the number of poor would have been 7.74 million. In the previous report (Díaz-Bonilla, Flores, Piñeiro, and Zandstra, 2021) it was noted that if similar proportions (resulting from the increase in coverage of social protection) would be applied to the numbers reported in Chart 17, then instead of an increase of somewhat more than 600,000 people in extreme poverty in 2020 that number would have been about 550,000 people.

More recent estimates from the World Bank (2022) are in Table 3.

Table 3. Poverty & Equity Indicators

Poverty and Equity Indicators (in 2011 PPP prices and % of population)						
		2019	**2020**	**2021**	**Pre COVID 2016-2019**	**2020-2021**
Poverty rate	$5.50/day	47.8	52.4	51.7	48.4	52
Vulnerable rate	$5.5-$13/day	36.5	33.7	34.3	36.1	33.9
Middle class ratio	$13-$70/day	15.2	13.5	13.6	14.9	13.5
Gini Index (0-1 scale)	Index	0.485	0.485	0.481	0.485	0.483

Source: World Bank, 2022

Those numbers suggest that even with the strong economic growth in 2021 and the decline in the incidence of poverty, the percentage of poor in that year (51.7%) was still above pre-COVID levels (similar pattern as the IFPRI estimates presented in the two previous reports). Also, while the percentages of vulnerable population and the middle class improved in 2021, they were still below the levels per-

[12] The previous report (Díaz-Bonilla, Flores, Piñeiro, and Zandstra, 2021) presented results from 2020 high frequency telephone surveys implemented by the World Bank in many countries in the world, including Guatemala (https://www.worldbank.org/en/programs/lsms/brief/lsms-launches-high-frequency-phone-surveys-on-covid-19). It was shown that the number of people suffering from food insecurity problems declined from the first wave of surveys to the last (in August); for instance the respondents that have gone at least one day without food due to lack of money dropped from about 15% in May 2020 to some 10% by August 2020; also, the question about whether the respondent was hungry (but not completely lacking food, as in the first question), dropped from 33% to 20% during the same period. It seems that the negative impact on food security was declining during the year, in line with the opening of the economy. There have not been additional surveys for Guatemala after August 2020. If the percentages of August 2020 are utilized there would have been about 1.6-1.7 million people suffering from complete lack of food, or close to the numbers simulated for extreme poverty (for which the poverty line is the one that allows food consumption for the minimally accepted levels of energy).

COVID, presumably because they went down to enlarge the ranks of the poor and did not rebound completely. There is however a small decline in inequality.

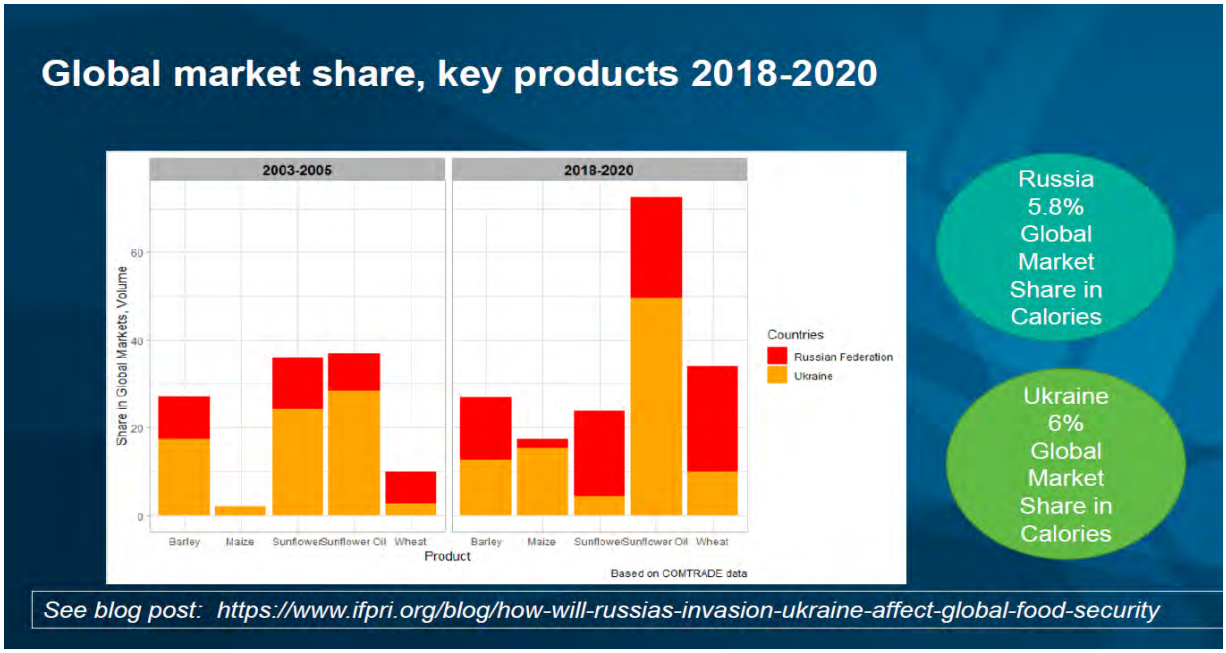
In summary, those numbers suggest a longer lasting effect on poverty from COVID-19 even after the strong rebound of 2021 and the expected growth in 2022. This means that the previous problems of poverty and related deficiencies in nutrition in Guatemala have been deepened by the pandemic and that even more powerful policy interventions will be needed in the near future. Furthermore, the impact of RUC has to be considered (see next section).

5. SOME CONSIDERATIONS ABOUT THE UKRANIAN INVASION

As mentioned before, in addition to the impact of the pandemic and the adverse climate events (mainly hurricanes Eta and Iota), since February 24, 2022, the world is feeling the impact of RUC. As a background to additional comments later in the analysis of some food value chains, here some basic information is presented.

Chart 18 shows the importance of Ukraine and Russia in some key agricultural products.

Chart 18. Global Market share of key products



Source: Laborde 2022

Both countries combined represent about 12% of the traded calories at the world level, mainly related to wheat, sunflower and sunflower oil, and to a lesser extent corn (maize) and barley. While Russia appears to continue trading these products, Ukraine has been more affected.

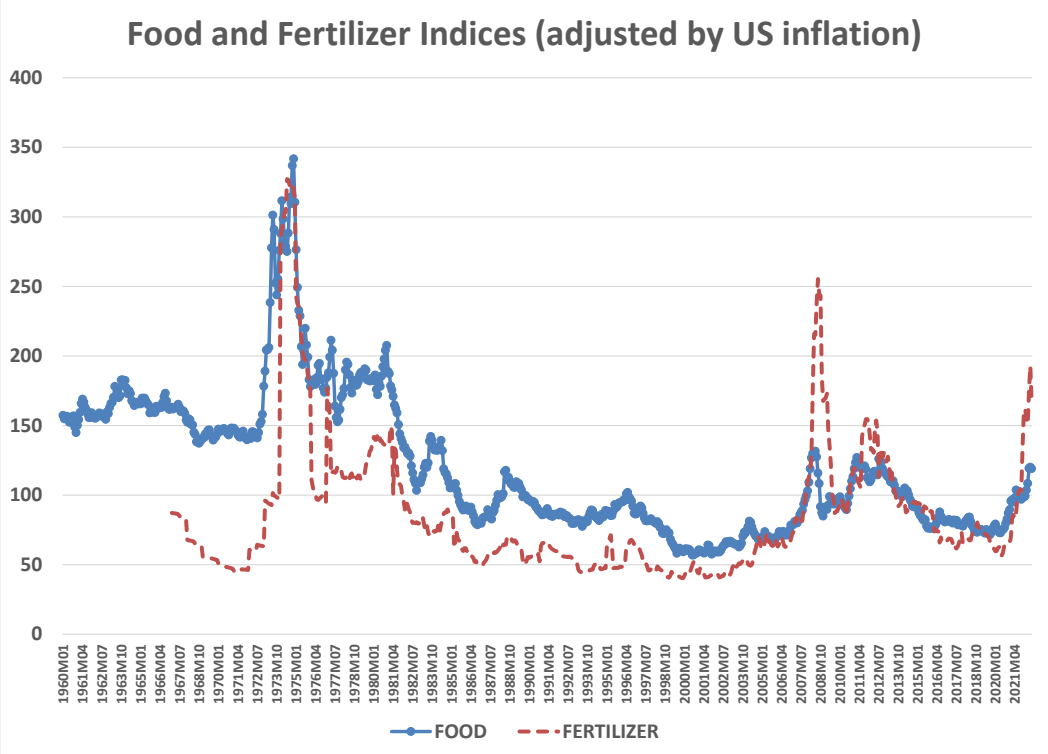
Russia represents about 15% of the market of nitrogenous fertilizers, 14% of phosphates, and 19% of potash (to which it can be added the 18% of Belarus as this country has been involved in the war).

Further, Russia represented before the war 13% of oil production and 11% of its trade, and about 17% of gas production and some 19% of exports (considering LNG plus what is transported by pipeline).

The combination of war (as it happened in the past with Korea, Yom Kippur, and Iran-Iraq), plus the strong acceleration of the world economy product of the expansionary fiscal and monetary policies followed until recently by many large countries, and climate events in some key agricultural producers, have led to an increase in commodity prices even before RUC.

Next Charts focus on food and fertilizers, presenting two views: one in levels adjusted by overall inflation ("real" prices) and the other as a change in nominal prices (inflation). Chart 19 shows the indices for food and fertilizers calculated by the World Bank, adjusted by the US inflation (i.e., the purchasing power of the US dollars, with base-year 2010). The last data are for May 2022.

Chart 19. Food and Fertilizer Indexes

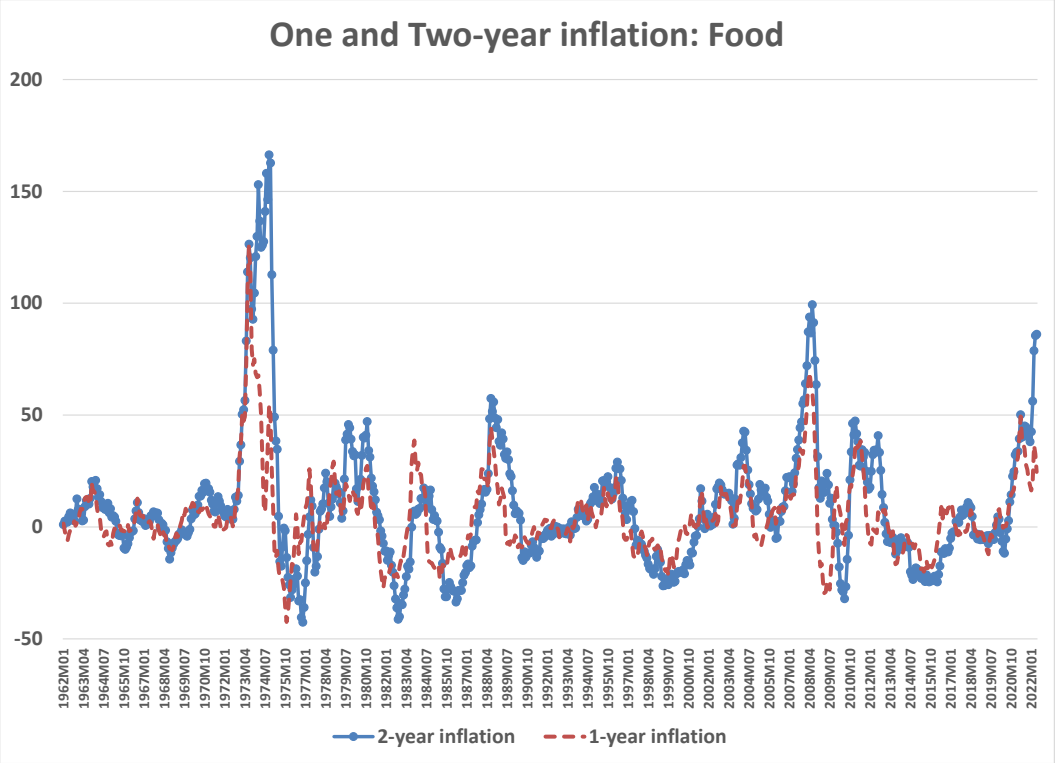


Source: authors with World Bank "pink sheet" database; and US CPI

The inflation-adjusted index for fertilizers (broken line) has increased significantly in the last months, although it is still below the peaks in 2008 and in the mid-1970s. In the case of food (solid line), the increase has been smaller, with about the same levels of 2008 and 2011, but clearly below the real prices of the 1970s.[13]

Charts 20 (food) and 21 (fertilizer) show now the rate of increase in one-year (broken line) and two-year (solid line) windows for the same food and fertilizer indices but in nominal terms (i.e., not adjusted by purchasing power of the US dollar). Again, the last numbers are for May 2022.

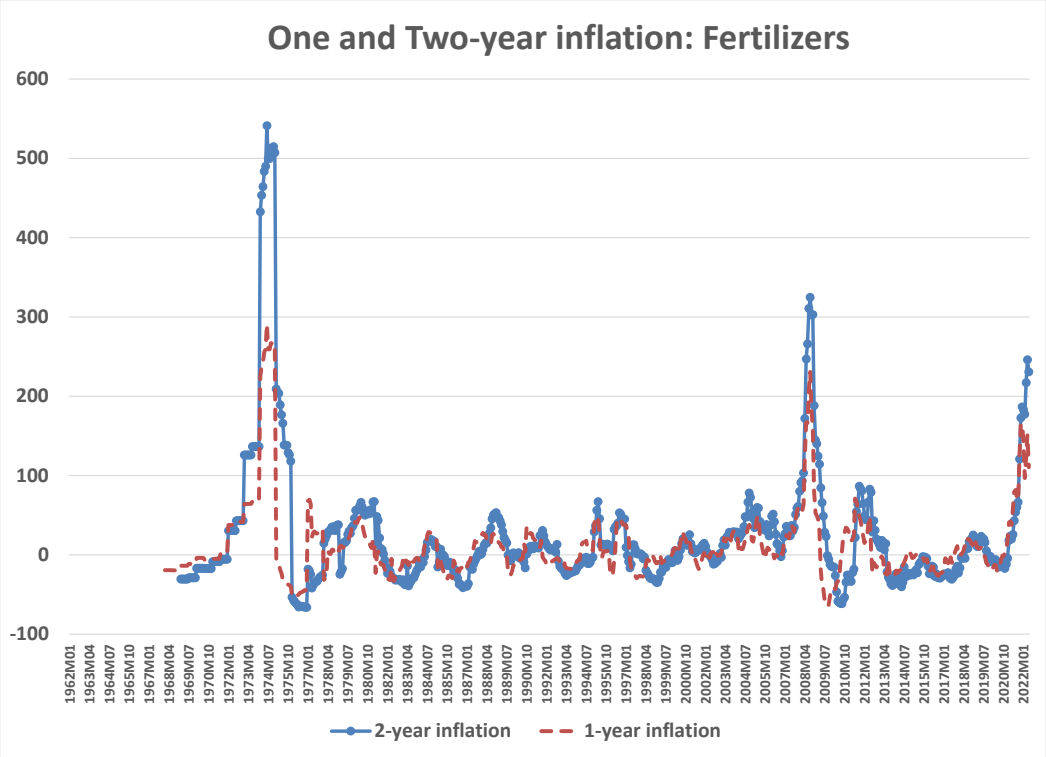
Chart 20. Food Inflation



Source: authors with World Bank "pink sheet" database

[13] A comparison of the 2008 price spike with the 1970s can be found in Diaz-Bonilla, 2010. A discussion of the different indicators that can be utilized to analyze the evolution of prices is Díaz-Bonilla, 2015 and Díaz-Bonilla, 2016

Chart 21. Fertilizers' Inflation

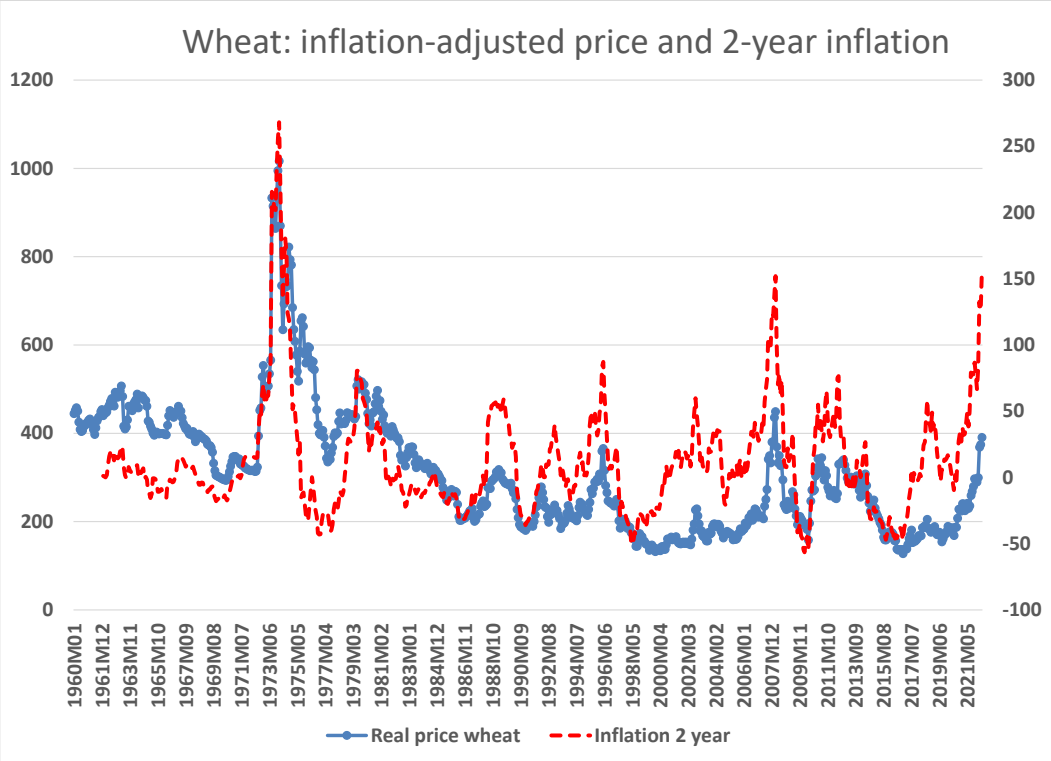


Source: authors with World Bank "pink sheet" database

In general terms, in both the case of food and fertilizers, the one and two-year jump in prices is important, but they are still below similar events in 2008 and the mid-1970s.

Chart 22 shows the inflation-adjusted price of wheat (solid line) and the 2-year nominal inflation.

Chart 22. Wheat Inflation



Source: authors with World Bank "pink sheet" database; and US CPI

In the previous cases of price spikes, as shown in all charts, the inflation-adjusted prices in levels and the rate of change of nominal prices (inflation) tended to stabilize and then decline. Although the evolution of those prices must be continuously monitored, history suggests the need to avoid drastic policy reactions as if the prices were to stay high forever (or even worse, as if they would continue to keep increasing).

Table 4 presents a preliminary calculation of the potential impact of changes in prices on different export and import of agricultural products from Guatemala in 2022, compared with year 2020. We are using the 2-year inflation by May 2022 for each group of products, based on the World Bank "pink sheet" database for all products, except for the groups of meat and dairy which use data from FAO Food Price Indices. For wheat and corn (and products) we use the inflation for the primary product, and for oilseeds and products, we use the change in soybean oil. In the case of the rest of agricultural exports, we use the 2-year inflation from the World Bank aggregate index for agricultural products, but for the rest of agricultural imports we apply the World Bank aggregate index for food products, which is higher than for agriculture (that asymmetric valuation may be underestimating the additional value of exports and overestimating the increase in the costs of imports).

Table 4. Estimate of the impact of prices on exports and imports

	2020		2022
	million USD	**2-year inflation**	**Increase in value**
Banana	1160	12.8	148.1
Coffee	684	73.8	504.8
Sugar	598	77.5	463.2
Palm Oil	466	197.8	921.7
Subtotal	2908.0		2037.8
Rest of Agricultural Exports	3213.4	64.5	2071.9
Total Agricultural Exports	**6121.4**		**4109.7**
Wheat and products	440.7	153.8	677.9
Corn and products	330.8	139.6	461.8
Oilseeds and Products	454.7	186.6	848.5
Meat and products	298.2	28.4	84.7
Dairy and products	247.4	39.1	96.7
Subtotal	1771.8		2169.7
Rest of Agricultural Imports	1398.7	86.2	1205.1
Total Agricultural Imports	**3170.5**		**3374.8**
Fertilizers	286	230.8	660.2
TOTAL	**3456.5**		**4034.9**

Source: authors with data from FAOSTAT, World Bank "pink sheet"

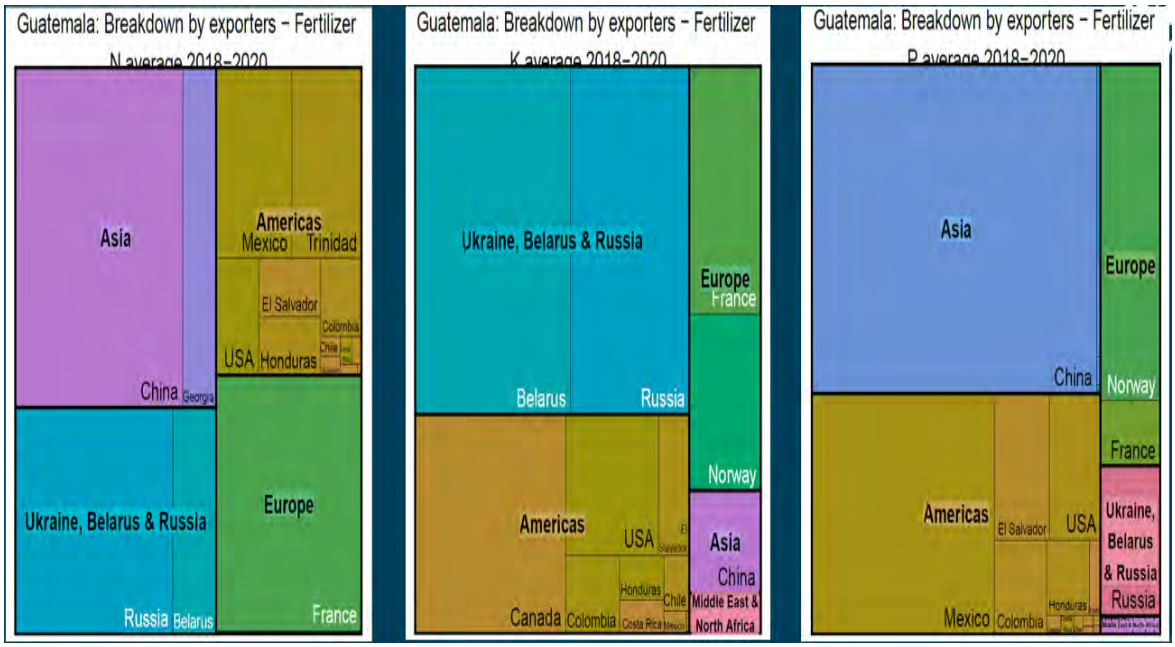
Several points need to be noticed. First, Guatemala is a net exporter of agricultural products (and also of food products; those categories have basically the same value for Guatemala, according to FAOSTAT data[14]). Second, the increase in prices happens on imported products, but also on exported ones. Therefore, it is important to see the total effect, and not only the potential negative impact of higher food import prices. Third, considering only the four principal products (about 44% of the exports), they would increase in value by about 2 billion just through the price effect while looking at all agricultural exports (which are estimated at a lower inflation rate than for imports), the value increase in 2022 would be about 4.1 billion. Fourth, the costs of food imports also increase, but the total jump (almost 3.4 billion USD) is less than the increase in the value of exports (about 4.1 billion USD). Fifth, the cost of fertilizers increases by a significant amount (some 660 million), but the combined additional costs of food and fertilizers imports are, in this preliminary calculation (about 4 billion USD), still less than the potential positive impact of higher prices on food/agricultural exports (some 4.1 billion USD as noted). Therefore, at least looking only at food and fertilizers, there does not seem to be (yet) a negative impact

[14] This suggests that the structure of agricultural exports is similar to the structure of food exports, and therefore the assumption used in Table 5 would show a more negative impact on the agricultural/food trade balance than in may be in reality. The more conservative assumption is nonetheless kept here.

on the trade balance. However, these calculations do not consider the impact on the trade balance of energy prices, which would certainly be negative for Guatemala.

Another point to be noticed is that Guatemala buys most (if not all) of the food products from the Americas, particularly from the US. Different is the case of fertilizers, which include Russia and other sources (see Chart 23).

Chart 23. Origin of Fertilizer Imports



Source: Laborde, 2022.

Therefore, on the production side, it is important to follow the evolution in the market of fertilizers, where the overall impact so far has been on prices rather than availability (more details are in the analysis of specific value chains below). On the consumption side, the fact that food prices of export and imports are increasing implies that the impact on consumers (as different from Guatemala's trade balance), particularly the poor and vulnerable needs to also be monitored and countered with stronger social assistance programs (see the section on Policy Conclusions). In other words, while the increase in food prices may be neutral (and even mildly positive) for Guatemala's trade balance, the situation at the consumer level may be more negative (see the analysis of inflation for food in general and for several food products). The final effect will also depend on how the growth and trade effects translate into employment and incomes. This analysis would require a specific simulation with an economy-wide model of Guatemala, which is not attempted here.

6. BRIEF ANALYSIS OF KEY FOOD PRODUCTS

This section includes a more detailed analysis of some food value chains, to determine whether the pandemic and the policies applied to control it, may have affected those products. At the same time, as noted in the introduction, the country has been hit by the hurricanes Eta and Iota, and, recently, it is feeling the impact of RUC. Therefore, the narrative includes references to those other developments as well. The focus is on seven products: maize, beans, poultry meat and eggs (updating the analysis in the previous report), plus sugar, wheat and products, and bovine meat (which were added to this report).

Table 5. Analyzed Products

	Calories (kcal/capita/day)	% total	Proteins (g/capita/day)	% total
Maize and products	832.0	33.2	21.7	31.5
Beans and pulses	139.0	5.5	9.1	13.3
Poultry	69.0	2.8	5.9	8.6
Eggs	49.0	2.0	3.7	5.4
Sugar	469.0	18.7	0	0
Wheat and Products	290.3	11.6	9.1	13.2
Bovine meat	43.0	1.7	4.8	7.0
Subtotal	1891.3	75.5	54.3	79.0
TOTAL	2506	100	68.6	100

Source: authors with FAOSTAT database

Table 5 shows the importance of those products in food consumption in Guatemala, using calories (measured in kcal/capita/day) and proteins (grams/capita/day): they represent about 75% of the calories and 79% of the proteins in the consumption of that country. The food value chains analyzed were selected both because of the importance in the diet, but also because they have a large domestic primary production component, except for the case of wheat that is all imported (although part of the product is also reexported).

In what follows there is a description of the value chains selected and the channels through which the pandemic have impacted those products, and some references to the climatic and geopolitical events. Then, there is a discussion of the evolution of prices in domestic markets, and finally some policy considerations. Production in all value chains have fared relatively well notwithstanding the pandemic, but some were affected by the hurricanes at the end of 2020. In general, food and agricultural production is among the least affected industries in Guatemala and one with the highest potential to generate economic development going forward. Currently, the increases in the prices of some food products and fertilizers need to be also considered, and some observations are included in the following sub-sections.

This brief description of target value chains for Guatemala focuses on the most affected functions of each value chain by COVID-19. These functions are access to inputs, technologies, dealing with production conditions and limitations that were induced by social distancing and other infection prevention practices. Other areas shocked by the pandemic are demand and changes to commercialization schemes as well as support services.

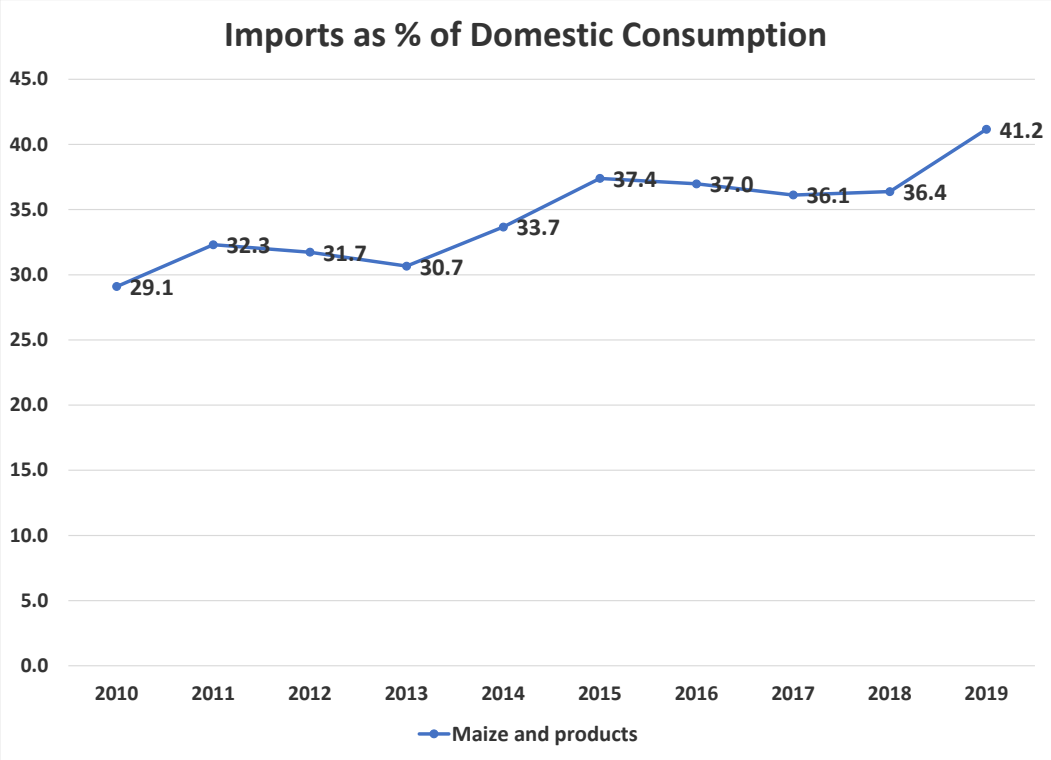
6.1. Maize/corn

The maize value chain has the largest number of actors of any food value chain in Guatemala distributed across the country. It also has the most diverse type of farmers in scale, source of inputs, planting dates and length of cycle and most of them are under-subsistence farmers. Also, there is a clear division between white maize (for human consumption mainly in tortillas) and yellow maize (used in animal feed formulas). Because of the different characteristics, understanding the effects of COVID-19, or other effects, in this specific sector requires separating the analysis into white and yellow maize.

Considering only the primary product, Guatemalan production meets over 95% of the national demand of white corn, but only 16.5% of the yellow corn demand (Escobedo Aguilar, 2018).

However, trade data does not separate both types of maize, and it also includes maize products. Next Chart 24 shows the percentage of imports over domestic consumption of maize and products (without distinguishing between white maize and yellow corn.

Chart 24. Maize Imports as % of Domestic Consumption



Source: authors with FAOSTAT data

Guatemala has a total of 3,856,000 hectares in agricultural land (FAOSTAT, 2019), divided into 2,045,000 hectares for crops and 1,811,000 hectares in pastures (and meadows). Total area harvested with corn (FAOSTAT, 2019), which does not distinguish between white and yellow, was about 865,000 hectares. Therefore, this product represents some 22% of total agricultural area and 42% of crop area.

White maize is a heritage crop grown mainly for household consumption, which highlights its importance in national food security.

Table 6. White maize

Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Russia-Ukraine Conflict -RUC (February 2022 to Present)
Input supplies and production	Largest number of actors of any food value chain in Guatemala which makes it difficult to reach and coordinate. Data from 2011 indicates that 1 million farmers cultivated corn/maize. It was estimated that 40% are commercial farmers and 60% are subsistence ones. Production levels	National t programs to support producers face sizable challenges to reach most, spatially dispersed farmers.	From 22 departments in Guatemala, 16 were affected by both storms, with damage being concentrated in Alta Verapaz, Izabal, Quiché,	Production costs for maize have been increased significantly since the Ukrainian invasion. In Jan 2020, production costs revised in both countries revealed that the share of expenses for

	vary across different regions during three different planting cycles based on the rainy seasons along the year. It is widely documented that most maize is grown under hillside agriculture with low levels of technology such as improved genetics and irrigation. Peten and Alta Verapaz are the dominant production regions (Escobedo Aguilar 2018, ICTA 2020). Guatemala is not completely self-sufficient in white maize production, yet it manages to export roughly 2,700MT of white maize (in grain and tortilla-ready flour) to different countries (Trademap, 2018 reported by Escobedo, 2018).		Huehuetenango, Petén, Zacapa and Chiquimula. About 5 million people were affected in these territories where 60% of the second production season of maize was wiped out. The two natural phenomena also caused damage in the eastern departments of Olancho and El Paraíso, the latter through which Iota entered; and to a lesser degree in Comayagua and Francisco Morazán, in the center; and Choluteca and Valle, in the south. Two major floodings in two weeks and over 800ml of rain wiped out circa 50% of the second production season of the year.	fertilizers was circa 18%. In late April 2022, the share of total production costs for fertilizers in maize went up to 42%. ICTA, the national agriculture research services of Guatemala, reported retracted area of seed production due to fertilizer costs.
	Hillside agriculture practiced by most smallholder farmers with limited access to improved seeds and fertilizers.	Change in cost of inputs, particularly fertilizers. The change in cost due to pandemic-related inflation was circa 12% according to several sources and ICTA Guatemala.	Seed scarcity for the next season in 2022 as the prevalent practice by small-scale farmers is to produce their own seed.	Fertilizer prices have affected some in hillside agriculture, but not everyone. Small-scale farmers do not rely heavily on mineral fertilizers, while medium-scale and large-scale maize producers rely on hybrid seed and a technology package heavily focused on mineral fertilizers and pesticides.
	Limited access to seed of improved varieties released by the National Agricultural Research Institute (ICTA). Only less than 5% of white maize farmers access improved varieties.	Less farmers access seed of improved varieties due to social distancing, logistics	The entrance of Eta and Iota to the region did not affect seed planting of maize which	ICTA's budget for seed production doubled as a result of increased fertilizer prices.

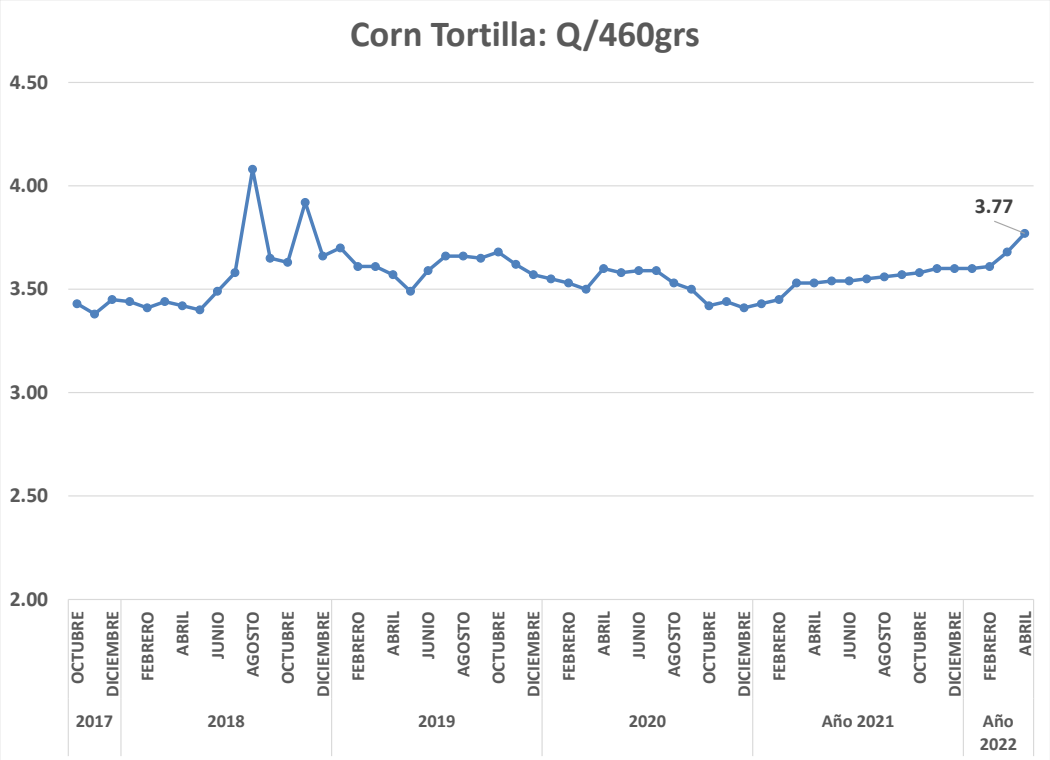
		limitations and overall increase of cost of living.	starts in late November (the dry season).	
	Highly vulnerable to climate change, particularly with severe droughts typical between July and September.	2020 was a good cropping cycle given the rainfall pattern and avoiding food scarcity during COVID-19 restrictions.	2021 second season was affected in 16 of 22 departments reducing output by 60% of maize in the second season of 2020. In Honduras, the national output was reduced by 50%, but leading maize producing departments like Olancho lost 80% of their output due to Eta and Iota.	
Commercialization	Absence of contract-farming has enabled a system of intermediaries that do not provide any services such as financing or technical assistance.	All links of food value chains declared essential workers, so the commercialization of white maize has been uninterrupted.	There were localized disruptions where the hurricanes hit harder	Latest data (April 2022) on inflation in transportation costs was higher than for the overall CPI: an annualized increase of 8.8% against annualized total inflation of 4.6% (INE)
		12-18% increase in market price associated to COVID-19. This increase has been due in part to increased production and logistics costs.		

Source: Authors

Chart 25 shows the price of maize tortilla (data from the “Canasta Básica Alimentaria” reported by INE; last data from April 2021).[15]

[15] INE standardizes the quantity in 460 grams and reports the price in Quetzals for that amount. The same happens with the other products discussed immediately, although the weight changes in some products.

Chart 25. Corn Tortilla (Q/460grs)



Source: authors with data from INE

It should be noted that this is the consumption of the product already processed (tortillas), and not the price of the primary product (white maize). Nevertheless, the discrepancies in the evolution of both the processed and the primary product cannot be large. In any case, the chart shows that the consumer price of this key product (representing about one third of the consumption of calories and almost 32% of proteins; see Table 6) has not changed much from the average during the period considered (since last quarter of 2017), except for the price spike in 2018. In other words, the pandemic does not seem to have registered at the level of consumer prices of tortillas (although this can be a combination of lower supply and lower demand, and not that there were no problems in the value chain). However there has been an acceleration of the price of tortillas in the early 2022, which may reflect the impact of the global geopolitical turmoil on world food prices.

The last price reported by INE at the time of this writing (April 2022) was 3.77 Q/460 grs, about 5.6% above the average since 2017 of 3.57 Q/460 grs. It should also be noted that compared to the value in 2017, the increase is almost 10% in nominal terms, when the cumulated inflation since 2018 and until 2021, is about 21% (therefore in inflation-adjusted quetzales, the price of tortilla in April 2022 was lower than in 2017).

Moving to yellow maize (see table 7), it was noted that is mostly imported and the domestic production is mainly by medium to large producer.

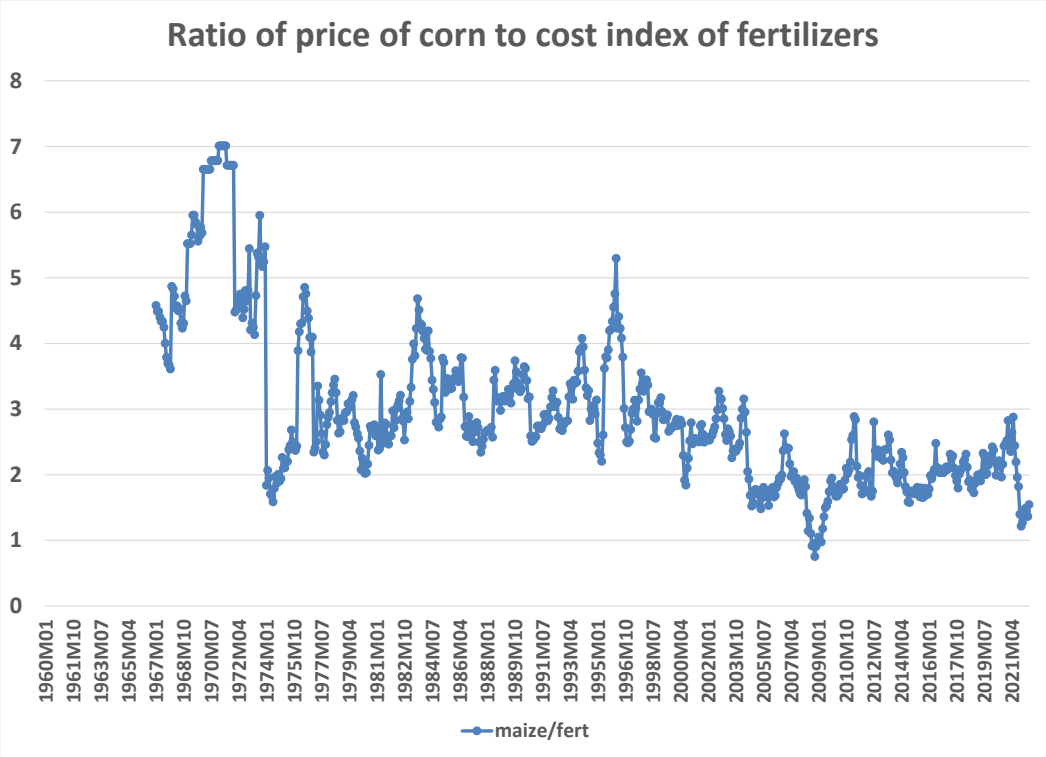
Table 7. Yellow Maize

Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Russia-Ukraine Conflict -RUC (February 2022 to Present)
Input supplies and production	Guatemala imported on average 1.2 million MT of yellow corn during 2016-2020.	Getting access to corn in 2020 was difficult as other countries with large poultry sectors (China, U.S. and Brazil) were also buying feed more aggressively than usual.	There was some decline in domestic production in the areas affected by the hurricanes.	See white corn on the impact of prices of fertilizers, energy and transportation costs.
		Change in cost of inputs, particularly fertilizers		
Commercialization	Nearly 83% of yellow maize consumed in the country is imported from the U.S. and Brazil.	COVID-19 has created strong competition for available stocks. While this is positive for producers, it is not for small countries trying to stock for the next few months of feed. The year 2020 has been a good year for international yellow maize sales (Gantz, 2021)	The large majority of the yellow corn is imported. Therefore, the impact of the hurricanes on domestic supply was marginal (the decline in domestic production was compensated by imports)	Prices of yellow corn jumped almost 140% in May 2022 compared to two years before, below the increases leading to the 2008 global food crisis, and in the 1970s. The price of yellow corn adjusted by US inflation is still below the period from 1960 to early 1980s, and the peaks in 1996, 2008, and in 2011-2013.

Source: Authors

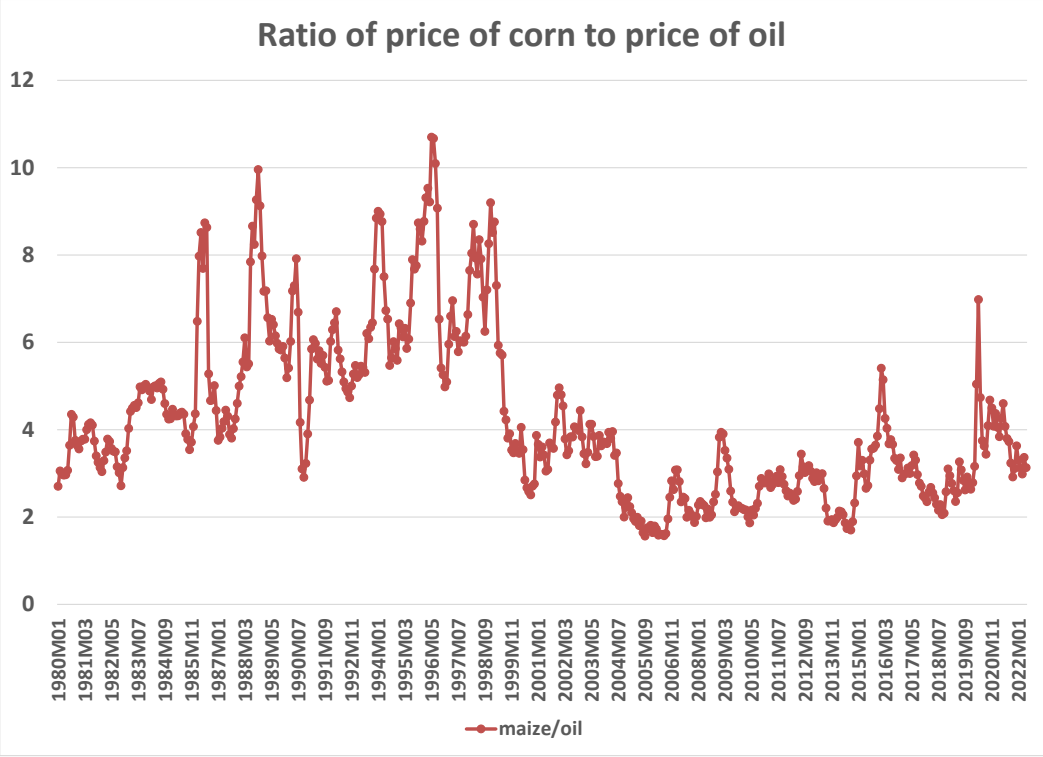
A main consideration for the supply of corn (especially yellow) is the impact of the price of fertilizers and of energy on production costs. An indicator is the relation of the price of the product compared to the price of fertilizers and of energy. If the ratio goes down it means that the input (fertilizers or energy) is getting more expensive compared to the price of the product, signaling a cost push, and, potentially, leading to a reduction of profit margins. However, as there are other components of production costs, these ratios give only a partial idea of the pressure on profit margins. With those caveats in mind, the next Charts 26 and 27 present those ratios using world prices, which given that Guatemala is a relatively open economy can give an indication of the domestic ratios.

Chart 26. Ratio Corn price / Fertilizers Cost



Source: authors with World Bank "pink sheet" database

Chart 27. Ratio Corn Price/Oil price



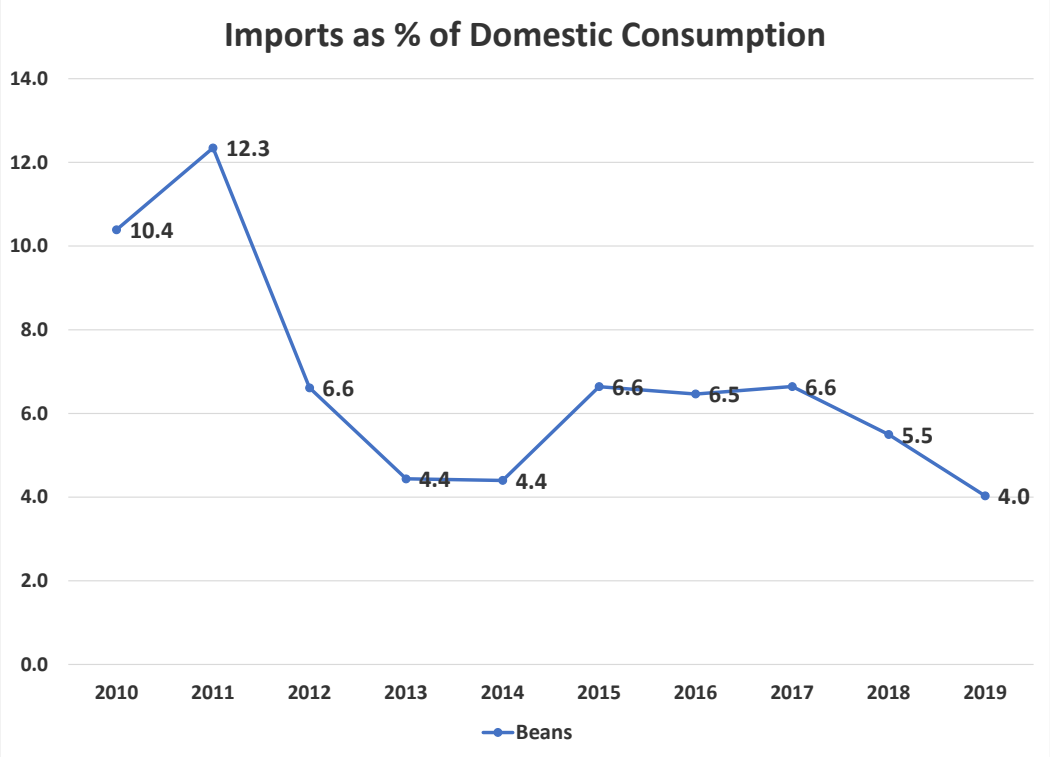
Source: authors with World Bank "pink sheet" database

The ratio of the price of corn to fertilizers is close to the low values of 2008 and are clearly below the long-term average, signaling a cost pressure. In the case of oil, it is declining but above the average since the 2000s. The charts suggest the need to continue monitoring the impact of fertilizer and energy prices on production costs.

6.2. Beans

Chart 28 shows the percentage of imported beans in domestic consumption. Basically, Guatemalan consumption of these products depends on domestic production. Table 8 discusses the main characteristics of this value chain.

Chart 28. Beans Imports as % of Domestic Consumption



Source: authors with data from FAOSTAT

Table 8. Beans

Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Russia-Ukraine Conflict -RUC (February 2022 to Present)

Input supplies and production	270,000 ha planted with different beans (7% of all the agricultural area in Guatemala, and some 13% of cropland; FAOSTAT, data for 2019). ENA reports a total production of 136,363MT, but the US Dry Bean Council estimates the 2020 production levels at 251,304MT, consistent with the last four-year average (US Dry Bean Council 2020).[16] Because more than 42% is cultivated in association with maize both crops undergo similar challenges accessing inputs, technology and markets.	Farming families planted the first season under normal conditions. No official numbers on total area planted are available, but markets are flushed with local production while prices increased circa 13% above the normal changes from season to season.	70 thousand tons of beans that could be at risk of being lost, reported the Superior Council of Private Enterprise (COSEP).	No effect recorded yet as the first production season was planted in late May to early June 2022.
	Most of the area planted is low-tech, low-yield, hillside agriculture throughout three cropping cycles: 37% first season from May-August, 39% in the second season from August/September to October; and 24% planted in November and December and harvested in February of the following year. The departments of Peten, Alta Verapaz and Jutiapa are the main producers where most of the area geared to the market is produced.	Change in cost of inputs, particularly fertilizers in areas like Peten, Alta Verapaz and Jutiapa where more technology is used.		
	As in the case of maize, the National Agricultural Research Institute (ICTA) has worked for decades releasing improved varieties. Unfortunately, there is no national system or private sector involvement in the dissemination of those varieties. As a result, less than 5%	COVID-19 restricted initially the ability of farmers to access quality seed of improved varieties. It was feared that the progress gained in dissemination of bean varieties would be lost during that period. Yet		

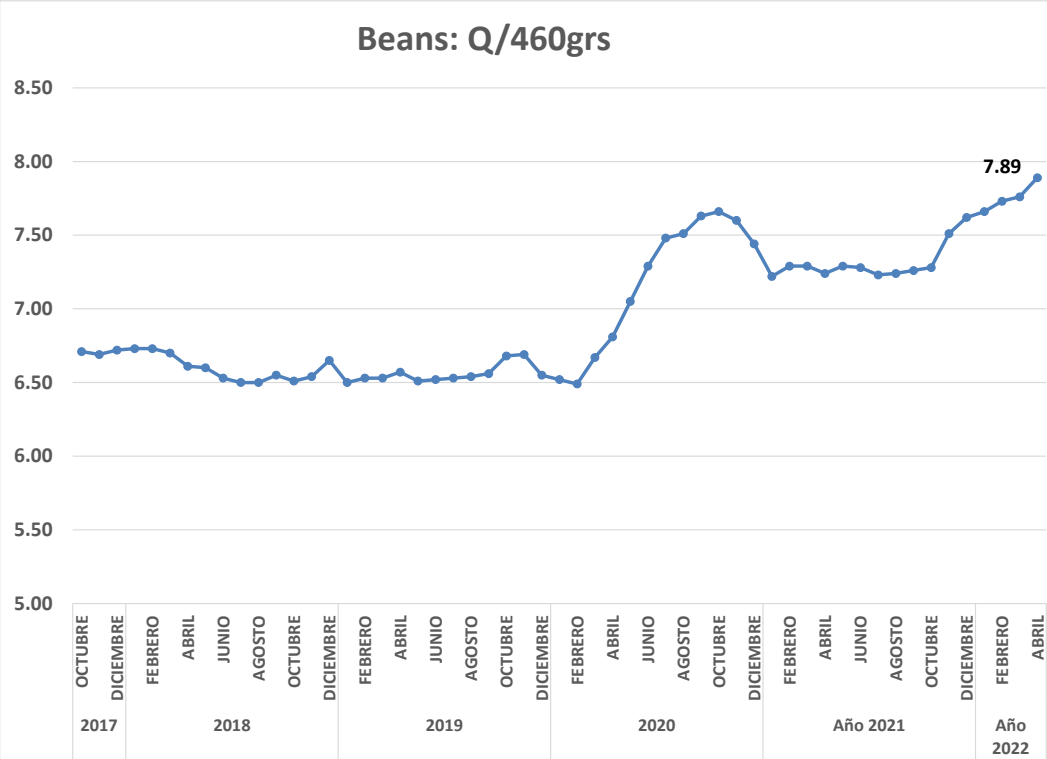
[16] http://www.freelandbeanandgrain.com/images/E0136601/2020_Black_Bean_SD_Outlook.pdf

	of bean growers plant quality seed of improved varieties.	yields do not seem to have suffered in 2020.		
	Beans are highly susceptible to drought, pests, and diseases. Uneven rain patterns, droughts and higher temperatures have turned bean production into a more expensive crop.	2020 was a good cropping beans which has helped keep prices only 10-15% above last year's prices.		
Commercialization	No known national organization of bean producers has been identified. Most farmers sell at farm gate and the few cooperatives function under asymmetric market information between. High price variation along the year as periods of scarcity precede the next harvesting cycle. Since March 2020 world stocks of dry beans (all market classes) have been historically low due to Mexico and Argentina's bad crops. Historically, Guatemala has imported between 500,000MT and 1.5 million MT per year from multiple origins, but mainly 60% from China and circa 20% from the United States (Ortiz Izaguirre, 2015, ICTA 2020).	All links of food value chains declared essential workers, so the commercialization was not interrupted. Guatemala faced an uncertain situation with black bean availability in May given the world's limited stocks of dry beans. It was a fortunate year in terms of the even rainy season during the year except for areas that received excessive rainfall during two tropical storms (Eta and Iota).		
Processing	Guatemala imports black beans every year from China, Argentina and other sources. Multinational retailers and food processors prefer to buy beans abroad as prices and volumes are more constant than in local markets. 2019. Amounts still undetermined for 2019 and 2020.	10-15% increase in market price associated to COVID-19. This increase has been due in part to increased production and logistics costs.	Processing continued from China, Argentina and the U.S. (North Dakota and Michigan).	There has not been institutional purchasing of beans, thus setting prices for the end of the current season. Bean prices have been on the rise (see Chart 29).

Source: Authors

Chart 29 shows the evolution of the price of beans (“frijoles”) also as registered by INE in its calculations of the Canasta Básica Alimentaria.

Chart 29. Beans (Q/460grs)



Source: authors with data from INE

While the price of corn tortillas did not change much during the pandemic, beans (about 5% of calories and 13% of proteins in average national consumption) have become more expensive since mid-2020: a jump of about 17% over pre-pandemic levels; and although prices declined somewhat in the first months of 2021, they are still about 12% above the average values for the period 2017-2019.

This behavior in prices was explained by some level of panic demand in several countries, and shortages in world markets during the pandemic: although as mentioned the supply of beans in Guatemala is mostly domestic, supermarkets also import some amounts to smooth availability for consumers, and there were supply problems in world markets. The world's largest producers and exporters of dry beans are the USA (North Dakota, Michigan, and Idaho), China, Argentina, Brazil, and Ethiopia. Inventories were running low due to strong sales in early 2020, while the next harvest in the US and China started later in October 2020; and in Argentina and Brazil with the harvesting season being only in April 2021, both countries were hit by droughts affecting supplies (there is no reliable information for Ethiopia on available inventories or next season forecasts).

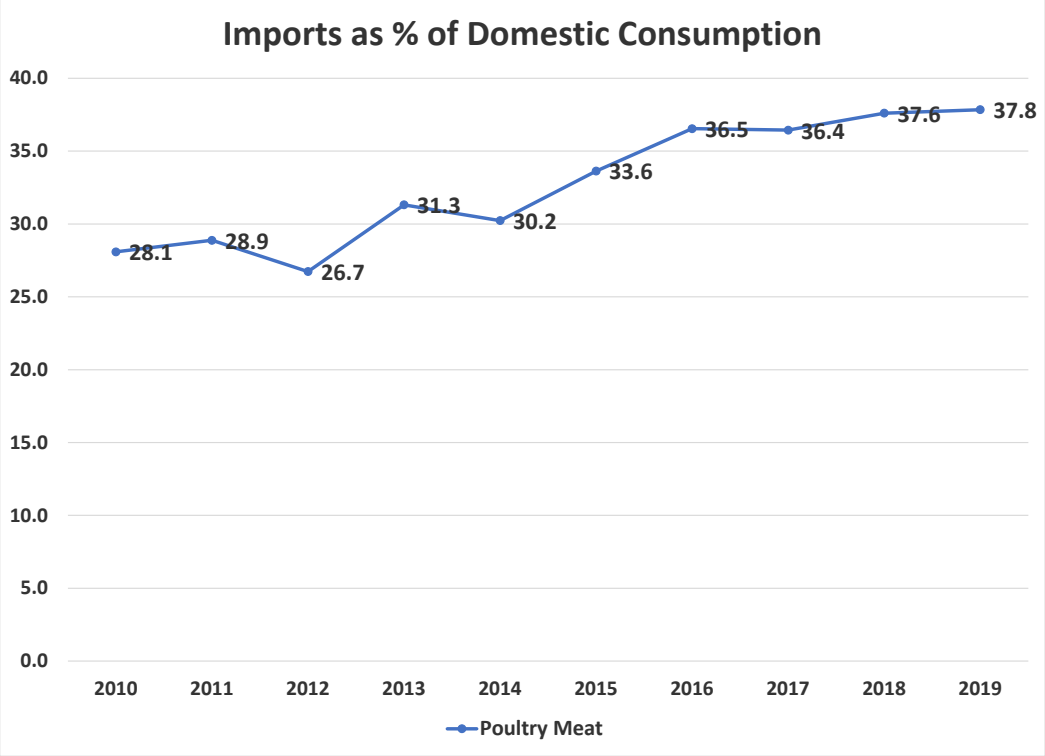
The combination of these factors led to world prices in mid-2020 jumping some 20% above the 2019 levels, and, while declining since then, have maintained prices of beans in 2021 still above the pre-pandemic levels.[17]

RUC led to a further acceleration of the price of beans in Guatemala that reached 7.89 Q/460 grs in April 2022 (the latest INE data), about 13% above the average of 6.96 Q/460 grs since 2017. Also, the accumulated inflation in the price of beans since 2017 has been about 17.6% when total inflation since 2018 and until 2021, has been about 21%. Therefore, in the case of beans, as in the corn tortillas mentioned before, the inflation-adjusted price is lower than the values of 2017.

6.3. Poultry meat and eggs

Chart 30 shows the percentage of poultry imports on domestic consumption.

Chart 30. Poultry Imports as % of Domestic Consumption



Source: authors with data from FAOSTAT

Close to 2/3 of the national consumption of poultry meat is supplied by domestic producers. However, the national industry depends almost entirely on imports for genetic material and animal feed (see Ta-

[17] The prices estimated from inquiries with traders were a) Ethiopia red and black US$ 975 / TM; b). Michigan Polished Red US$ 1190 / MT; and c) Argentina Red $ 950-1000.00 / TM.

ble 9 below). On the other hand, the supply of eggs for human consumption in Guatemala comes basically all from domestic producers (the average percentage of imported eggs with respect to domestic human consumption is less than 0.4%).

Table 9. Poultry

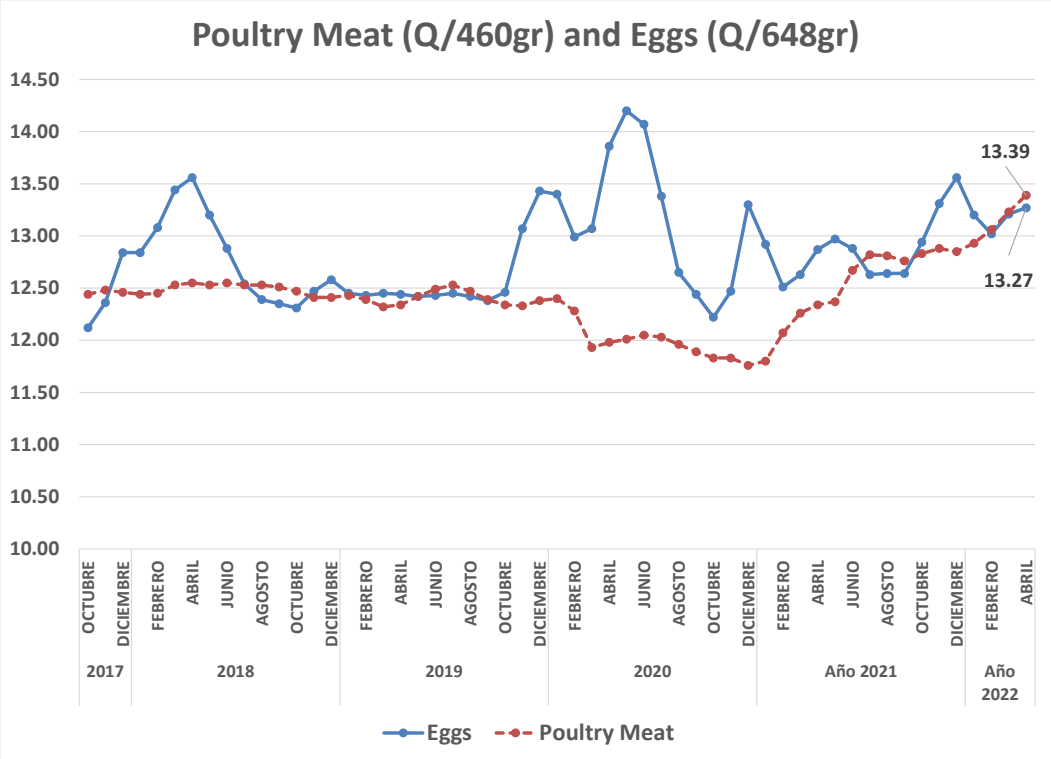
Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Russia-Ukraine Conflict -RUC (February 2022 to Present)
Input supplies and production	The country's production is estimated at 572 million pounds (USDA and FAO estimates, interviewee did not provide source) and about 5.6 billion eggs. Guatemala has an estimated 264 million poultry with a total of 156 million birds slaughtered for 2019.	In face of COVID-19 demand forecasts, the poultry sector cut production by 18%. Coincidentally, the price of feed went up 18% in a matter of weeks, a phenomenon not seen in over a decade. Futures purchases of grain (yellow maize and soy) do not point out prices will come down.	No change associated to this value chain.	Soybean, a major ingredient in animal feed, registers a 30.1% increase in price imported in Guatemala. Yellow maize increased 38% in the same period. Overall, prices are up 12% from June 2021 to May 2022.
	According to the data available from FAO, Guatemala had a production of around 5.4 billion eggs in 2017, equivalent to 273,400 metric tons. The country's per capita consumption would be estimated at 323 eggs per person and with a similar projection for 2018.	Cutting down production in April meant not replenishing herd stocks which took place in the last three weeks of April, but operations returned to normal in May 2020 in response to steady demand.		
Commercialization	Guatemala is a net importer of chicken, mainly from the United States with more than 90% of the total. The growth rate of imports in value for 2014-2018 was 11.3%. with an estimated 5,250 42,000-pound containers per year. The country also imported about 1,000	Market prices of chicken and eggs have also creased from 15%-18%. The influx of Mexican eggs has alarmed the poultry sector, but it only happens some months out of the year.	No change associated.	The poultry and egg value chain contracted 20% during the first two months of the pandemic, but increased production (to 2019 levels) as early as June 2020.

	containers of mechanically deboned chicken paste, which serves as raw material for the sausage industry. Leading importers are Pollo Lindo and Pollo Rey[18]			The shock of increased commodity prices used in feed has been the major source of price increases (still under computation), primarily in the Feb-March 2022 window.

Source: Authors

Consumer prices for poultry meat and eggs reported by INE are shown in Chart 31.

Chart 31. Poultry (Q/460gr) and Eggs (Q/648gr)



Source: authors with data from INE.

Poultry represents 2.8% of the consumption of calories and 8.6% of proteins, while eggs account for 2.0% of calories and 5.4% of proteins. The price of poultry meat at the consumer level was in fact declining during the pandemic, but started to climb again in 2021, and further accelerated during the early part of 2022. The price of eggs shows greater variations: it was increasing at the end of 2019 before the pandemic, which accelerated in mid-2020 peaking about 14% above the values of 2018-2019; then it

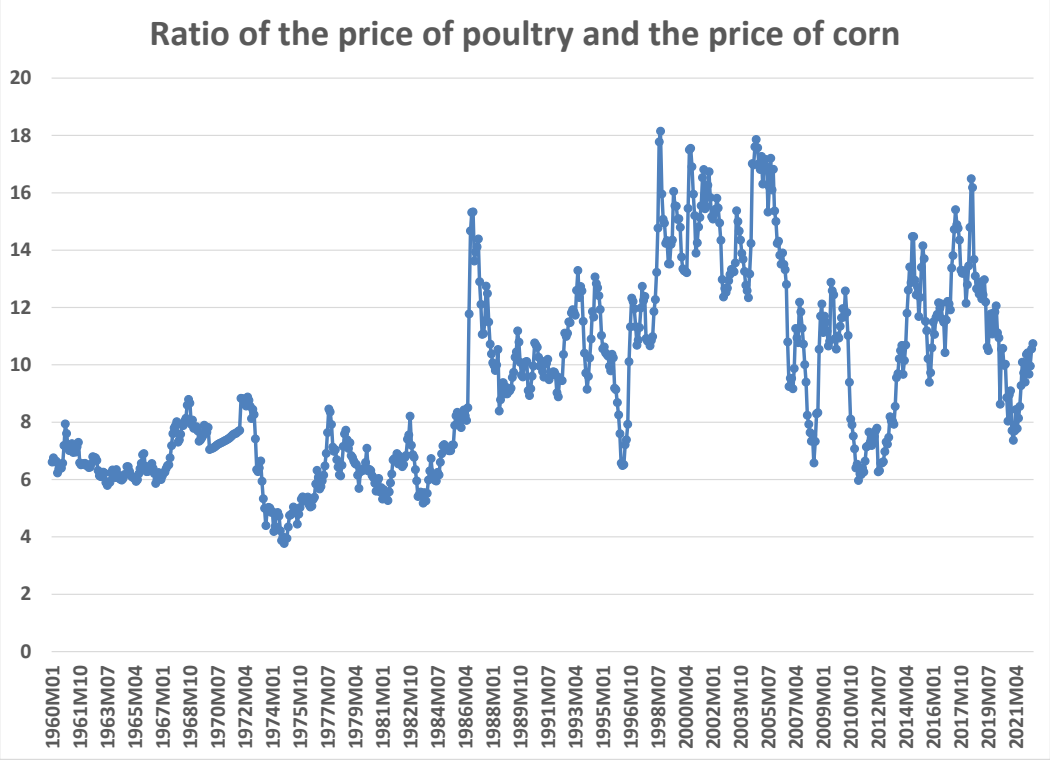
[18] Food and Agriculture Organization (FAO) d and MINECO 2019

declined to that average, only to have increase afterwards. Those cycles have been influenced by the strategies of producers (discussed elsewhere in this report) that first cut production estimating declines of demand, while on the demand side there was some shifting towards eggs as a source of protein reinforced by a certain amount of panic buying. With the economic conditions stabilizing, also the gyrations in the market for eggs seem to be moderating. There may have been some impacts from the illegal trade with Mexico (discussed in other parts of this report).

Currently (April 2022, last data from INE as of this writing) is 13.39 Q/460grs, about 7.8% above the average from 2017 (12.42 Q/460grs), and about 7.6% above the price in 2017 (compared to accumulated inflation of some 21% since then). In the case of eggs, the price in April 2022 is 13.27 Q/648grs, about 3.2% above the average of 12.86 Q/648grs for the whole period since 2017, and about 9.5% above the starting price of 2017 in INE's database. Again, this accumulated inflation for eggs is below the total inflation since 2017 of about 21%: therefore, for both poultry meat and eggs, currently, even with the effect of RUC, prices of these two products appear lower in inflation-adjusted terms than those in 2017.

Another consideration is related to production costs: next Chart 32 shows a ratio of the price of poultry and the price of corn in world markets.

Chart 32. Ratio Poultry Price/Corn Price



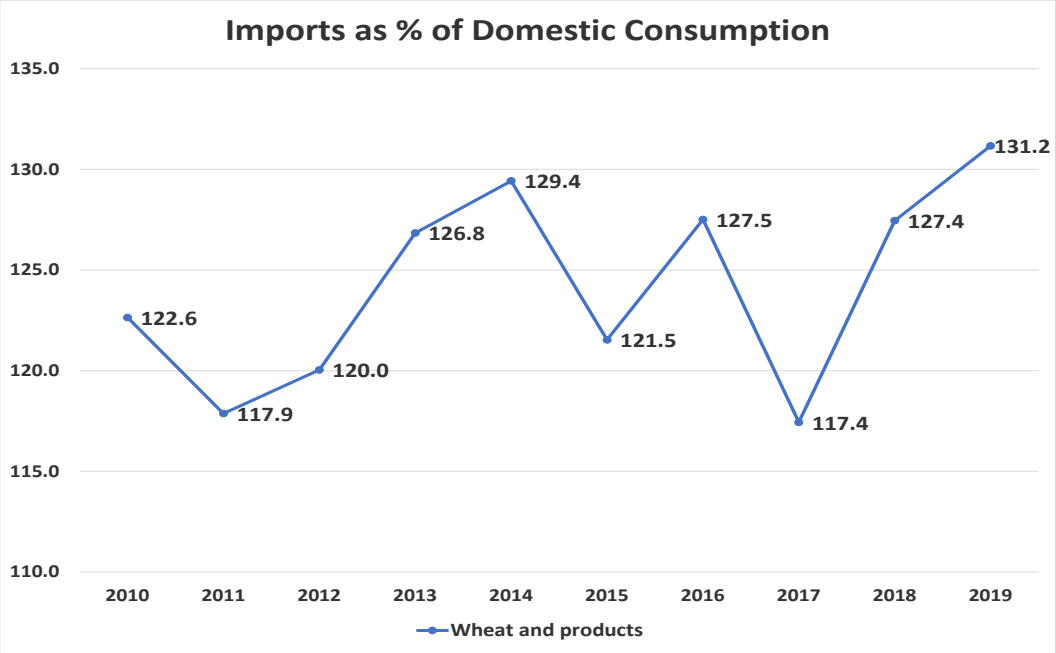
Source: World Bank commodity prices database

As shown before, a lower ratio would indicate loss of profit margin (the price of poultry would be lower compared to the price of corn). Currently, the ratio is in middle level values, considering history.

6.4. Wheat

Chart 33 shows the percentage of wheat and wheat products on domestic consumption.

Chart 33. Wheat Import as % of Domestic Consumption



Source: authors with data from FAOSTAT

This is a product completely imported. The fact that imports exceed domestic consumption is because part of the product is reexported (or processed as wheat products) and exported. Table 10 discusses the main issue for this value chain.

Table 10. Wheat

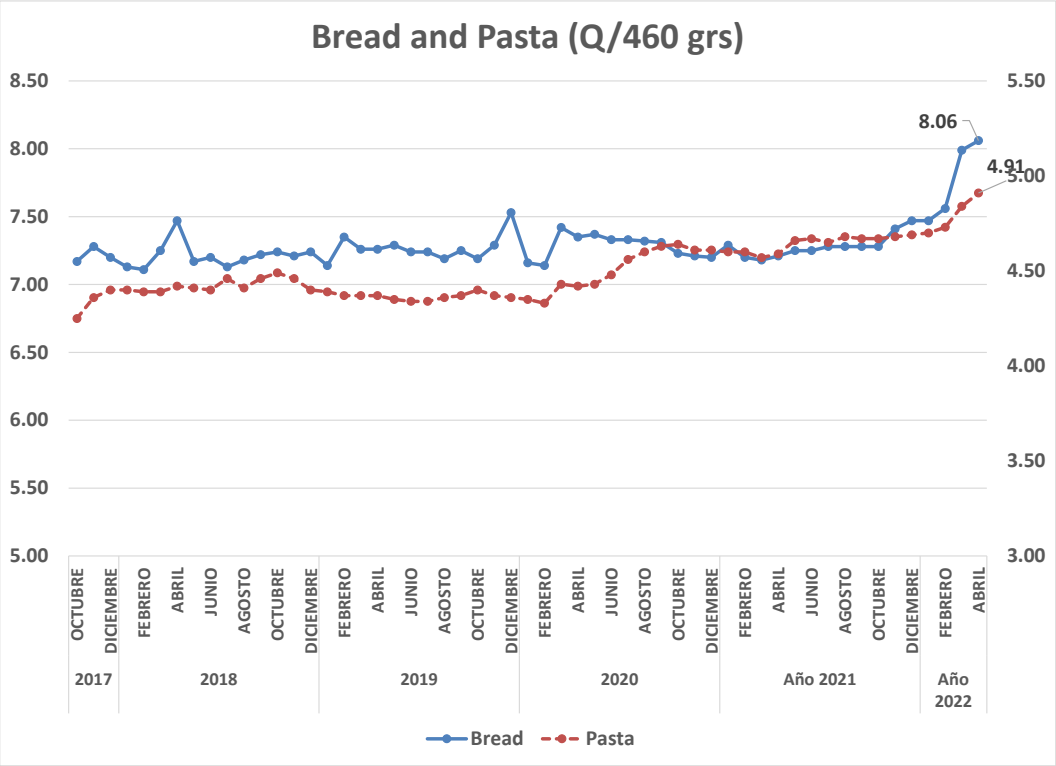
Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Russia-Ukraine Conflict -RUC (February 2022 to Present)
Input supplies and production	Guatemala imported circa 2 million MT of wheat in 2021. Domestic production is negligible, making Guatemala a net importer of wheat.	COVID-19 brought about significant changes not experienced before in the bakery sector. Sales	No specific change associated to climate.	The combined effect of the crisis on price of wheat has resulted in a 175% increase in wheat prices from May 2020 to

		stayed stable, but new areas of expenses to deliver bread to consumers. The price of bread was among the first ones to suffer the impact of COVID-19-related price hikes.		June 2022. Complementary ingredients such as vegetable oil and sugar also increased in price, further contributing to the increase in the final product (see below).
Commercialization		As in other sectors dealing directly with customers, hygiene is high up the list of customer concerns as a result of coronavirus. Although this is not a direct problem for wheat importers, it is an added cost for wheat millers and their network of clients being forced to increase prices or reduce bread size.		

Source: Authors

Wheat and products represent about 11.6% of the consumption of calories in Guatemala and 13.2% of proteins. But as they are basically imported, this value chain depends on what happens in world markets. Before (Chart 22) it was shown the evolution of world prices. Here, the next Chart 34 presents the evolution of domestic prices in the Canasta Básica Alimentaria tracked by INE for bread (solid line, measured on the left axis from the reader) and pasta (broken line on the right axis) (INE standardizes most values, with some exceptions such as eggs, for 460 grs).

Chart 34. Bread and Pasta Prices Evolution



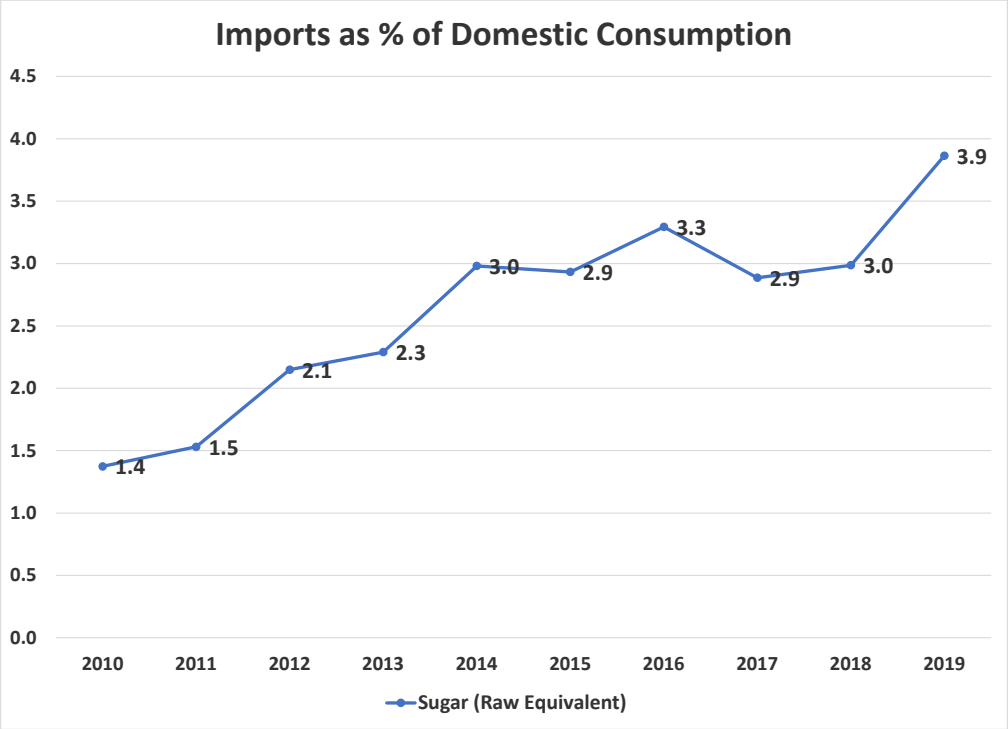
Source: authors with data from INE

Price of bread stayed stable but the one for pastas increased during the pandemic. They were clearly affected further by RUC, as shown by the increases in early 2022. The current (April 2022) price of bread ("pan francés") and of pasta (average of all types) are respectively 8.06 Q/460grs and 7.56 Q/460grs, when before the invasion they were 7.47 and 4.70 (representing increases of almost 7% and about 4.5% respectively). The averages for both products during 2017-2022 have been, also respectively, 7.30 Q/460grs and 6.81 Q/460grs. Therefore, current prices, are about 9-10% above the average, and increased some 12.4% and 15.5%, correspondingly, since 2017. The smaller increase in the final price when compared with the big jump in world prices reflect that the incidence of the primary commodity (wheat) in the final products is relatively small.

6.5. Sugar

Guatemala is a world exporter of sugar. However, the country imports sugar products, which, converted into the raw equivalent, amount to less than 4% of domestic consumption (but that coefficient has been increasing; see Chart 35).

Chart 35. Sugar Imports as % of Domestic Consumption



Source: authors with FAOSTAT data

Table 11 shows the main issues related to this value chain.

Table 11. Sugar

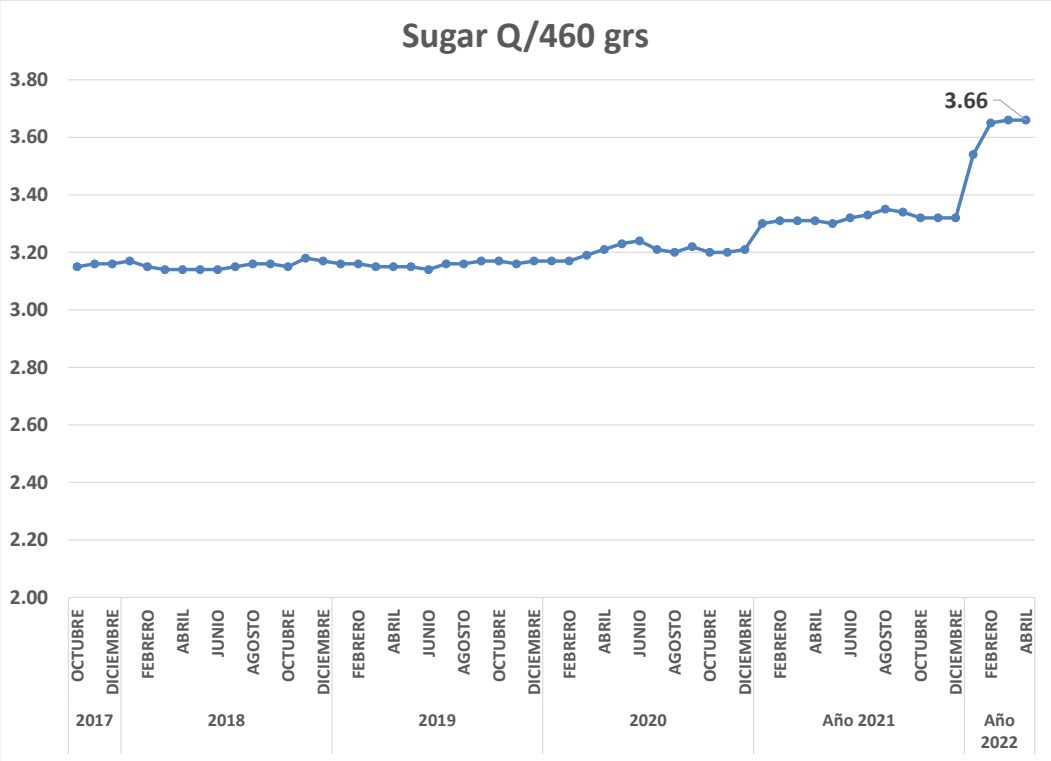
Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Russia-Ukraine Conflict -RUC (February 2022 to Present)
Generalities of the value chain	Guatemala is the fifth largest exporter in the world and the second in Latin America by volume (2.5M metric tons in 2021 alone). It employs more than 60,000 direct jobs and circa 400,000 people indirectly.	Labor transportation and social distancing affected the sector in the first months of the pandemic.	There are limited reports on the impact of climate change on sugar production.	Processing information on the impact of the fertilizers and the energy costs crises for the sector. Although the processing of sugar is fed by electricity generated with burning of crop debris, sugar transportation

				and packaging still depends on imported commodities and petrol.

Source: Authors

Sugar represents about 18.7% of calories consumed but 0% of proteins. Chart 36 shows the evolution of the price of sugar to the consumer.

Chart 36. Sugar Price Evolution

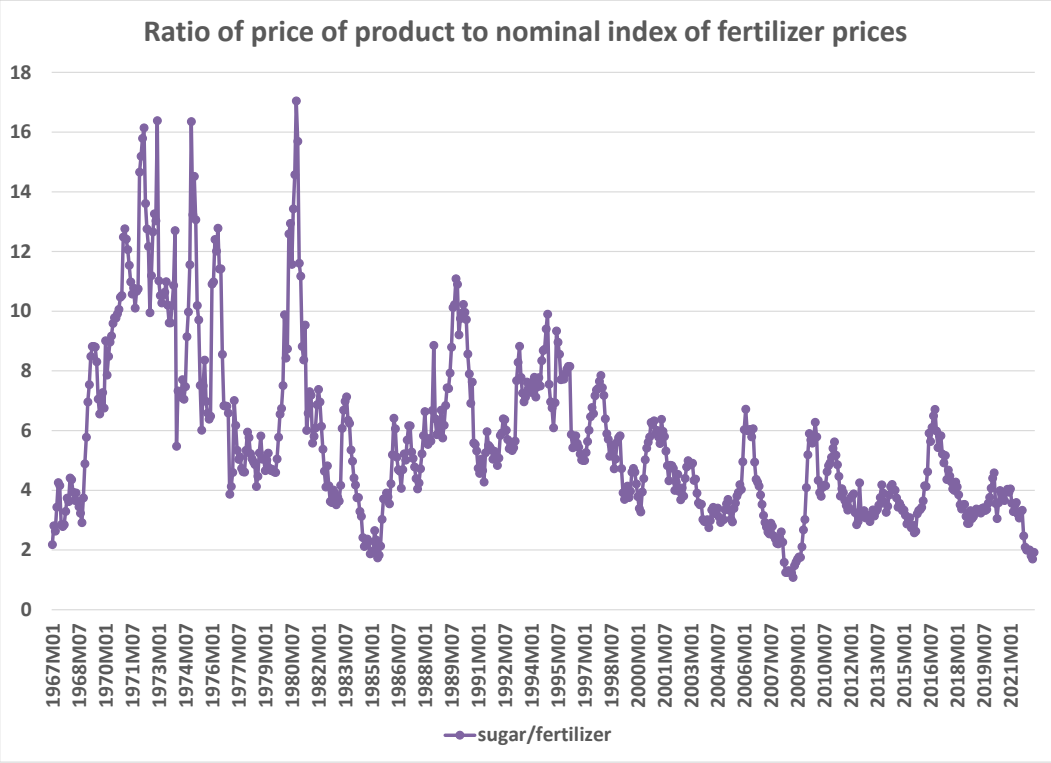


Source: authors with data from INE

It remained stable since 2017 and until the pandemic, when it experienced a small increase. Then, it jumped, starting before the Ukrainian invasion, stabilize since then at the current price of 3.66 Q/460grs. This is about 13% the average since 2017 of 3.24 Q/460grs. The cumulative increase in price since 2017 has been about 16.2% (below the accumulated inflation since 2017).

On the production side another consideration since the Ukrainian invasion is the relations between the price of the product and the price of fertilizers. Chart 37 shows the ratio using the index of nominal prices of fertilizers calculated by the World Bank.

Chart 37. Ratio Sugar Price/Fertilizers' Price



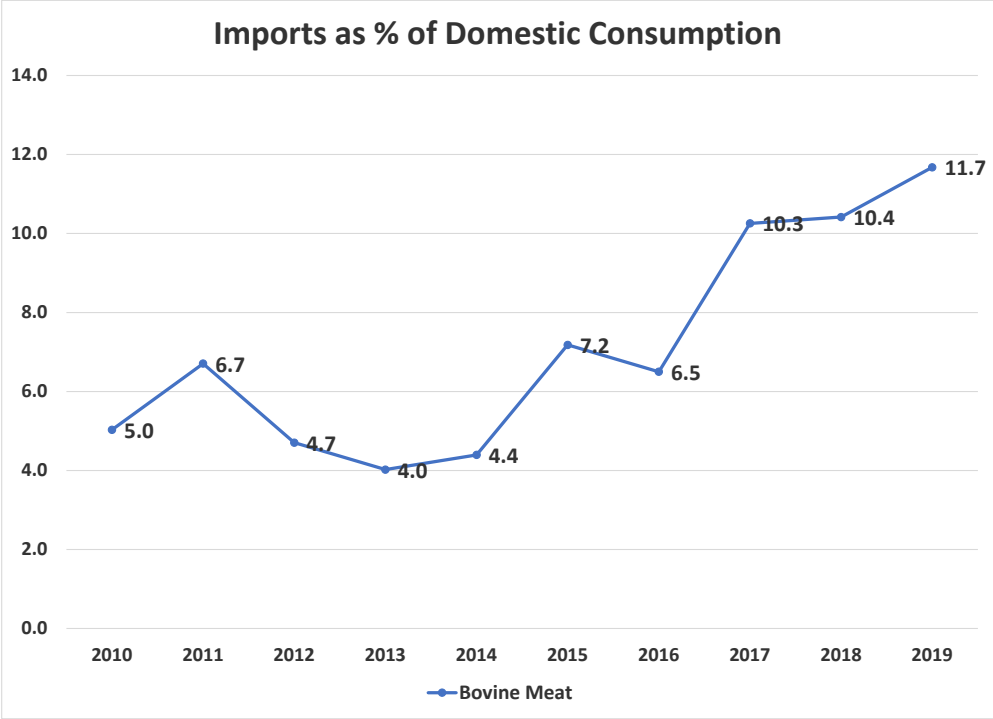
Source: authors with data from World Bank "pink sheets"

The ratio is close to the worse values for sugar during the period considered.

6.6. Bovine meat

Chart 38 shows the percentage of imports over domestic consumption.

Chart 38. Bovine meat Import as % of Domestic Consumption



Source: authors with FAOSTAT data

The supply of bovine meat is mostly domestic: imports in 2019 represented less than 12 % of domestic consumption, but with an increasing trend: the percentage about double since 2010.

Table 12. Bovine Meat Value Chain

Value Chain Function	Critical value chain characteristics	COVID-19 effect (March 2020-Present)	Climate Change Extreme Events Effect (Eta and Iota from November 2020-May 2021)	Ukrainian Crisis (February 2022 to Present)
Input supplies and production	The bovine inventory of Guatemala reported in the year 2003 it was approximately 1.8 million heads. In 2019, the inventory increased to 2.9 million heads, of which 49% are used for dual purpose (meat and milk), 35% are meat producers, and 16% are dedicated to the specialized production of milk. About 8% of the bovine livestock is raised by households owning up to 20 heads, while 92% is raised in circa 108,000 farms throughout the	Effects on production have not been recorded given the long life-cycle of bovine production. Eta and Iota were responsible for some cattle losses in the department of Izabal (the third most important by heads of cattle), but this did not make it to the reports. Bovine production is vastly non-stabled, with 78% grass-fed, and the rest with mixed feeding methods. The sector is dominated by mid-size herds in three		

	country. The highest concentration of bovine livestock is in the departments of Peten (18%), Escuintla (13%) and Izabal with (9%). INE's National Livestock Census reports livestock raising activity in every department with 90% dedicated to meat and dairy production (double-purpose breeds).	major departments, it is not input intensive (like swine or poultry) and only less than 5% of farms have access to improved genetics.
	Producers buy inputs retail and without guarantee of quality. The farms show low productivity indexes, especially small and medium producers who lack the technology and adequate means to produce, given the resources that they have available on their own farms. They also display deficiencies in their management models for cattle farms. The herds lack health care, no there are public or private services that monitor, prevent, or certify the presence of diseases. Livestock production models are extensive and do not consider elements of environmental conservation.	
Commercialization	It is estimated that livestock contributes about 500 million dollars per year in direct income. This income comes from 1.4 million liters of milk produced per day, in addition to half a million head of cattle sold for meat. There is no direct relationship between the ranchers and the formal processing industries. Transactions are made through intermediation and informality, with fiscal implications. The business decisions of selling the production of live cattle and raw milk area carried out without updated information on market prices.	Although it is an important food sector in Guatemala, the bovine production system is mainly for domestic consumption and around 17,000MT in exports to Mexico and the Central America region (INE 2021). The Guatemala National Statistics Institute (INE) reported slaughtered bovine livestock for the domestic market in 2020. The report uses secondary data from municipalities which are officially deputized by the Ministry of Health to handle those facilities. Unfortunately, this is the only year such information is available at this level of detail in Guatemala. The twelve months of 2020 offer a glimpse at the national consumption every month capturing two months before COVID-19 and the first signs of recovery. Total processed meat (reported in hundred-weight units (c.w.t.) is passed to metric tons. In Jan, for instance, 5,576MT were processed with February showing a 3.8% decrease. Using the month of February as the last normal month for consumption prior to the pandemic restrictions, it is documented that March decreased 11% while April declined 28% with respect to February. The decreasing trend in volumes consumed continued in May (18.5%, (June

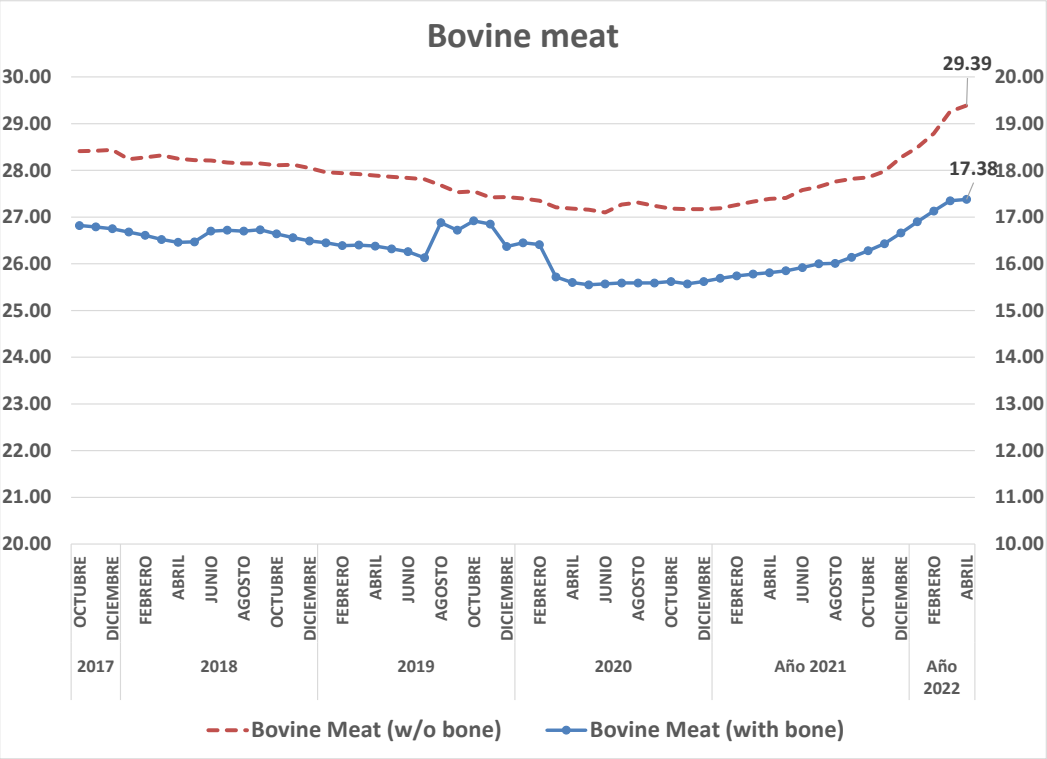
		16.8), July (12.3%) and August (9.3%). December 2020 was the first month to show an increase (5.3%) in consumption with respect to pre-pandemic conditions driven most likely by higher expenditures in food typical of the end of the year. November, which is the month of the tropical storms Eta and Iota, only showed a 3.1% decline. See chart 40.b for details on the information reported by INE (2021).

Source: Authors

Bovine meat represents about 1.7% of the calories consumed in Guatemala, and about 7.0% of the proteins, below the consumption of poultry.

Chart 39 shows the evolution of the price of bovine meat (with and without bone), since 2017, with information of INE for the Canasta Básica Alimentaria.

Chart 39. Bovine Meat Price Evolution



Source: authors with data from INE

The prices have been declining in nominal terms from 2017 to 2019, stabilized during first year of the pandemic (2020), and started to climb since 2021, accelerating even before the Ukrainian invasion. In the case of bovine meat without bone, the price in April 2022 reached 29.39 Q/460 grs, about 5.6%

above the average price of 27.83 Q/460 grs for the whole period covered in the Chart. Accumulated inflation since 2017 has been only 3.45%, significantly below the cumulative inflation since 2017 (which, as noted, has been 21%). In the case of bovine meat with bone, the price in April 2022 reached 17.38 Q/460 grs, or 6.5% above the average price for the period in the Chart (16.32 Q/460 grs). Accumulated inflation since 2017 has been only 3.33%, again significantly below the cumulative inflation since 2017 (which, as noted has been 21%). Therefore, the inflation-adjusted price of bovine meat has been declining in Guatemala, which may be related to the increasing competition of poultry as well as the larger imports of beef shown in Chart 38.

6.7. Some considerations about the operation of the selected value chains during the first year of the pandemic (2020)

The business climate during the first two years of the pandemic for the food value chains considered in this assessment can be divided into several periods that capture the changes faced by the producers and industry representatives interviewed. From April to June 2020, reports on disruptions in production costs and supply flows were limited as many industries were still grappling with what the pandemic restrictions meant to their business. From July to September 2020, data started emerging on the struggles faced by producers, processors, and retailers as the first assessments were written and published by the local newspapers. By the last quarter of 2020 and afterward, with the reopening of the economy, and increases in mobility of the population (discussed before), the record-setting toll on the tourism and hospitality industries, international travel, foodservice, and other jobs in the informal economy has been abating. The programs implemented by the government, with the help of international organizations, also supported incomes and employment.[19]

Although the news of nation-wide support programs was well received by the private sector, decision-making among operators of the value chains analyzed relied on market reaction within their immediate geographic scope. In the case of the value chains analyzed the biggest impact from COVID-19 on the Guatemalan market came from decreased demand as international and national travel (business and tourism) came almost to a halt. In addition, many jobs were lost, and households had to adjust to tighter food purchasing budgets in a matter of three months, initially with minimum hope of relief programs from the Government.

[19] For example a World Bank program in 2020 included the following components: a) expanding safety nets, including extending the wage replacement program for formal workers furloughed in the private sector and scaling up coverage of cash transfers programs from 5 to 10 percent of the households (from 166,000 households in 2019 to 330,000 in 2022); b) broadening access to health services for all students enrolled in pre-primary and primary public schools and provide school meals at home while schools are closed, as well as food rations to vulnerable households; c) adopting comprehensive screening measures to prevent increases in malnutrition and food insecurity for 50,000 at-risk children; and d) providing temporary liquidity through working capital financing to at least 4,500 micro, small and medium enterprises, of which 2,000 women owned.

On the supply side, increased production costs on most inputs in the first part of the pandemic were estimated at 10 to 18% and up to 30% in areas further away from major cities and major ports (particularly in densely populated areas such as Alta Verapaz). This increase in costs was combined with delayed logistics that forced producers and processors to opt for more expensive inputs, incurred expenses into idling personnel, and added indirect costs by abruptly shifting production plans.

As noted, there were different phases, and, towards the end of 2020, clear signs of recovery began to emerge showing the resiliency of those value chains.

Government of Guatemala's immediate focus on food security was favorable for all value chains

It was mentioned before that the government strengthened social and food safety nets through a variety of mechanisms. For decades, Guatemala has faced chronic malnutrition in rural and urban populations (FANTA III 2018. Global Nutrition Report 2018). Limited access to food in the minimally required caloric intake and the dietary mix has been worsened by the effects of COVID-19 on the economy as increasing prices on basic staples force the poorest economic strata to spend more on carbohydrates (cereals and fats) and less on meats and vitamin and mineral-rich fruits and vegetables (see the analysis of diets in the section with the simulations with IFPRI's model). This level of awareness (and the fear of severe food scarcity) among government institutions prompted a government led campaign to promote food production right at the onset of the rainy season in 2020.

A focus on boosting food security by planting more basic grains was the most accessible tool the government had to prevent hunger. Other links in the chain were also set on high alert to respond with processing, logistics and retailing capacity. For instance, while Guatemala imposed social distancing restrictions just weeks before the major production season for maize, beans, and other important food staples started, all food handling personnel were declared "essential workers." As a result, maize, beans as well as poultry producers (chicken and eggs) and other food producers adopted social distancing protocols but did not stop working. Therefore, all value chains have been able to continue with production and processing activities, although under new schedules and standards.

COVID-19 impact on the maize and beans value chains

While some of the value chains analyzed experienced adjustments in production due to lower demand and increased production costs, the most serious effects initially feared during the period of uncertainty in the weeks at the onset of the pandemic (April to June 2020) did not materialize. Because the production activities are mostly seasonal (with the exception of a few large-scale producers), the positive factor that boosted confidence in the sectors was the even rainfall pattern throughout the first production season (April-Aug) which produced above-average yields of maize and beans. The expectation during the beginning of the cycle was that there was going to be a long drought in July and August threatening yields and household food security. Information on harvested amounts was inaccurate. However, the

outcome of the harvest was good; the second production season was also important for grain production across the country even when heavy rains affected northern areas of the country during the ETA and IOTA tropical storms.

Cultivated areas for maize increased in 2020 from 925,000 ha to 1,261,000 ha while beans went from 182,000 ha to 193,000 ha in the 2020 agricultural year. Overall grain production increased by more than 8% in 2020 with respect to 2019 (ENA 2020, reported by Prensa Libre, 2020).

Poultry chicken and eggs gained market share during the first year of the pandemic

Microeconomic information about this sector is rarely published by the leading producers. The effects of other policies by the government of Guatemala that influenced food production by commercial farming and processing operations in poultry meat and eggs are still under-reported.

Interviewees in the sector were open about their own efforts and strategies to face the pandemic. One of the first reactions at the beginning of the pandemic was to cut back production in response to an expected drop in consumption. At the same time, poultry operators rushed to secure several months' worth of feed supplies (soy and yellow corn) before bigger players in world markets induced a price hike with increased purchasing.

Fortunately, the reduction in production only lasted during the last three weeks in April 2020. By early May 2020, urban and rural markets were buying chicken and eggs at higher-than-expected rates. By early May, slight increases in demand compared to 2019 where registered, explained by consumer preference for lower-cost chicken and eggs as opposed to beef and pork. Orders to halt the purchase of fertile eggs were reversed and feed and other supply purchases were placed more aggressively to prepare for the upcoming months. By then, China and the big poultry players of the world were also buying soy, micronutrients, yellow maize, vaccines and other inputs leading to rising input prices (see more details in Díaz-Bonilla, Flores, Paz, Piñeiro, and Zandstra, 2021).

Interviewed in the first months of 2021, some poultry operators confirmed that the biggest challenge during COVID-19 was securing the feed supply (soy, yellow corn and micronutrients), packaging (paper and plastic), and fertile eggs. These are inputs that are mostly imported, and Guatemalan producers compete against the big poultry players in China, Brazil and the U.S (AHO 2020).

Mexico's illegal trade of chicken meat and eggs has increased during the pandemic

Mexico is not legally allowed to export poultry products to Guatemala due to animal health measures agreed upon. Regardless of the prohibition, the illegal trade of chicken meat and eggs has happened for decades and seems to have increased during the pandemic. Mexico competes with lower costs and being contrabanded products, they do not pay import taxes. The amounts imported are hard to determine, but it was estimated at 5-7% during several periods along the year. It is important to note that this

illegal trade, while may be affecting Guatemalan poultry producers and benefiting the Mexican counterpart, also lowers prices for Guatemalan consumers.

Small, medium and large poultry growers face similar situations

The key informants contacted in medium or large companies mentioned increases in costs, market shifts, and the cost of inputs. On the other hand, small players in rural areas do not seem to have felt the effects on COVID-19 at the same rate. In rural areas, markets have been buying more and at higher prices; municipalities have emerged as new players on the purchasing side, trying to maintain supply for their population.

The overall picture has so far suggested a situation of resilience in the food value chains analyzed, which are showing signs of slow, but steady market recovery. Although the government launched several programs supporting farmers and micro, small and medium enterprises (MSMEs), none of the interviewed producers (whose cases are discussed in more detail in Díaz-Bonilla, Flores, Paz, Piñeiro, and Zandstra, 2021), had the experience of applying to any of these funds or were aware of what happened to those programs in the poultry business.

6.8. Further considerations about the operation of the selected value chains in 2021 and early 2022.

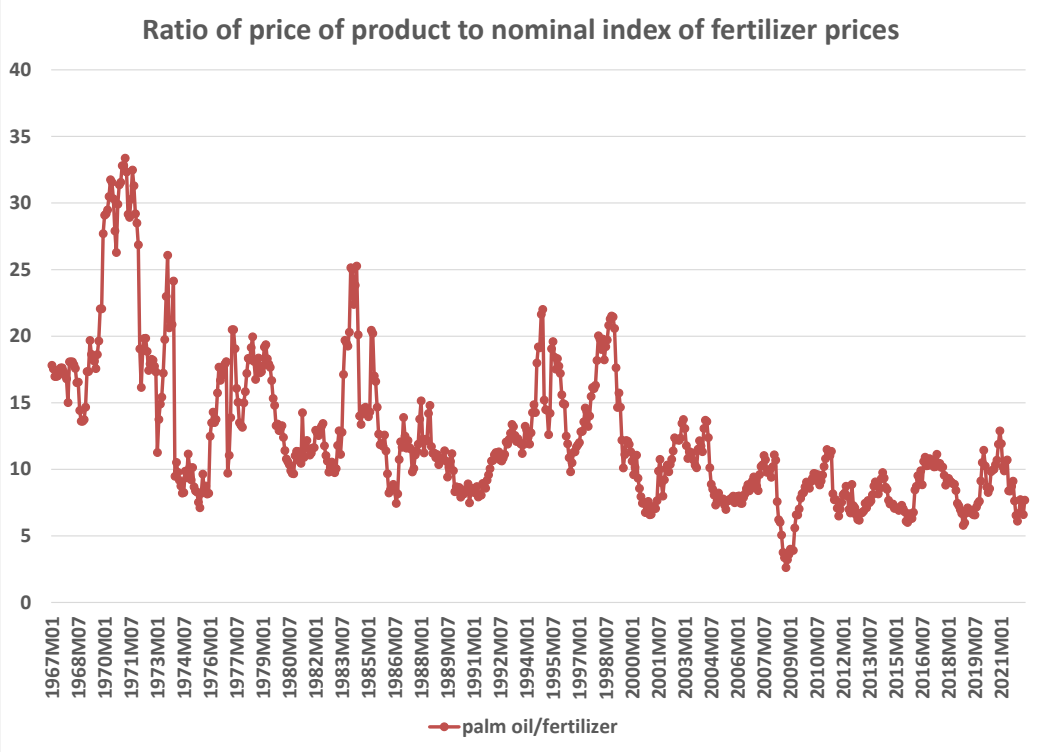
During 2021, all value chains started to normalize their supply operations (they were recovering from the pandemic and also, from the impact of the hurricanes). As noted, the reopening of the economy and the domestic stimulus package, plus the strong monetary and fiscal measures in developed countries especially the United States, resulted in higher world growth, more exports and remittances, all of which benefited the Guatemalan economy: as a result, the economy rebounded strongly in 2021 (8% growth for total GDP) and growth projections are still high in 2022 (4%) (see Table 2).

The main problem in late 2021, which started before RUC, was an acceleration of global inflation, product of the still lingering effects of the pandemic on the supply side due to strained logistic systems and workers reluctant to return to work, and the acceleration of demand because of the enormous fiscal and monetary stimulus in developed countries (especially, as noted the United States). In fact, the world economy grew at 4.8% in 2021, the highest growth in GDP per capita of the last of more than six decades.

With the war, there was a jump in the prices of fertilizers, already discussed. Here we present the ratio of the prices of three important products for the Guatemalan economy (coffee, banana, and palm oil) with respect to the cost of fertilizers. All those products experienced price increases in world markets. They are not as relevant from the point of view of the consumption of calories and proteins as the products discussed before, but they are important for production and exports.

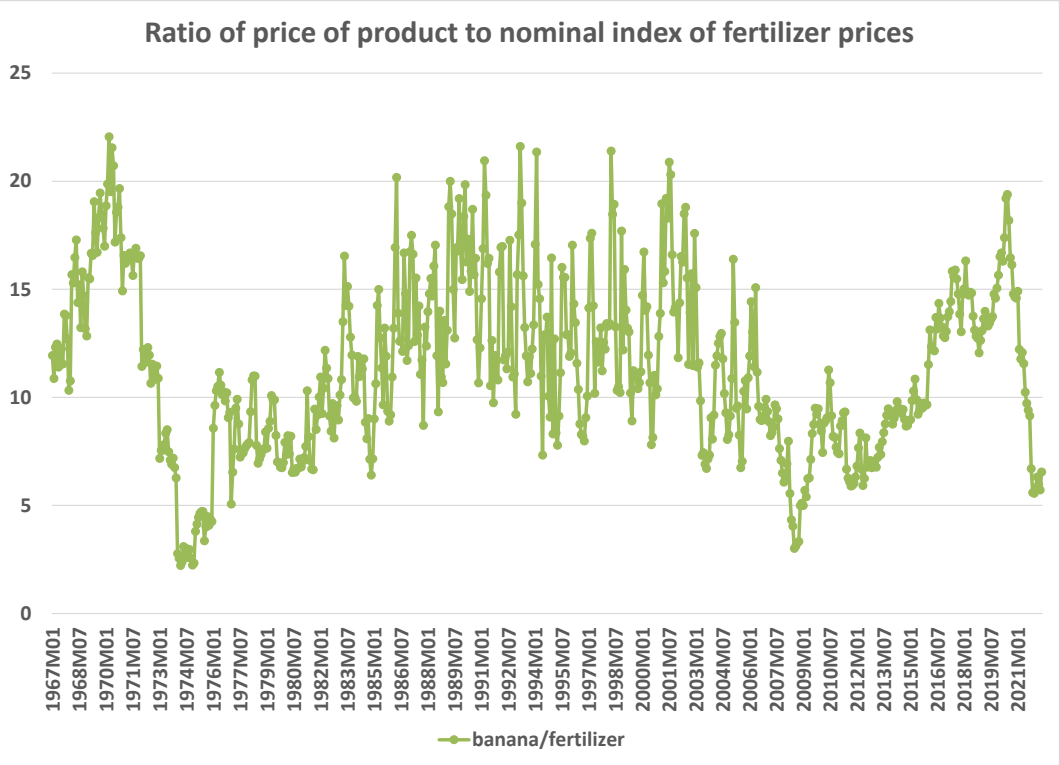
The next Charts 40, 41, and 42 show those ratios. As before, a lower ratio indicates some decline of profit margins, at least in relation to the price of fertilizers (other components may move in different directions).

Chart 40. Ratio Palm Oil Price/ Fertilizers' Price



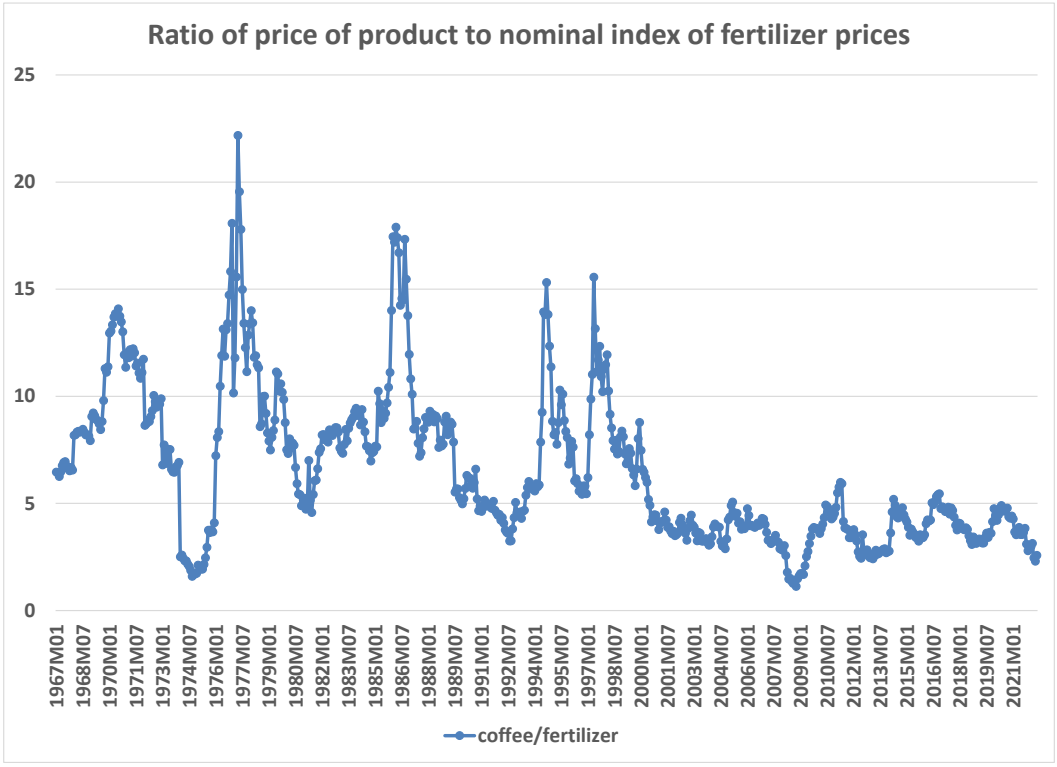
Source: authors with data from World Bank "pink sheets"

Chart 41. Ratio Banana Price/Fertilizers' Price



Source: authors with data from World Bank "pink sheets"

Chart 42. Coffee Price/Fertilizers' Price



Source: authors with data from World Bank "pink sheets"

In all three cases, although the ratios are not the lowest in the period shown in the Charts (since 1967 until May 2022), they are getting closer to those values, indicating a cost pressure from fertilizers prices. Therefore, it is important to monitor the evolution of the prices and availability of fertilizers and ensure an adequate supply of those products (more on this in section 7 on Policy Considerations).

6.9. Final comments

The combined effect of COVID-19, Eta and Iota and the latest rise of fertilizer prices has been limitedly analyzed in recent months. Nevertheless, the following effects of these phenomena on value chains under study can be summarized as follows.

- A drop in production during the first months of the pandemic, followed by an increase in input and transportation costs that affected most value chains (known in media outlets as the container and logistics crises).
- A drop in household incomes that led families to prioritize the purchase of basic foods at the expense of processed foods and less essential items. This was rapidly addressed by a series of laws and regulations easing the delivery of food vouchers and negotiating average prices for the basic basket of foods with the leading, organized food industry.
- Reactions by MAGA to adverse market conditions were interrupted by Eta and Iota in November 2020, destroying 30-40% of the expected maize and bean harvest during the most important season of the year in 16 of the 22 departments, increasing the risk of seasonal food insecurity in key hotspots in the country. The effects of Eta and Iota are still felt in Guatemala in the form of increased vulnerability to food security and lack of seeds for subsequent cropping cycles of basic grains.
- Higher-than-normal inflation rates affecting the cost of inputs, transportation and services were passed down to food prices during the June-September 2020 period but were quickly stabilized by increased production. This outlook changed for maize and beans with Eta and Iota in November 2020.
- Official government responses to the effects of the Ukrainian invasion by Russia are starting to be documented. Upon further data review, it was established that fertilizer prices started increasing in September 2021 with the rise of natural gas, the transportation crisis and weather events affecting manufacturing of the most demanded granular formulas. The Russia-Ukraine Conflict exacerbated this issue jumping prices even further. In July 2022, urea fertilizer in Guatemala has increased about 300% over the cost in July 2021. The Government, however, has not reacted to the problem with subsidies to fertilizer prices, as other countries like the Dominican Republic have been doing.

The next section presents policy suggestions with costs and financing related to the different problems analyzed in the previous sections.

7. POLICY CONSIDERATIONS

In this section, we discuss some ideas about policies and investments needed to complete the transition from the pandemic and address, on one hand, the shocks coming from RUC while, on the other hand, improving welfare conditions in Guatemala, especially for the poor and vulnerable, in the middle to longer term.

7.1 Health Issues

As noted in the initial report (Diaz-Bonilla, Piñeiro, and Laborde, 2021), the original simulations by LSHTM based on epidemiological considerations estimated a larger number of deaths absent health mitigation measures than what seems to have occurred in Guatemala with the mitigation measures applied and during the period considered. Therefore, a preliminary conclusion in that report was that the health measures implemented in Guatemala would have had the beneficial result of reducing the death toll (the actual numbers reported for the country during a comparable period have been less than 20% of the original projections by LSHTM). The IFPRI report also noted, however, that the difference could have been not because of the mitigation measures applied but due to a) the original model overestimated the number of deaths in the unmitigated case; or b) the number of true deaths has been higher than officially recorded.

Moving to the present, the indicator of accumulated deaths as proportion of the population[20] shows that Guatemala has one of the lower indicators in LAC, but it is about in line with the values for upper middle-income countries and higher than lower-income ones (with Guatemala being in between those income brackets). As noted, the number of deaths has been declining in Guatemala, as in the whole world, due to the advances in vaccination, increases in "herd immunity," better treatments, and, also, perhaps because the more vulnerable population was affected and died in the early waves. Yet, within that declining trend, the current (late May 2022) daily rate as a proportion of the population is somewhat higher in Guatemala than for other comparators shown in Chart 10 (South America, the world, and low-income countries). The fact that Guatemala is still above other comparators on deaths rates may be related to the relatively lower vaccination rates compared to other countries in the region (Chart 4), and the fact that it spent less on health measures related to the pandemic than the average and median in

[20] Sometimes measured as deaths per 100,000 people, while other times is presented per 1,000,000 people.

LAC (Table 1).[21] Obesity, urbanization, living in slums, and employment in the urban informal sector, are other factors that may influence the impact of the pandemic. However, in some variables, such as obesity and urbanizations, Guatemala is below the levels of LAC, while is higher in the proportion of people living in slums and there are not adequate comparable numbers for employment in the informal sector. A more detailed analysis would be required to determine the combination of factors that made the pandemic have greater impacts in some countries than others.

However, given what we know there are some things that can be done. First, Guatemala may need to accelerate the vaccination rate (the country last data shows a full vaccination rate of about 34% of the population against a simple average of 58% for LAC; Chart 4). Second, Guatemalan population may also benefit for a stronger program of contact tracing and improvement of treatment protocols. This should be part of the general strengthening of the health system: currently, Guatemala spends about 271 US dollars per capita (current 2019; World Bank, WDI database), which even when it is in line with the average of expenditures for developing countries, it is still below the average for LAC (662 US dollars/person). Guatemala's expenditures as percentage of the GDP are about 6.2%, below LAC's average of almost 8%, but above developing countries in general (about 5.3%).

For example, increasing health expenditures to reach the same average percentage of the GDP as LAC would represent additional expenditures of about 1.8% of the GDP. Of course, the definition of the health program and its costs requires a more detailed analysis, which is not intended here.

7.2 Poverty, Nutrition, and Social Protection

a) Background

Guatemala was suffering from poverty and nutrition problems before the pandemic. Table 13 presents some indicators.

Table 13. Poverty and Nutrition Indicators

	Guatemala	World average	World median
Gini index	48.3	37.7	36.8
Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)	8.8	13.0	3.1
Poverty headcount ratio at $3.20 a day (2011 PPP) (% of population)	24.4	25.6	11.4
Poverty headcount ratio at $5.50 a day (2011 PPP) (% of population)	49.1	41.3	33.0
Prevalence of stunting, height for age (modeled estimate, % of children under 5)	46.1	20.6	18.5
Prevalence of wasting, weight for height (% of children under 5)	0.8	5.7	4.7
Prevalence of undernourishment (% of population)	16.8	10.3	7.1

[21] Although it was noted that in a separate exercise for all LAC countries it was not found a correlation between the number of cumulated deaths per million of population with health expenditures as percentage of the GDP. In the text now we are talking about the latest daily deaths per million.

Prevalence of obesity (men)	15.7	17.7	18.3
Prevalence of obesity (women)	27.5	24.9	23.9

Source: Data on prevalence of obesity is from the database of the Global Nutrition Report and correspond to 2016. All other data is an average from 2010 to the latest current data (usually 2020) from the WDI of the World Bank.

Guatemala is one of the most unequal countries in the world, it has higher poverty levels than the global average at the poverty line of 5.5 PPPUSD/capita/day, and shows higher levels of undernourishment and children stunting. At the same time, the rates of obesity have been increasing, and in the case of women, Guatemala is above the world average and median. One of the impacts of the pandemic, due to lower incomes or no incomes, as argued in the simulations of the first IFPRI report, has been the consistent decline in food purchases in general and to some shifting of purchases towards cheaper and less nutritious products (buying starchier and calorie-intensive products and less of those rich in proteins, vitamins, and minerals) (Headey and Ruel. 2020). Those problems may be leading to a simultaneous problem of overweight and lack of basic nutrients, particularly in poor households. Diets need to be monitored at a more granular level and their long-term effects on human health evaluated. The combination of lower quality and quantity of diet, along with limitations in nutritional and health services, problems with water and sanitation, and population density in low-income urban areas, would weaken individual immune systems increasing the vulnerability and chances of dangerous contagion among the poor and vulnerable (Headey and Ruel, 2020).

b) ***Social safety nets before the pandemic***[22]

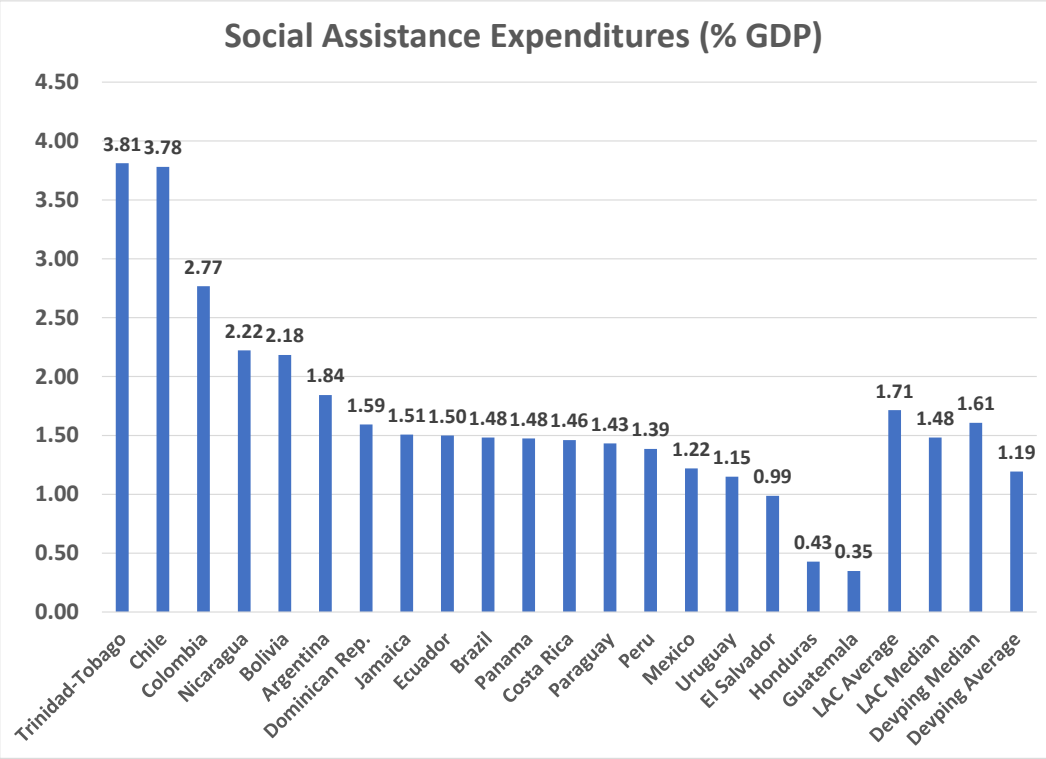
This section focuses on social assistance (cash transfers and other non-contributory programs) and not on the contributory programs of social protection (also called social insurance programs). [23] It uses basically data from household surveys from the database ASPIRE (World Bank). That data may differ from administrative data (i.e. governmental data not from household surveys). Descriptions of the main programs in Guatemala are in Annex A showing administrative data, translated directly from ECLAC, 2022).

Before the pandemic, Guatemala had the lowest levels of expenditures on social assistance programs in Latin America and the Caribbean (about 0.35% of GDP in the last data available in 2013) (Chart 43). It would be important to have more recent information.

[22] This section draws on Diaz-Bonilla, Eugenio; and Centurión, Miriam. 2022.

[23] Social protection is a broader concept including contributory and non-contributory programs for the whole society, while social assistance refers basically to non-contributory programs focusing on the poor and vulnerable.

Chart 43. Social Assistance Expenditures (% GDP)



Source: authors with data from ASPIRE, World Bank

The next Tables and Figures show different indicators to evaluate the performance of those social programs. Tables 15 and 16 compare Guatemala with averages and medians for three groups of countries: all the developing countries in the ASPIRE database (125 countries[24]); then for LAC as a whole (22 countries); and then for the Central American subregion (6 countries).

Table 14 shows the coverage of social assistance programs: the percentage of population participating in those programs (including direct and indirect beneficiaries). The indicator is reported for the population in poverty (at the PPP$1.9/day/person) and for the poorest 20% (poorest quintile) and richest 20% (richest quintile).[25]

Table 14. Coverage of Social Assistance Programs

Country	Year	PPP$1.9 a day (poverty line)	Poorest quintile	Richest quintile
Guatemala	2014	68.4	71.6	28.1
Developing Countries-Average	2005-2019	51.2	52.4	21.5

[24] ASPIRE does not include developed countries.

[25] The indicator in the case of quintiles is computed as (Number of individuals in the quintile who live in a household where at least one member receives the transfer)/(Number of individuals in that quintile). In the case of poverty, is (Number of individuals under poverty live who live in a household where at least one member receives the transfer)/(Number of individuals under the poverty line).

LAC-Average	2005-2019	68.1	68.6	21.9
Central America- Average	2005-2019	76.6	74.8	24.6
Developing Countries-Median	2005-2019	56.2	52.8	17.1
LAC- Median	2005-2019	74.9	76.9	18.1
Central America- Median	2005-2019	79.6	77.7	20.1

Source: authors with data from ASPIRE, World Bank

Guatemala appears to have more coverage of the poor (on average and as the median) than developing countries and is more in line (or somewhat below) when compared with LAC and Central America. But the country seems to have a larger coverage of the rich as well.

Table 15 shows the adequacy of the social assistance programs defined as the total transfer amount received by all beneficiaries (direct and indirect) in a quintile (or under the poverty line) as a share of the total welfare (consumption) of beneficiaries in that quintile (or under that poverty line).

Table 15. Adequacy of Social Assistance

Country	**Year**	**PPP$1.9 a day (poverty line)**	**Poorest quintile**	**Richest quintile**
		Post Transfer	Post Transfer	Post Transfer
Guatemala	2011	12.8	9.9	1.2
World-Average	2005-2019	30.5	20.1	7.1
LAC-Average	2005-2019	36.9	19.6	4.6
Central America- Average	2005-2019	29.2	18.8	4.5
World-Median	2005-2019	23.7	17.3	4.1
LAC-Median	2005-2019	32.1	17.9	3.3
Central America- Median	2005-2019	25.9	18.2	3.6

Source: authors with data from ASPIRE, World Bank

While as noted, coverage of the poor was in line or somewhat better than the comparators, Guatemala shows very low values of adequacy compared to the other groups of countries (i.e. the poor are included in the programs but the actual support is small).

The latter is evident in Table 16 that shows the impact of social assistance programs on three key indicators: the reduction in the Gini inequality index due to those programs as percentage of pre-transfer

Gini index;[26] the poverty headcount reduction due to those programs as percentage of pre-transfer poverty headcount;[27] and the poverty gap reduction due to those programs as percentage of pre-transfer poverty gap.[28] Poverty gap is the average difference between the income (or consumption) of the poor compared to the poverty line (i.e. how far below those individuals are compared to the poverty line).

Table 16. Impacts on poverty and inequality of Social Assistance

Country	Year	Gini Inequality Index (% reduction)	Poverty Headcount (% reduction)	Poverty Gap (% reduction)
Guatemala	2011	0.41	1.48	4.12
World-Average	2005-2019	2.89	9.40	18.43
LAC-Average	2005-2019	1.84	7.71	14.77
Central America- Average	2005-2019	1.36	6.41	12.29
World-Median	2005-2019	1.64	7.15	14.69
LAC- Median	2005-2019	1.66	6.92	13.90
Central America- Median	2005-2019	1.26	5.91	12.74

Source: authors with data from ASPIRE, World Bank

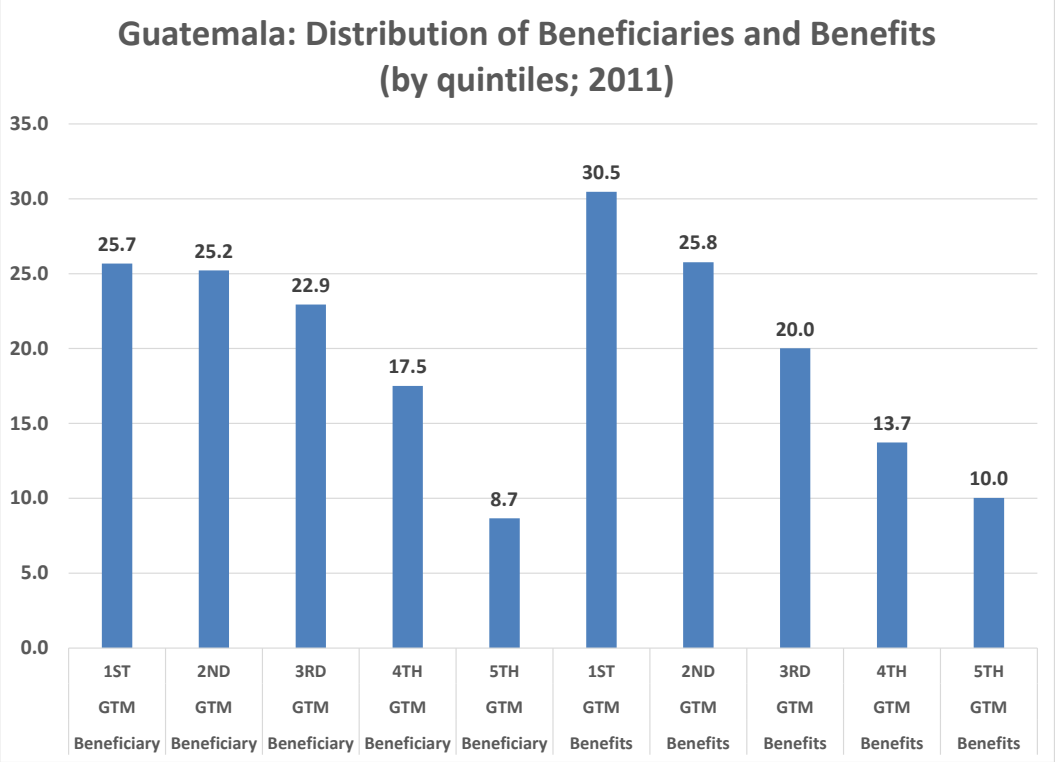
In line with the lower adequacy, Guatemala's social assistance programs have minimal effects in reducing inequality, the poverty headcount, or the poverty gap compared to the three country groups used as benchmarks. Chart 44 shows the beneficiaries and benefits incidence by quintile to evaluate the precision of the targeting. Beneficiary incidence by quintile refers to how the total number of persons receiving transfers are distributed by quintile. That is, the percentage of people in each quintile who have benefitted from a social assistance program, compared to the total population that have received those benefits (they must add to 100% for all quintiles). Benefit incidence refers to how the value of the total transfers is distributed by quintile. That is, of all the amount of money that was distributed by the social assistance programs, what percentage of that value was received by each quintile (which also have to add to 100% for all quintiles). The percentages are presented for each country separately and for the last survey with data on both aspects (beneficiaries and benefits).

[26] (Gini inequality pre-transfer- Gini inequality post transfer) / Gini inequality pre-transfer, transformed in percentages.

[27] (Poverty headcount pre-transfer - poverty headcount post transfer) / poverty headcount pre-transfer, transformed in percentages.

[28] (Poverty gap pre-transfer – poverty gap post transfer) / poverty gap pre-transfer, transformed in percentages.

Chart 44. Guatemala: Distribution of Beneficiaries and Benefits of Social Assistance Programs (by quintiles; 2011).

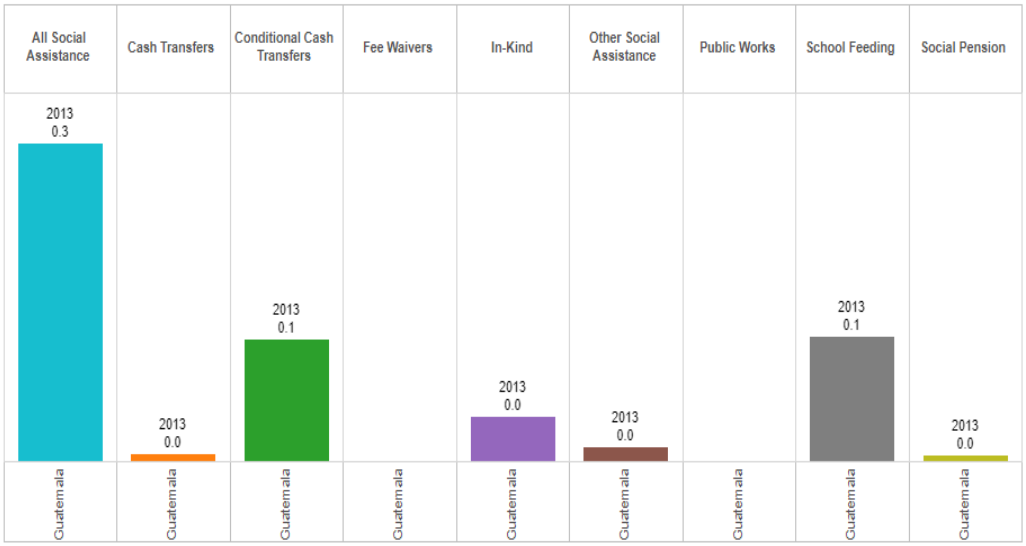


Source: authors with data from ASPIRE, World Bank

The main point to be noticed is that about a quarter of the beneficiaries and benefits of social assistance programs involve people in the two richest quintiles, indicating targeting problems. In Diaz-Bonilla, Flores, Paz, Piñeiro, and Zandstra, 2021 it was shown that the country has fewer beneficiaries in the first quintile than some comparators, and more in the third and fourth. The problem seems to be more pronounced in rural areas. Unfortunately, the numbers for this country are based on old household surveys. It is important to update the information to have a clearer view of the coverage of current social programs.

Chart 45 shows how social assistance programs are divided across the different categories of programs, using expenditures measured as percentages of the GDP (the values are rounded to one digit).

Chart 45. Guatemala: Public Spending on Social Assistance Programs (% of GDP)



Source: ASPIRE, World Bank

For Guatemala, conditional cash transfers and school feeding are the main programs. However, as the country has very low levels of expenditures for social assistance programs in general, each one of the individual programs is at or below 0.1% of the GDP. Overall, then, a problem is the low level of expenditures on social assistance programs, which then are further fragmented into smaller programs (which may or may not cover the same population).

Finally, Table 17 shows another indicator but now for all social protection (which includes social assistance and social insurance) and labor programs: the average transfer to beneficiaries in PPP dollars per capita and day.

Table 17. Guatemala: Social Protection and Labor Programs: Average per capita transfer (daily PPP$/person)

Countries/Regions	**Average per capita transfer (daily PPP$/person)**	
	Urban	*Rural*
Guatemala (2011-2014)	0.356	0.050
World-Av 2005-2019	2.98	1.83
LAC-Av 2005-2019	2.94	1.17
Central America- Av 2005-2019	2.30	0.86
World-Median 2005-2019	1.78	0.86
LAC-Median 2005-2019	1.78	0.73
Central America- Median 2005-2019	1.73	0.81

Source: Authors with data from ASPIRE

Clearly, the per capita transfers in Guatemala are below the comparator groups, which is another reason behind the lower levels of expenditures on social programs, and therefore, the limited impacts in reducing inequality and poverty shown in Table 17.

Summarizing the information presented, it appears that in Guatemala there are at least two problems with the social protection programs. First, the country is not spending a high percentage of GDP in social assistance when compared to other countries (and this appear related to lower levels of support per capita rather than coverage). Second, the distribution of benefits among the different income quintiles suggests that the poorest groups receive relatively fewer transfers than in other comparable countries (and, on the other hand, higher-income sectors receive comparatively more funds). Therefore, the improvements regarding poverty and income distribution are limited, indicating that with the same amount of public funds, if the targeting is improved, there could be some room for increasing the government-provided social assistance. Further, in addition to better targeting with the same levels of spending, the previous analysis also suggests the need to increase the levels of spending in social assistance.

Beside these two adjustments, a third aspect to consider is the reconceptualization of the operation of social assistance programs (and conditional cash transfers or CCTs, in particular) to address not only the livelihood challenges affecting particularly the poor and vulnerable, but also to focus on aspects such as improvements in nutrition, reduction of migration, and other possible side effects including reduction in crime. These topics will be analyzed later. Before doing that, it is important to consider other social programs related to humanitarian interventions both pre-COVID19 and during the pandemic.

c) ***Humanitarian interventions before and during the pandemic***

A topic that is getting more attention is the link between social assistance programs (discussed in the previous sections) and humanitarian programs, which differ from social assistance programs on several accounts. First, humanitarian programs are in principle, a temporary response to negative shocks such as natural disasters, wars and violence, and pandemics. Second, they tend to be financed by different types of humanitarian donors (such as international organizations, philanthropic and charitable foundations, and NGOs) through specific funding campaigns. Third, humanitarian assistance programs are implemented by different non-governmental channels, including international humanitarian agencies, and international and national charities, and NGOs. In contrast, social assistance programs, are responses to more permanent social problems, and are financed and executed by governments.

Recent humanitarian programs in Guatemala before the pandemic have been related to major humanitarian crisis. The first was the eruption of the Volcán de Fuego in 2018 (with transfers to about 300 households that lost their homes and to some 10,000 people affected by the eruption). The second was related to the hurricanes Eta and Iota in 2020 (in the latter case was through social assistance pro-

grams that existed since 2008 -Bono Social-, and the Bono Familia utilized during the COVID19 pandemic). Further, as noted before, Guatemala implemented a strong expansion of cash transfers in response to the pandemic (about 1.2% of the GDP) through the “Bono Familia” and removed conditionalities in the existing “Bono Social.”

From the operational point of view, the sequence of natural disasters in Guatemala (and other Central American and developing countries), and lately the pandemic, have led to some convergence between the existing social assistance programs and the humanitarian ones along several dimensions: the types of beneficiaries; the instruments (based on cash transfers or vouchers); and in many cases the channels through which that assistance is being dispensed, with more presence of international organizations such as the World Food Program and a variety of humanitarian organizations and NGOs. There have been also institutional innovations such as the Cash Working Groups (CWGs), as coordinating mechanisms between the many international humanitarian agencies -mainly from the UN system- and NGOs related to cash transfers and related social interventions.

The interaction of permanent social assistance programs and the eventual humanitarian ones may take place along a continuum of options. These can range from stand-alone humanitarian programs completely separate from national systems of social assistance to fully integrated arrangements, led by, or entirely run through, the more permanent national systems, which then can be scaled up during emergencies (see a discussion in Seyfert, Barca, Gentilini, Luthria, and Abbady, 2019).

A question is what dimensions or topics to consider in the potential alignment. For instance, Seyfert, Barca, Gentilini, Luthria, and Abbady (2019) consider the following dimensions: 1) Financing; 2) Legal and policy framework; 3) Setting eligibility criteria; 4) Setting transfer type, level, frequency, duration; 5) Governance and coordination; 6) Outreach; 7) Registration; 8) Enrolment; 9) Payments; 10) Case Management; 11) Complaints and appeals; 12) Protection of beneficiaries; 13) Information Management; and 14) Monitoring and Evaluation.

Problems of integration can occur along all or some of those dimensions (Chapman et al, 2022). Quoting extensively from Díaz-Bonilla and Centurión (2022) some examples include:

“*The legal and normative frameworks for disaster response may be separate from social assistance programs, and the ministries or agencies working on the latter may not have a mandate for emergency response or may not contemplate the possibility of scaling up under emergencies.

*There may not be legal norms that would allow governments to officially collaborate with the United Nations, and international and national NGOs in the case of humanitarian emergencies.

*The governmental institutions dealing with emergencies and those working on social assistance are usually different and may not coordinate their work within the public sector. Governments may lack a

strong internal coordinating mechanism (such as the designation of a specific Ministry) to centralize decisions, ensure collaboration, and implement sectoral and territorial responses in ways that avoid duplications and gaps in coverage.

*This lack of coordination would be even more acute between public sector institutions and NGOs and other humanitarian and charitable organizations. Information about current and potential beneficiaries, and the risks and vulnerabilities that affect them is fragmented and incomplete.

*The processes and criteria to identify the population in need of support may be different across institutions of the public sector, and even more in regards with NGOs and humanitarian organizations.

*A unified database (with strong data management capabilities) of the people supported usually does not exist, and even there may be legislation or regulations impeding sharing that information across the government, UN agencies and NGOs.

*There may not be budgetary lines that can be scaled up both horizontally (new beneficiaries) or vertically (additional cash, voucher or in-kind support) in case of emergencies.

*The government may not have monitoring and evaluation systems, or they do not operate together with those of NGOs and humanitarian agencies (which also may be weak in this regard).

*Operational procedures, and cash or vouchers delivery modes in the public sector may be very different from those utilized by NGOs and humanitarian agencies (including the persistence of physical, in hand, delivery of cash and vouchers)" (Díaz-Bonilla, and Centurión, 2022).

On the positive side, governments can take advantage of the extensive network of UN and NGOs already operating in their territories with humanitarian programs and use them to implement permanent social assistance programs. This has created strong networks of institutions with significant experience and operational capabilities on the ground, which can be leveraged for the programs discussed below (Díaz-Bonilla and Centurión, 2022). Also, the ideal would be the integration of humanitarian programs with social assistance programs run by the government into a more unified system, that considers permanent conditions of social vulnerability but can be quickly scaled up (both in terms of beneficiaries and of the type of support delivered) when negative shocks occur (in what has been called "shock-responsive social assistance").

d) The redesign of social assistance programs

In addition to the integration of social and humanitarian programs, it may be necessary to consider is the reconceptualization of the operation of social assistance programs (including mainly the CCTs).

The debate about such reconceptualization has led to the development of models of social assistance that consider the specific characteristics of peasants, small farmers, informal workers, and vulnerable people in rural areas, while also broadening the focus towards productive and technological approaches that can contribute to improving the economic and environmental sustainability of the families involved (see, for example, de la O Campos et al, 2018; FAO, 2016, 2017 and 2018).

The combination of CCT and programs with support for livelihood activities have been shown to increase household productivity and income, diversify income, and help families to accumulate assets (see the brief review of programs in Peru, Colombia, Ethiopia, Lesotho, Malawi, Brazil, and El Salvador in Andrews et al, 2021). However, to achieve those enhanced results, the programs need to be well designed and effectively coordinated to provide a combination of interventions that address the multiple constraints faced by the vulnerable participants (Andrews et al, 2021)

Those programs can also be combined with public works for the development of community infrastructure (such as irrigation systems, road maintenance, cleaning, and environmental protection activities). Such programs can improve the natural habitat, lower transaction costs, improve market access, and increase incomes for small farmers and non-agricultural SMEs. These initiatives were found to provide additional incomes to households and, when well designed, to reduce migration as well[29] (see Díaz-Bonilla and Centurión for a review of different types of programs). They can also help to provides the youth with initial employment opportunities and reduce violence (also decreasing migration).

Further, the direct and indirect impacts of a combination of large-scale social assistance and livelihoods programs may generate spillover effects in the larger rural economy through general economic multipliers (Andrews at al 2021). Broader territorial development can improve the welfare of the population in the areas benefitted, diversifying rural employment opportunities especially for women and young people.

In summary, it seems relevant the analysis and creation of an instrument for the rural areas that can combine the social, productive, and environmental dimensions, with a percentage of cash transfers related to poverty levels. Another percentage can be used to cover the additional cost of implementing sustainable adaptation and mitigation technologies while another for environmental, forest, biodiversity, and ecosystem protection/restoration services. This instrument should also include other forms of productive, organizational, and commercial support for poor and family producers.

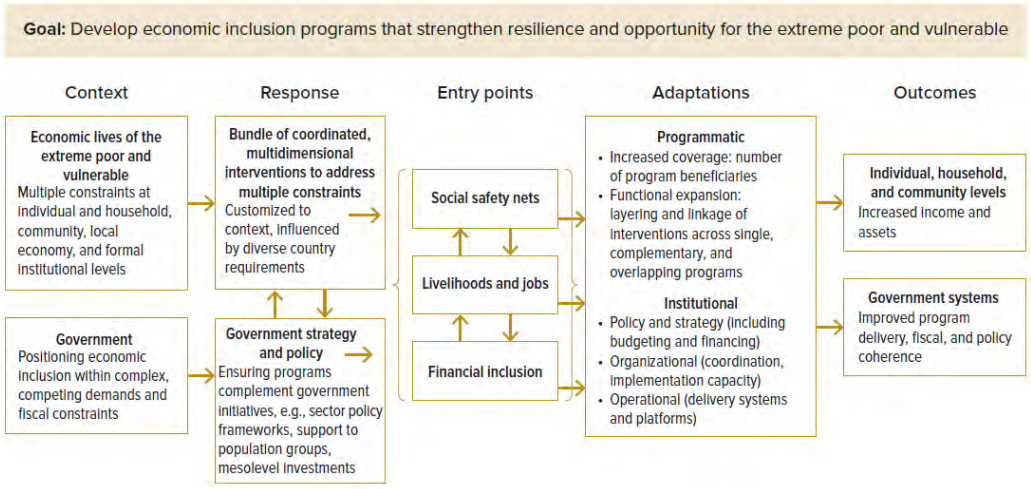
[29] According to the Migration Policy Institute, using data from the 2017 US Census, there were somewhat more than 3.5 million migrants from Central American countries, and the largest number were from El Salvador (about 1.4 million), Guatemala (some 960,000) and Honduras (about 660,000).

This would help in a whole series of dimensions for the economic and social development of rural inhabitants with a focus on strengthening assets (human, financial, technological, natural, physical, social, political) in the hands of vulnerable populations, reinforcing the resilience of rural communities.

Besides enhancing the welfare of the families involved, these programs would address some of the aspects that can help reduce migration (Díaz-Bonilla and Centurión, 2022) and coping with environmental shocks. They may also help to reduce crime, thus addressing another of the drivers of migration (see Machado, Rodrigues, Rasella, Lima Barreto, and Araya (2018), Lance, (2014) and Meloni, O. (2014)).

More generally, recent work by the World Bank has expanded the framework for social inclusion, both in rural and urban settings, by defining multidimensional programs with social safety nets, livelihoods and jobs, and financial inclusion (see Chart 46, from Andrews et al. 2021).

Chart 46. A Broader Framework for Social Assistance and Inclusions Programs



Source: Andrews et al, 2021

Additionally, the emergence of the “new poor” from the current pandemic should also lead to expansion and reconfiguration to the urban programs.

Further, these policy instruments can help address food (and nutrition) insecurity, which has been a chronic problem in Guatemala for decades. Efforts to address the problem have been a considerable part of the public sector agenda for the last presidential periods. The results, however, appear to have been minor improvements with limited sustainability. The government of Guatemala has the opportunity to learn from the pandemic to understand systemic causes of chronic hunger and malnutrition and provide systemic solutions.

e) Possible costs

As discussed in the section describing the social security and assistance programs, Guatemala spent before the pandemic a lower percentage of its GDP compared to other countries in the region and the transfers per capita were smaller than the comparators as well. Further, the distribution of benefits among the different income quintiles indicates that the poorest groups receive relatively fewer resources than in other comparable countries (and, on the other hand, higher income sectors receive comparatively more funds). Therefore, Guatemala showed smaller improvements in the indicators of inequality and poverty. It was mentioned that these problems suggested at least three types of adjustments a) better targeting with the same spending levels; and b) increases in the level of spending; and c) a reconceptualization of the programs of social assistance. In particular, given the low coverage mentioned of the current small and fragmented programs, the main limitation to achieve impact is that they do not have the adequate scale to address the problems they intend to solve.

Díaz Bonilla and Centurion, 2022 present a more detailed proposal for Guatemala (and other countries in Central America) about the legal, operational, financial and institutional aspects of an expanded program of social assistance.[30] It includes the elimination of poverty at 3.2 PPP USD/capita/day (including a livelihood/environmental component); and support to the youth (from 15 to 24 years) not in education, employment or training (NEET), a condition that makes them vulnerable to sexual exploitation, violence and also is a driver for migration (see for instance Isaacs, 2019; Clemens, 2017; and ILO, 2020).

Based on the number of people to be included in the programs[31] and the amount and duration of cash transfers per person, Díaz-Bonilla and Centurión (2022) estimate that the whole program would cost 1490 million USD annually (1.9% of GDP). To those values, there would be an addition of administrative costs that need to be included in the costs.

7.3. Food value chains

The report has discussed the situation of several value chains in Guatemala (maize, beans, poultry meat and eggs, sugar, wheat, and bovine meat), during the COVID-19 pandemic, and, also, there were considerations related to climate events and the recent disruptions generated by RUC. During the pan-

[30] There are other estimates of social assistance programs for Guatemala. For instance, Filgueira and Espíndola (2015), estimate various models of social assistance, but the more relevant here would be the one that considers an allowance equivalent to the poverty line for the first child and then 0.66 for the second and third, and no additional payments for the fourth, for children under 15 years and for households with incomes below 1.8 of the poverty line. The costs estimated are about 4% of the GDO in Guatemala. Ortiz and others (2017) consider a different program of social protection, reaching about 3.7% of the GDP. It includes the cost of a child benefit of 25% of the poverty line to all children (less than 5 years old); Cost of a benefit of 100% of the poverty line to all orphans; Cost of a benefit of 100% of the poverty line over 4 months to all mothers with newborns; Cost of a benefit of 100% of the poverty line to all persons with severe disabilities; Cost of a benefit of 100% of the poverty line to all persons aged 65 and more.

[31] Estimated in about 4 million below the poverty line, or about 24% of the population; some 890,000 households supported with livelihood/environmental payments; and close to 990,000 NEETs.

demic, one of the most atypical years for the recent history of the country, the food value chains considered have shown a level of resiliency that was not initially expected. Actors in the value chains have shown they can adapt to difficult conditions and move towards their gradual recovery.

Addressing COVID-19 disruptions and building better for the future involves addressing market failures that were already the norm prior to COVID-19, particularly for the basic grains sector.

Because of the mixed structure of target food value chains in this assessment, defining specific policy responses to each of them is impractical. Instead, a summary of policy recommendations is presented in table 18, with some indications about their timeline and target actors, covering basic grains, meats and eggs and sugar as the main source of carbohydrates and proteins for the Guatemalan population.

Table 18. Prioritization of Policy Responses and Investments to Address Current Problems

Area of Recommendation (in general to all food value chains)	Timeline (when)			Main Actor (who)	
	Short Term	Medium Term	Long Term	Public Sector	Private Sector
COVID-19					
1. Modernization of the seed system featuring public-private partnerships (SP1) to increase maize and beans. This is not entirely for import substitution purposes, but to improve the capacity of rural households to feed themselves for more weeks per year.	Major			Investments and Institutional Strengthening	Investments
2. Enable and incentivize private sector involvement in modern contract farming arrangements		Major		Incentives and Regulations	Investments
3. Support for institutional food procurement of commodities following the experience of IHMA in Honduras in the purchase of strategic reserves of maize and beans.		Moderate		Incentives	Investments
CLIMATE CHANGE					
4. Introduction of climate-resilient technologies using FAO's experience and borrowing models already in use by modern horticulture production present in the region.	Major			Investments and knowledge	Investments
5. Rehabilitation of access to better avian and bovine genetics in rural areas (40% of poultry meat, eggs and bovine meat is produced by smallholders).	Major			Investments	
FERTILIZER PRICE CRISIS					
6. Develop a long-term national fertilizer strategy for exploitation of minerals available in the region thereby reducing reliance on imports of non-nitrogen fertilizer.	Limited			Knowledge	
7. Support for collective purchasing of mineral fertilizers by coops and other organized groups.		Major		Investments	Investments
8. Promotion of climate smart fertilizer substitution programs.		Major		Investments and Knowledge	Investments
9. Support high-value agriculture programs where reliance on own staple food production is minimized. Both countries have experience and success stories on this aspect.			Major	Incentives and Regulations	Investments
10. Facilitating learning from more advanced countries on how they will be coping with in-		Limited		Knowledge	

creased fertilizer prices now and in the future through the adoption of different mechanisms ranging from subsidies to national production and distribution of some fertilizers.					

Source: Authors. Expected impact: Major Moderate Limited. In approximate terms, short term is within the next 2 years, medium term is within the next 4 years, and long term is within the next 7 years. SP denotes strategic priority.

Further, there are several policy responses for the period of reconstruction once the pandemic is under control. The following reflections are based on the evidence gathered through this assessment.

a) Policies focused on commodities grown locally

The time elapsed since the onset of the pandemic has shown the resilience of basic grains to some factors, but their vulnerability to others (e.g., fertilizer prices). This means different value chains have actors that are more vulnerable to sudden changes in cost and availability of inputs and transportation costs. The best example has been learned with agricultural commodities grown by tens of thousands of smallholder farmers (namely maize, beans, chicken meat, eggs and grass-fed beef) which felt less the effects of the pandemic in the beginning. This was documented in the first part of this assessment from September 2020 through February 2021. At that time, Guatemala encouraged smallholder farmers to expand the production area and increase output to avert a potential food crisis.

These value chains have been experiencing higher than usual demand. Except for the second season in 2020 affected by Eta and Iota, production cycles were favorable. It was only until the fertilizer prices increased unprecedentedly in the first half of 2022 that producers in these value chains have been placed on alert once again.

Policies focused on these specific value chains are included in the previous table of recommendations. Turning ideas into policy requires that the Government of Guatemala decides quickly that investing on improving local capacity to increase local production is the best bet to achieve food security in rural and urban settings.

b) Policies focused on commodities that must be imported

Wheat and animal feed ingredients (maize and soybean) fall under this category. Together, they affect several items in the basic basket of foods (bread, eggs, chicken and beef). Key informants report an overall increase of 30% in the price of maize since March 2020 and an 18% in the price of soybean. But altogether, energy costs, transportation, eventual scarcity of raw materials have led to a 48% increase in animal feed which is eventually reflected in consumer prices. Formulating policies for these value chains is more difficult. International prices are set without any control by small countries leaving only subsidies and voucher programs as the only choices for indirect and direct support to the food insecure (see the section on safety nets).

c) ***Other general considerations***

Chicken meat and egg production has been mainly in the hands of more resource-endowed farmers and middle-size companies, while basic grain producers are scattered around the country with varying levels of technology. Benefiting all of them is improbable, but improving access to credit, strengthening agricultural extension services and access to different technologies through Instituto de Ciencia y Tecnología Agrícolas (ICTA) can benefit a good proportion of them.

Guatemala needs also to invest more in R&D in agriculture: the country has the lowest levels in LAC with just 0.14% of the agricultural GDP (see Table 19 average for LAC 0.71%) and only 6.6 full time employed researchers by 100,000 farmers (average for LAC 71.3 FTE/100,000 farmers) (ASTI database). The additional investment is necessary not only to improve productivity and to adapt and mitigate climate change, but also, as the pandemic has shown, to make food value chains resilient to health shocks.

Table 19 Public expenditures in R&D as percentage of agricultural GDP (average 2010s)

1% or more		**0.5-09%**		**Less than 0.5%**	
Brazil	1.9	Bolivia	0.9	Nicaragua	0.4
Chile	1.7	Jamaica	0.9	Peru	0.4
Uruguay	1.4	Panama	0.8	Dominican Republic	0.3
Argentina	1.2	Belize	0.7	Paraguay	0.3
Mexico	1.1	Colombia	0.7	Venezuela	0.3
Costa Rica	1.0			Ecuador	0.2
				Honduras	0.2
				Guatemala	0.1
Total of developing countries (with data in ASTI database)					
Average	0.9	Median	0.5		

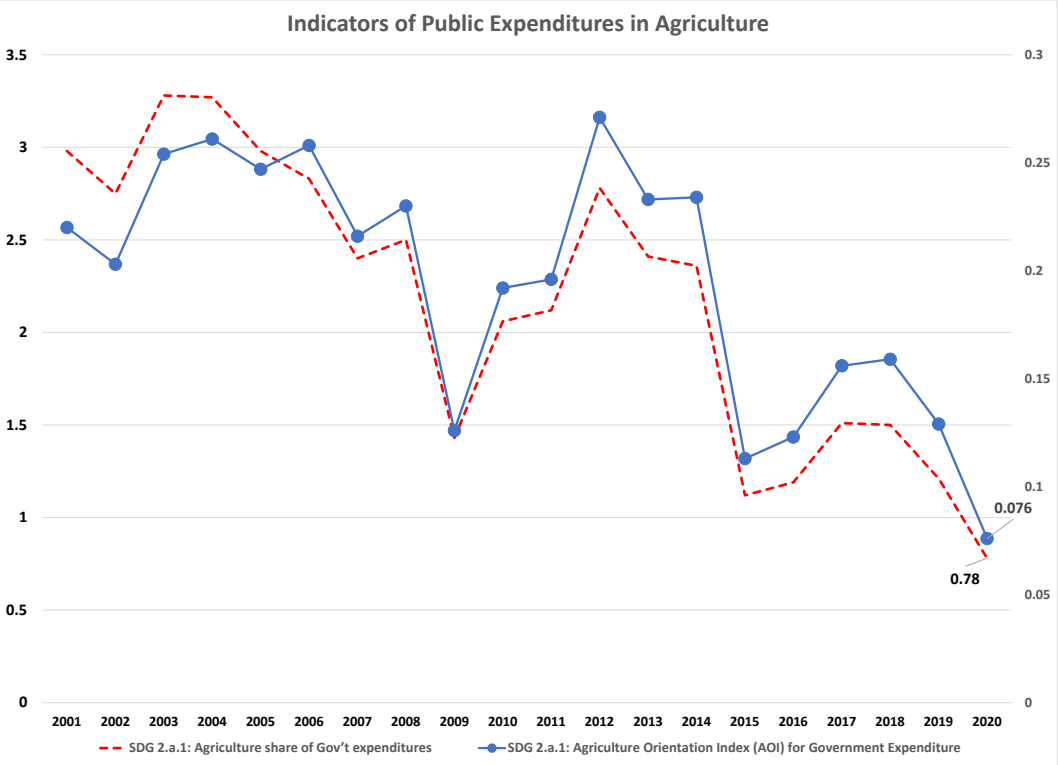
Source: authors with ASTI database.

More generally, a question is whether the governments in Guatemala are investing enough in the agricultural sector as a whole.

Chart 47 and Table 20 provide a possible answer to that question, using two indicators: the share of agricultural expenditures in the public budget and the agricultural orientation index of public expenditures. The latter is the ratio of the share of agricultural expenditures in the public budget (the first indicator) divided by the share of the agricultural sector in total GDP: a value equal than 1 would indicate that the agricultural sector is receiving the same share of public expenditures as its importance in the GDP (and values less/more than 1 would indicate that the sector is receiving less/more than its importance in

the GDP). In Chart 47 the share of agricultural expenditures in the public budget is the broken line (and the axis is the left from the reader) while the AOI is the other line (right axis from the reader).

Chart 47. Agriculture Public Expenditure



Source: authors with FAOSTAT data

Table 20. Agriculture Orientation Index-Share of Government Expenditure

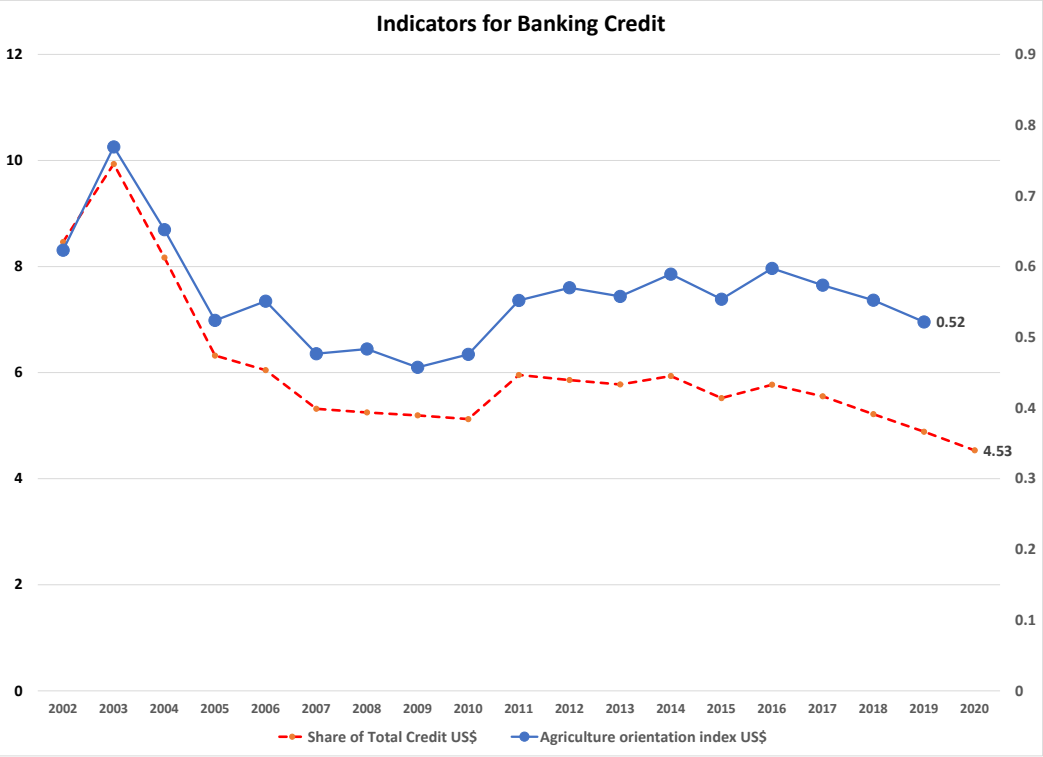
Average 2010-2020	Agriculture Orientation Index (AOI)	Share of Gov't expenditures
Guatemala	0.17	1.73
Caribbean	0.72	2.96
Central America	0.59	2.30
South America	0.26	1.38
World	0.49	1.99

Source: authors with FAOSTAT data

Guatemala is spending very little in the agricultural sector (0.17; average 2010-2020) compared to the importance of the sector, and it is below all comparators. Further, the indicators show a declining trend. It would be important to revert that trend to help lift the constraints of small farmers for the uptake of the technological advances in general and related to climate-smart approaches in particular.

Doubling the AOI for public agricultural expenditures would place Guatemala above the average for South America but still below the world level and the other comparators. This would imply additional expenditures for the sector of approximately 1.7% of total GDP. Besides considering public expenditures another issue is the level of financing from the banking system, both for producers and their associations and cooperatives. Chart 48 and Table 21 show indicators for the banking system, similar to the ones for public expenditures: the share in total credit and the AOI for banking credit (which is calculated as the AOI for public expenditure but now the share of agricultural credit on total credit is utilized (with the same interpretation as before: less than 1 means that the agricultural sector is receiving a smaller share of total credit than the importance of the sector in the whole economy). Chart 48 shows the share of agricultural credit as the broken line (left axis from the reader), and the AOI as the solid line (right axis from the reader).

Chart 48. Banking Credit



Source: authors with FAOSTAT data

Table 21. Agriculture Orientation Index- Agriculture Share of Total Credit

	Agriculture orientation index US$	Share of Total Credit US$
Guatemala	0.55	5.47
Caribbean	0.59	2.48

Central America	0.70	2.72
South America	0.63	3.84
World	0.59	2.58

Source: authors with FAOSTAT data

Again, the indicators are declining, and, at least with regards to the AOI for the banking system, Guatemala is below the comparators.

Guatemala needs to consider a focused effort in aligning the sources of financing with a program to support agricultural and rural development, and more generally the transformation of the country's food system, following the commitments during the United Nations Food Systems Summit (UNFSS) and the climate change negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), including the Paris Agreement and the Glasgow Climate Pact (COP26).

Those events highlighted the importance of food systems (from agricultural production to consumption and disposal of waste) for the attainment of the SDGs by 2030. Also, food systems have been estimated to represent 34% of all greenhouse gas (GHG) emissions at the global level and 2/3 in the case of Latin America and the Caribbean (Crippa et al, 2021; estimates for 2015 with the latest data available). Therefore, their climate-positive transformation is crucial to achieving the Paris Agreement objectives. Finally, at the next COP27 in Egypt special attention will be placed on agriculture and food systems in relation to achieving the climate change mitigation and adaptation objectives of the Paris Agreement and the commitments in the Glasgow Climate Pact.

Both UN processes consider two types of operational approaches to implement the commitments: a) national programs: the "national pathways" discussed under the UNFSS, and the Nationally Determined Contribution (NDCs) and National Adaptation Plans (NAPs) for the climate change negotiations; and b) thematic coalitions which were formed both at the UNFSS and during COP26. Guatemala presented a "national pathway" under the UNFSS[32] and also its NDC[33] and NAP[34]. It should be noted that the NDCs are obligations under the climate change negotiations, while the NAPs are voluntary, with the objective of quantifying the financial requirements.

T The current design of the national pathways is, in general, very preliminary, with many qualitative aspirations, but lacking the definition of quantitative objectives, policy instruments and investments, costs, financing, and institutional aspects for their effective implementation. Further, it is not clear how (or whether) those national pathways are coordinated with the NDCs and NAPs.

[32] https://summitdialogues.org/explore-countries/?cl_pathway_uploaded=yes

[33] https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx

[34] https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx

Guatemala needs to consider the design of the national programs for food systems transformations as it is undertaken during the UNFSS follow up process: the final agreements at this summit included the commitment to present in two years the advances in the implementation of the needed transformation of food systems aimed at achieving the nutrition, health, employment, environmental, social inclusion, and related Sustainable Development Goals (SDGs) that were discussed at the UNFSS. But those national pathways need to also consider the NDCs and NAPs of the UNFCCC. Although the latter documents cover more than food systems it should be noted that for the LAC region the importance of food systems in GHG emissions is even more relevant than at the global level: they represent 2/3 of its total emissions, while, as noted, at the global level food systems represent one third (Crippa et al 2021).

Within that exercise it is also important to analyze the financing sources to implement that integrated plan: international development funds (multilateral and bilateral); public sector budgets; banking systems and capital markets (Díaz-Bonilla, Swinnen, and Vos, 2021). Bilateral and multilateral funds, as well as public sector budgets in many countries are constrained, but they can be used more strategically to mobilize the resources of the other two sources, to support small farmers and scale up productivity enhancing technologies, which also help with climate adaptation and mitigation, improving resilience.

In particular, there is an increased interest from the private sector in investments that, in addition to levels of returns considered adequate, they also fulfill environmental and social objectives. One of the problems, however, is the lack of projects and investable opportunities designed for small farmers and structured in ways that can attract financial resources (Sadler et al. 2016). Adequately structuring these opportunities is a complex task, involving small and family farms with very site-specific constraints; operating in local communities that have a variety of social and productive profiles; including, in the case of water projects, complex issues of water rights and environmental sustainability; and needing other services and infrastructure support to produce and market the incremental production, among other challenges. Furthermore, involving private investors and the banking system would necessitate structuring the investment opportunities (as projects but possible as other type of investable vehicles too) to make them attractive at reasonable rates of return and risk profiles. All that work would require a cadre of specialists with the specific task of developing the needed pipeline of specific projects and investable opportunities, working with small farmers and their associations and the public and private organizations related to the sector, and linking the work to a solid base of science and technology (see a more detailed discussion in Díaz-Bonilla et al, 2018).

In what follows we discuss some aspects of the funding related to the public sector alone.

8. MACROECONOMIC AND FINANCIAL POLICY CONSIDERATIONS

8.1. General considerations

Table 22 shows the evolution of fiscal and debt indicators in Guatemala. The important jump in 2020 (about 5 percentage points of the GDP from 26.5 to 31.5% of the GDP) to confront the pandemic was divided into an increase of about 1.7 percentage points in external debt and some 3.3 percentage points in domestic debt. The IMF estimates that the debt will stay higher than before the pandemic but still at a very manageable rate of about 30% of the GDP. Also, the low levels of revenues show that Guatemala has fiscal space if there is the political decision to address the social problems that pre-existed the pandemic and have been greatly exacerbated by it.

Table 22. Fiscal and Debt Indicators (% of GDP)

			Estimated.	**Projections**					
	2019	2020	2021	2022	2023	2024	2025	2026	2027
Central Government Finances									
Total revenue	11.2	10.7	12.4	12.3	12	11.8	11.7	11.6	11.6
of which: tax revenue	10.6	10.1	11.8	11.6	11.4	11.2	11	11	11
Expenditure	13.5	15.6	13.6	14.6	14	13.8	13.6	13.5	13.5
of which: capital	2.7	3	2.4	2.7	2.6	2.5	2.5	2.5	2.5
Primary balance	-0.6	-3.2	0.6	-0.6	-0.3	-0.2	-0.2	-0.1	-0.1
Overall balance	-2.2	-4.9	-1.2	-2.3	-2	-1.9	-1.9	-1.8	-1.8
External financing, net	1.2	1.7	0.8	1	0.7	0.6	0.5	0.4	0.3
Domestic financing, net	1.1	3.2	0.4	1.3	1.3	1.4	1.4	1.4	1.5
Central Government Debt									
General government gross debt	26.5	31.5	30.9	30.6	30.7	30.5	30.4	30.2	30.1
External	11.8	13.5	12.9	13.3	13.3	13	12.6	12.2	11.8
Domestic a/	14.7	18	17.9	17.3	17.3	17.5	17.8	18	18.3

a/ Does not include recapitalization of obligations to the central bank.

Source: IMF April, 2022 https://www.imf.org/en/News/Articles/2022/04/08/guatemala-staff-concluding-statement-of-the-2022-article-iv-mission

Fiscal, monetary, and exchange rate policies will have to be managed in a consistent manner to ensure a sustainable macroeconomic path going forward. One of the potential problems for growth and employment in Guatemala has been the persistent pattern of appreciation of the real exchange rate (as shown in Chart 16).

8.2. How can those programs be financed? [35]

Before it was suggested that recovering form the pandemic and at the same time addressing the serious pre-existent problems of poverty, food insecurity and malnutrition, would require strengthening, reconceptualizing, and expanding programs related to health, safety nets, and agricultural/rural development and food systems. The detailed design of those programs is not intended here (although several ideas were presented in the previous sections), nor we will provide a granular analysis of the existent and potential financial sources and their mobilization. Here we just outline some approaches and possibilities related to some financial sources.

Overall, there are two main approaches to finance the costs of the programs considered. The first one is to rationalize expenditures within the current fiscal envelopes, allocating more funds to the desired objectives, while reducing resources for other public programs or activities considered less relevant. If that is not enough to finance the programs prioritized, then the next step would be to increase revenues and/or take up additional debt. For the part of the programs that represent recurrent costs, it would not be advisable to finance them mainly with debt. But those components related to capital investments (for instance those related to production and environmental improvements with quicker returns on growth and employment) can be financed with additional debt, and Guatemala seems to have the fiscal space to do that. Also, there is a very valid argument that the recurrent expenditures of poverty programs with health and education conditionality help build up human capital, and therefore they are also investments. Therefore, this is a strong argument if countries want to start those programs with loans from multilateral banks, but eventually the funding has to transition to local revenues.[36]

The first approach (streamlining expenditures within the current fiscal envelope) should be based on rigorous public expenditure reviews. In what follows there are just some examples of areas to consider for a broader public expenditure review.

Reallocating expenditures

It was shown before that an important part of the benefits of social assistance, which is supposed to focus on poorer and more vulnerable people, went to quintiles 3rd and up. Table 23 shows the numbers for Guatemala in the last survey conducted with the relevant information.[37]

[35] This section draws extensively on Diaz-Bonilla, Eugenio; and Centurión, Miriam. 2022.

[36] There may be a (small) percentage that can be money-financed in Guatemala, if certain amount of the seigniorage is assigned to finance those programs (but this option is not considered here).

[37] Guatemala 2011.

Table 23. Percentage of Benefits for Higher Quintiles

Quintiles	Guatemala
3rd	20.0
4th	13.7
5th	10.0
Total	43.8

Source: Authors with data from ASPIRE, World Bank

About 44% of the benefits go to quintiles 3rd and higher. This suggests the possibility of reallocating at least part of those benefits to the poorest and most vulnerable quintiles within the same budget envelope. For, instance, assuming that half of the benefit of the 3rd quintile and all of the amounts now going to quintiles 4th and 5th could be reallocated to the lowest two, that would imply that about 1/3 of the benefits could be shifted within the same budget envelope, which would amount to about 0.12%% of the GDP in Guatemala.

There are other possibilities of reallocation public expenditures. A specific case are fossil fuel subsidies, which are shown in Table 24 (they include explicit subsidies and foregone revenue of taxes not collected using the database of Parry, Black, and Vernon, 2021).[38]

Table 24. Fossil Fuel Subsidies

Explicit plus Revenue Foregone	Million USD	% GDP
Guatemala	289	0.4

Source: authors using the database of fossil fuel subsidies by Parry, Black, and Vernon, 2021

There may be similar options to reallocate other public expenditures, applying criteria about their effectiveness, efficiency, and equity.

Options for scaling up revenues and expenditures

Table 22 showed fiscal information about revenues, expenditures, deficits, and public debt as percentage of the GDP.

Guatemala, which shows fiscal indicators well below comparators such as low-income countries in LAC, which have average revenues in 2021 of 18.9% of the GDP; expenditures, 22.2%, and debt 42.4%, compared to 12.4% (revenues), 13.6% (expenditures) and 30.9% (debt) in the case of Guatemala (IMF Fiscal Monitor, 2021).

[38] Parry, Black, and Vernon (2021) also calculate the costs and pricing of externalities related to the use of fossil fuels, such as climate change and health effects. The potential revenues of a possible carbon tax are discussed below.

As noted by the IMF Guatemala 2021 “fostering inclusive growth requires that …fiscal policy scales up in the near-term cash transfers for health, education, and nutrition interventions commensurate with the deterioration in social indicators. Over the medium term, the authorities should create fiscal space to address sizable social and infrastructure needs through improved tax collections, spending efficiency, and disaster risks and debt management.” Therefore, the IMF (2021) suggests several adjustments in revenues and expenditures. Priority areas on the revenue side include: “(i) rationalizing tax exemptions; (ii) strengthening the clearance process and imports valuation controls in customs; (iii) enhancing the control of medium and large taxpayers, and those under special tax regimes; (iv) implementing a comprehensive plan on VAT credit control; (v) updating the taxpayer register; and (vi) automatizing core revenue administration processes.” (p.16) On the expenditure side: “(i) a reform of laws on civil service and salaries to align compensations with an effective provision of public services and to promote recruitment based on merit; (ii) an integral reform of the procurement law to reinforce transparency and accountability of public spending, and ensure an adequate balance between agility and competition; (iii) enhancing public investment management through multi-year budgeting; and (iv) strengthening results-based budget management with medium- and long-term planning.” (p.15)

Taxing carbon emissions related to climate change can also collect additional resources for about 1.2% in Guatemala (using the implicit costs related to climate change as calculated in the database to Parry, Black, and Vernon 2021).[39]

Some concluding thoughts on costs and financing

Table 25 summarizes the general estimates of costs for the possible health, social safety nets, and agricultural interventions suggested before.

The brief analysis mentioned above shows that there is margin to finance the needed programs related to health, social safety nets, and agricultural/rural development, through a combination of better use of current expenditures and some increases in revenues.

Table 25. Costs as Percentage of the GDP

	% GDP
Health	1.8
Social Safety Nets	1.9
Agriculture and Rural Development	1.7
	5.4

Source: Authors

[39] Parry, Black, and Vernon 2021 also calculate the costs of other externalities related to health and transportation. Focusing only on the cost of the carbon tax, it has been argued that can be rebated to low-income households through cash transfers of the type discussed above (see for instance Zuluaga, Vogt-Schilb and Robles. 2019).

The previous sections on possible costs and sources of funds of the programs related to health, social safety nets, and agricultural/rural development, show that it is possible to finance them through a combination of better use of current expenditures and increases in revenues.

Another aspect to be considered is that the social assistance and productive programs outlined before would help reduce other costs such as those related to crime, humanitarian crisis linked to migration and environmental disasters, while also contributing to growth that would generate additional fiscal resources at current tax rates.

Currently the private sector identifies crime and related problems as serious constraints to their operations. Table 26 shows results from the Enterprise Surveys of the World Bank.

Table 26. Importance of Crime for the Operations of Private Firms

	Cost of crime as % of sales	Percent of firms identifying crime, theft and disorder as a major constraint
Guatemala	10.1	38.0
LAC	7.5	25.3
All Countries	9.0	16.7

Source: Enterprise Surveys, World Bank

The percentage of firms identifying crime, theft, and disorder as a major constraint, and the related loses as percentage of sales are worse than for LAC and all countries included in the Enterprise Surveys of the World Bank. The cost of crime is the sum of the answers related to how much are paying the firms as percentage of sales for security, plus the costs of theft and vandalism at the establishment, plus the costs of theft with merchandise in transit. That is an implicit tax that can be compared to their operating margins (usually EBITDA[40] margins over revenues of 10% are considered “good”; see comments in Diaz-Bonilla and Centurión, 2022; and Wiblin 2021, and INVESTOPEDIA TEAM. 2022). Therefore, losses related to crime of the magnitude indicated above as percentage of sales would absorb a good portion of the EBITDA margins in those countries. Therefore, the private sector should consider that increases in taxes that help finance adequate programs that besides helping to support the poor and vulnerable can also reduce crime and increase economic growth (such as the programs outlined before) would represent a good bargain.

The programs discussed before could also benefit from more focused concessional and grant financing from multilateral and bilateral development agencies to help them attain full scale. Table 27 shows dif-

[40] Earnings before interest, taxes, depreciation and amortization.

ferent type of developmental flows as average for 2015-2020 (WDI/WB database): net aid by Development Assistance Committee members, both total value and the amount corresponding to the United States; net flows by multilateral development banks (concessional and non- concessional) and funds related to UN agencies.

Table 27. Net Development Flows (million USD) (annual average 2015-2020)

	Net bilateral aid flows from DAC donors, Total (current US$)	Of which, United States (current US$)	Net financial flows, multilateral banks (NFL, current US$)	Net official flows from UN agencies, Total (current US$)
Guatemala	311.5	170.0	-3.7	13.5

Source: WDI/WB

Net flows in the case of grants are also basically equivalent to the gross amount of financing received, but in the case of loans the repayments of capital have to be subtracted (as is the case of most of the operations with multilateral banks). For instance, Guatemala has negative flows with the multilateral banks, because the country is repaying more than what was receiving in new loans from them. Bilateral aid, which is basically in grant form, is the main source of developmental funds for Guatemala, with United States as the main bilateral donor.

In analyzing whether the United States could increase financing for the programs discussed, a similar reasoning as it was argued for each individual country would apply: the economic costs of dealing with migration at the border and inside the United States (and not counting the humanitarian and political costs of the crises for this country as well) may justify using grants for several years to finance in part the programs mentioned above. Further, a region that is more stable politically and that is growing faster, would also provide economic opportunities for US exports and investments (see for instance, Díaz-Bonilla, E., V. Piñeiro and S. Robinson, 2018). In particular, the US can consider a more intelligent use of the "Special Drawing Rights" issued by the IMF to help guarantee a scheme of "zero hunger bonds" or "pandemic recovery bonds," as explained in Díaz-Bonilla 2021.[41] This multiplies several times the financial impact (4 to 7 US dollars per 1 US dollar in the guarantee fund; see the explanation in Díaz-Bonilla, 2021), and that use of the SDRs does not cost the US anything. The current opposition in some Senators to the use of SDRs may be more related to the current uses considered by the IMF for the Resilience and Sustainability Trust Fund, and perhaps a use in Guatemala, and more generally

[41] The specific dedsign will have to be discussed with potential private and institutional investors, but some features to consider were discussed in Díaz-Bonilla, 2021: the "zero hunger bond" can be a console or perpetual bond; issued in dollars; paying an adjustable rate with a cap (say 5%); and callable, with call protection (for example, until 2050). It is suggested that 2% of the new allocation of SDRs of 650 billion dollars (13 billion dollars) can be assigned to a fund, which could be set up within the IMF, to guarantee the interest rate payments of zero hunger bonds issued by countries with programs to end hunger and recover from the pandemic.

in Central America and LAC, addressing food security, crime, migration, and other problems in the region may be of greater interest to the Senators currently opposed.

9. CONCLUSIONS

This document is the third and last of the work on the impact of COVID on food conditions in Guatemala. The report recapitulates the relevant parts of the previous documents (Díaz Bonilla, Laborde and Piñeiro, 2021, and Diaz-Bonilla, Flores, Paz, Piñeiro, and Zandstra, 2021) and includes brief additional considerations related the effects of the Russia-Ukraine Conflict (RUC). It also presents several ideas about the reconstruction post-pandemic, while addressing some of the long-standing problems of Guatemala regarding poverty and food insecurity.

Guatemala, as most countries in the world, reacted with restrictions to mobility and other health-related policies. Those were implemented together with a variety of economic and social policy initiatives trying the mitigate the negative impact on families and firms of losses of incomes and employment (expanding programs such as cash transfers, food aid and subsidies, unemployment compensation, and the like). There were also policies shoring up the supply or availability of food, such as declaring the people working in the food value chains as essential personnel exempt from mobility restrictions and some support through reductions in interest rates, postponement or waiving of VAT and other taxes, farm input subsidies, and the like.

To finance those policies, countries in LAC region have increased their public expenditures and injected additional liquidity through monetary policies. Guatemala has been in between LAC countries in terms of the size of the total fiscal package, but it was on the low-side in terms of the health component, and the vaccination rate has been slower than in many other countries in LAC. Yet, it has been less affected, compared to the average of LAC countries, in terms of the economic decline and the number of accumulated deaths as proportion of the population since the start of the pandemic. This is one of the various puzzles that need to be analyzed further and in a comparative perspective. Obesity, urbanization, living in slums, and employment in the urban informal sector are factors that may have influenced the impact of the pandemic. And, in some of those variables, such as obesity and urbanizations, Guatemala is below the levels of LAC, which may help explain part of the differences. Now, the current proportion of daily deaths, although declined significantly, is above comparators, which may be more in line with the lower levels of health expenditures and the lagging advance of vaccination.

A more detailed analysis would be required to determine the combination of factors that made the pandemic have greater impacts in some countries than others.

Regarding economic conditions, the return to mobility and the expansionary fiscal and monetary policies have reignited growth in 2021 and 2022. The agricultural sector did better in 2020 than other economic sectors, even in the context of declines of total GDP, and was growing in 2021 (not data yet for the agricultural sector in 2022). The relatively strong performance of the agriculture sector in 2020 was related to governments' support to the sector and to the fact that food production and distribution were considered essential activities and so faced fewer mobility restrictions. However, impacts on the demand for agri-food products were larger, due to declines in incomes and employment (see, for example, Graziano da Silva et al. 2021). Given the impacts on services, the pandemic seems to have affected more the commercialization of products rather than the primary production and processing.

Trade of agricultural and food products also performed better than other sectors. Part of that increase has been explained by the increase of prices of a series of agri-food commodities even before the pandemic.

Currently, the RUC is affecting a variety of products. From the point of view of Guatemala's balance of trade, considering only changes in global prices in food products and fertilizers, we estimated that they would be neutral or mildly positive for the country. However, the impact of energy prices would be more negative at that level, but the jump in remittances (resulting from growth in the US) can finance the gap. The overall impact on Guatemala's international accounts requires a more specific analysis using an economy-wide model. This exercise is not conducted here.

The effects on the international accounts are separate from the impacts on consumers, which need to consider changes in prices, but also incomes and employment.

Regarding prices, inflation in general was subdued in 2020, despite the fiscal and monetary stimulus, because primary food supply was not much affected (as noted) and demand was constrained by the losses in employment and incomes. The important expansion of safety nets during the pandemic (which the World Bank considered the larger in Guatemala history) softened the impact on demand for food. However, there have been an acceleration of inflation in late 2021, due to a series of factors pre-war,[42] and in early 2022 as a result of the invasion of Ukraine.

The global acceleration in inflation is leading to the phasing out of the current expansionary monetary policies in the United States and other countries, which may have a negative impact on many developing countries, if it leads to sustained increases in interest rates and a sharp slowdown in global growth.

[42] In the second half of 2021 the impact of the expansionary fiscal and monetary policies followed by many countries, led to further increases in global prices, driven by energy (whose production had been curtailed during the pandemic due to lack of demand), climatic events that interacted with energy prices to push oilseed prices high, and the African swine fever in China, among other factors. Also, some of the delayed effects of the pandemic were felt in disruptions in value chains (such as temporary closures of ports, lack of truck drivers), which in the context of expanded demand for goods, have increased the costs of transportation.

The economic rebound in 2021 and 2022 in Guatemala should have helped to reduce poverty and malnutrition, but the acceleration of food inflation will work in the opposite direction. Previous study by IFPRI also calculated the impact of COVID-19 on the affordability of three types of diets,[43] considering that one of the negative consequences was the deterioration of the quality of the diets. Also, IFPRI's ex ante projections and the actual estimates by World Bank and ECLAC showed that the number of people in poverty and those that cannot afford healthy diets increased as a result of the negative shock of the pandemic. Further, the World Bank showed the important ameliorating effect of the expansion of safety nets, which, however, did not completely counter the damage of COVID-19 on poverty and nutrition (with perhaps the exemption of Brazil in 2020).

Therefore, the pandemic deteriorated the already inadequate conditions of poverty and food security in Guatemala. Even though food value chains appeared to have weather better than other sectors the negative impact during the pandemic and were growing after that, they continue to be affected by traditional productivity and competitiveness problems, particularly small farmers.

Therefore, the report suggested the strengthening, reconceptualizing, and expanding of programs related to health, safety nets, and agricultural/rural development and food systems, both to recover from the pandemic, and to address the serious problems of poverty, food insecurity and malnutrition, which existed before and were aggravated by COVID19. A detailed design of those programs was not intended here, although the report presents several concrete ideas about what can be done.

Regarding health, it is important to accelerate the vaccination rate (the country last data shows a full vaccination rate of about 34% of the population against a simple average of 58% for LAC), as part of a general strengthening of the health system considering that Guatemala spends per capita only about 40% of the average health expenditures per person on average in LAC and some 1.8% of the GDP less than the average for LAC countries. If the objective were to be defined as to reach the same level of GDP expenditures, then health expenditures will have to be adjusted up by that percentage points of the GDP.

Considering social safety nets, properly designed social assistance programs through cash transfers and related instruments can not only reduce poverty and increase resilience for a significant percentage number of vulnerable populations in Guatemala but can also diminish international migration. In order to achieve those results, they need to be implemented at a scale that makes a difference. Small and fragmented programs will not improve much on the current situation. Also, it is important to integrate the more permanent social assistance programs and the humanitarian programs that are implemented

[43] Following the analysis in FAO, IFAD, UNICEF, WFP and WHO (2020) three different of diets were utilized. The "energy sufficient diet" (adequate calories for energy balance for work each day, using the least cost diet from the cheapest starchy staple available in a country); the "nutrient adequate diet" (adequate calories plus minimum levels of all essential nutrients); and the "healthy diet" (following nutrition recommendations).

in response to individual crises, in a more unified systems that has been sometimes called “shock-responsive social assistance” (or social protection). Several dimensions of the possible programs were analyzed with costs and financing following Díaz-Bonilla and Centurión, 2022. The programs included the elimination of poverty at 3.2 PPP USD/capita/day (also with a livelihood/environmental component); and support to the youth (from 15 to 24 years) not in education, employment or training (NEET), with further support and education for the first job. Based on the number of people to be included in the programs and the amount and duration of cash transfers per person, Díaz-Bonilla and Centurión (2022) estimated that the whole program would cost 1490 million USD annually (1.9% of GDP). To those values, there would be an addition of administrative costs that need to be included in the costs.

Moving to the programs strengthening the support to agri-food systems, and considering the low levels of expenditures in Guatemala for agriculture in general and for R&D in the sector, in particular, it was suggested to double expenditures for the sector: this would place Guatemala somewhat above the average for LAC countries, but below other comparators. Such objective would cost about 1.7% of the GDP.

However, it is not only public expenditures that need to be considered. Another problem is the lack of financing, both for agricultural producers and their associations and cooperatives, and for the public and private institutions working in the sector, as discussed in the previous sections.

Overall, Guatemala needs to consider an integrated program to support agricultural and rural development. More generally, it needs to pursue the transformation of the country’s food system, following the commitments during the United Nations Food Systems Summit (UNFSS) (articulated in the “national pathways” for food systems transformation) and the climate change negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), including the Paris Agreement and the Glasgow Climate Pact (COP26) (which are embedded in the Nationally Determined Contribution (NDCs) and National Adaptation Plans (NAPs)). Guatemala presented a “national pathway” under the UNFSS and also its NDC and NAP.

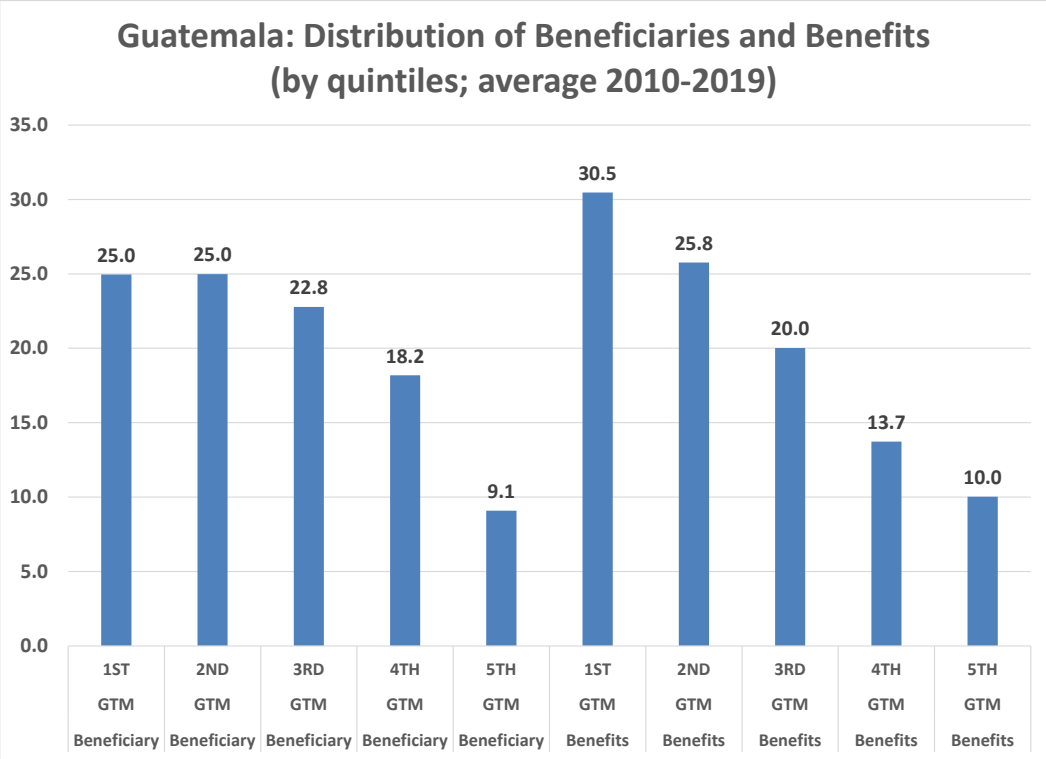
The current design of the national pathways in many countries is very general, lacking the definition of quantitative objectives, policy instruments and investments, costs, financing, and institutional aspects for their effective implementation. Further, it is not clear how (or whether) those national pathways are coordinated with the NDCs and NAPs. Therefore, Guatemala needs to consider the design of the national programs for food systems transformations aimed at achieving the nutrition, health, employment, environmental, social inclusion, and related Sustainable Development Goals (SDGs). But those national pathways need to also consider the NDCs and NAPs of the UNFCCC.

Within that exercise it is also important to analyze the financial sources to implement that integrated plan: international development funds (multilateral and bilateral); public sector budgets; banking systems and capital markets (Díaz-Bonilla, Swinnen, and Vos, 2021). Bilateral and multilateral funds, as well as public sector budgets in many countries are constrained, but they can be used more strategically to mobilize the resources of the other two sources. This will, in turn, support small farmers and scale up productivity enhancing technologies, which also help with climate adaptation and mitigation, improving resilience.

The report did not provide a detailed analysis of the existent and potential financial sources and their mobilization but outlined several approaches to mobilize different financial sources. It was argued that the costs are financeable, and that the programs suggested, besides alleviating poverty, increasing resilience, and reducing migration, will have further positive effects such as encouraging growth (and therefore helping increase revenues), and reducing other expenditures (such as those related to reducing crime and addressing humanitarian crises).Hopefully the ideas outlined here can be an initial step in an integrated program for reducing poverty and food insecurity, improving nutrition, and ensuring environmental sustainability and resilience in Guatemala.

ANNEX A

FIGURE A. 1 Guatemala: Distribution of Beneficiaries and Benefits (by quintiles; average 2010-2019)



Source: authors with data from ASPIRE, World Bank

GUATEMALA[44]

Conditional Cash Transfers Programs

BONO Social (ex Mi Bono Seguro)

It is a conditional cash transfer program coordinated by the Ministry of Social Development (MIDES), aimed at families living in conditions of poverty and extreme poverty. It seeks to increase the schooling rate of children, as well as to improve their health and nutrition. This program supports the National Strategy for the Prevention of Chronic Malnutrition.

Beneficiaries: Families in a situation of poverty and extreme poverty with children between 0 and 15 years old, pregnant and lactating women, girls and adolescents who are victims of sexual violence, and pregnant women or mothers aged 14 or younger whose cases have been prosecuted by the legal system.

[44] Directly from ECLAC 2022- Database of non-contributory social programs

It is implemented at a national level, prioritizing municipalities that fall under poverty, emergency, natural disaster, or other similar criteria. Beneficiaries should be registered in the Registro Unico de Usuarios (RUU).

This program replaces Mi Familia Progresa and is also known as Mi Bono Seguro.

The Public calamity bonus is a category within the Social Bonus program, which identifies the health and/or education bonuses granted to beneficiaries who live in places declared under any of the states of exception, so that they can receive the health and education bonuses without co-responsibility. The amount of the health and/or education bonus can be increased by up to 50%.

In 2020, due to COVID-19, the program suspended the conditionalities for education and health. Children between 6 and 15 years old should be registered and attend regularly to school.

In October 2018, two different scales were established regarding the amount of the transfer, which varies between GTQ $300 (USD 40) and GTQ $500 (USD 70), depending on the department. GTQ $300 (USD 40) for the departments of Huehuetanango, Quiché, Alta Verapaz, Chiquimula, Totonicapán, San Marcos, Sololá, Baja Verapaz, Jalapa and Juiapa. GTQ $500 (USD 70) for the departments of Sacatepéquez, Chimaltenango, Escuintla, Suchitepéquez, Retalhuleu, Santa Rosa, Petén, Izabal, Progreso, Zacapa and Quetzaltenango.

The responsible institution and the executing agency is the Ministry of Social Development. The financing has been supported by different International Financial Institutions.

	2015	2016	2017	2018	2019	2020
Budget						
US$	**48,205,004**	**66,498,867**	**39,100,829**	**34,465,464**	**43,369,455**	**43,288,366**
Education Transfer	32,046,887	43,091,883	30,325,607	28,926,737	40,617,340	26,661,523

Health Nutrition Transfer	16,158,117	23,406,984	8,775,223	5,538,727	2,752,115	16,626,843
%GDP	**0.08%**	**0.10%**	**0.05%**	**0.05%**	**0.06%**	**0.06%**
Budget Execution						
US$	**32,536,012**	**66,492,708**	**28,768,612**	**37,039,953**	**30,426,228**	**44,894,135**
Education Transfer	22,592,172	43,088,686	26,712,593	28,925,541	27,647,205	23,232,366
Health Nutrition Transfer	9,943,839	23,404,023	2,056,019	5,538,129	2,294,919	16,617,316
Growing healthy transfer	…	…	…	2,576,284	484,104	5,044,453
%GDP	**0.05%**	**0.10%**	**0.04%**	**0.05%**	**0.04%**	**0.06%**
People Coverage						
Effective	4,002,424	3,907,569	936,960	931,482	781,020	771,705
% Population	24.63%	23.56%	5.54%	5.40%	4.44%	4.31%
Cash Transfers (US$)						
Min amount per household	78.2	78.4	68	67	39	38.9
Max amount per household	98.2	98	885	864	845	842

Programa Bolsa Social

Conditional cash transfer program that aims to increase access to products of the basic food basket for individuals and families living in poverty and extreme poverty, residing in urban and rural areas.

Beneficiaries: Families in urban areas in poverty in the municipalities of Guatemala with children under 18 years of age, pregnant women, lactating mothers, older adults (over 65y/o) and people with disabilities.

The family receives an in-kind transfer (food package composed of beans, rice, mosh, corn flour, vegetable oil, sugar, salt and incaparina). The cost of the package of food in 2015 was GTQ 191 (USD 9). In 2016 it was replaced by a debit card.

The second component of the program is a monthly money transfer equivalent to GTQ 250 (USD 32.5) in 2021. The family has an education responsibility (enrollment in a public education center endorsed by the Ministry of Education for children between 6 and 15 years of age) and information and awareness (participation in activities planned by the Subdirección de Bolsa de Alimentos).

The Program started as "My Safe Bag" through the Ministerial Agreement 02-2012. In 2016 it was modified (Ministerial Agreement DS-24-2016) to change the food delivery mechanism using a debit card. In 2018, through Ministerial Agreement number DS-149-2018, the name of the program was changed to Bolsa Social.

The responsible institution is the Viceministry of Social Protection. The executing agency is: Subdireccion de Bolsa de Alimentos.

	2015	2016	2017	2018	2019	2020
Budget						
US$	11,836,400	1,453,959	7,697,669	8,031,145	5,885,673	5,866,654
%GDP	0.02%	0.00%	0.01%	0.01%	0.01%	0.01%
Budget Execution						
US$	5,917,877	1,145,273	2,941,403	6,550,728	5,885,673	5,866,654
%GDP	0.01%	0.00%	0.00%	0.01%	0.01%	0.01%
People Coverage						
Effective	1,487,156	48,288	139,464	157,228	163,114	144,045
% Population	9.15%	0.29%	0.82%	0.91%	0.93%	0.80%
Cash Transfers (US$)						
	25.0	32.9	34.0	33.2	32.5	32.4

Programa Vida

Social program of conditional cash transfers aimed at promoting attendance to health services by pregnant girls and adolescents or mothers, under 14 years of age, victims of sexual violence, whose cases have been prosecuted by the legal system. The program promotes attendance at pregnancy controls and check-ups of their children.

This program is part of the Institutional Agreement to Strengthen Care for Pregnant Girls and Adolescents Under Fourteen (14) Years of Age, which aims to guarantee comprehensive care for victims by State Institutions. The institutions included in the Agreement are the Ministry of Public Health and Social Assistance (MSPAS), the Ministry of Education (MINEDUC), the Public Ministry (MP), the Attorney General's Office (PGN), the Secretariat against Sexual Violence, Exploitation and Human Trafficking (SVET), and the Ministry of Social Development (MIDES).

The program does not use a socioeconomic assessment method for admission. The pregnant girl or adolescent or mother is identified by institutional actors, local or community authorities, civil society or religious organizations, among others.

The responsible institution and the executing agency is the Ministry of Social Development. The financing is provided by the Government of Guatemala.

	2017	2018	2019	2020
Budget				
US$	146,980	164,779	207,362	147,637
%GDP	0.00%	0.00%	0.00%	0.00%
Budget Execution				
US$		164,779	118,687	147,637
%GDP		0.00%	0.00%	0.00%
People Coverage				
Effective		567	714	1,000
% Population		0.00%	0.00%	0.01%
Cash Transfers (US$)				
		199.5	194.9	194.3

Total of Conditional Cash Transfers Programs-Guatemala

	2015	2016	2017	2018	2019	2020
Budget						
US$	60,041,405	67,952,827	46,945,478	42,661,388	49,462,490	49,302,657
%GDP	0.10%	0.10%	0.07%	0.06%	0.06%	0.06%

Budget Execution						
US$	38,453,888	67,637,981	31,710,015	43,755,459	36,430,589	50,908,426
%GDP	0.06%	0.10%	0.04%	0.06%	0.05%	0.07%
People Coverage						
Effective	5,489,579	3,955,856	1,076,424	1,089,277	944,847	916,751
% Population	33.78%	23.85%	6.36%	6.32%	5.37%	5.12%
Cash Transfers (US$)-Monthly						
Min amount per household (1)	25.0	32.9	34	33	32.5	32.4
Max amount per household (2)	98.20	98	885	864	845	842

Source: ECLAC 2022- Database of non-contributory social programs

(1) The family only receives food support.

(2) The family receives, food and education transfer and since 2017 the family may receive in addition the calamity bond if they comply with the requirements.

Labor Programs

Programa Beca Social

It replaces many of the programs described below that ended. The Social Scholarship program is aimed at the population living in poverty or extreme poverty in the country, in urban and rural areas who are in the following ages: Social Scholarship Middle Education for adolescents and young people between 11 and 24 years of age; Higher Education Social Scholarship aimed at young people between 16 and 28 years old; First Employment Social Scholarship aimed at young people between 18 and 25 years old; and Artisan Social Scholarship for adults, preferably women.

The objective of the program is to facilitate access, continuity and permanence in formal education, training, and the formal labor market, via secondary and higher education, productive training and employability for adolescents, youth and adults living in poverty or extreme poverty in urban and rural areas of the country. The beneficiaries receive monetary transfers in the form of scholarships via bank channels and they are subject to compliance with co-responsibilities by program participants.

The responsible institution and the executing agency are the Ministry of Social Development. The funding is provided by the Government of Guatemala.

Beca Mi primer Empleo

It ended in 2018. The program tried to promote the integration into the formal labor market of adolescents and young people between the ages of 16 and 25 from urban and rural areas, in situations of poverty, extreme poverty and unemployment, through temporary hiring as apprentices. The program has a total duration of eight months and is divided into two phases:

1) Training of 5 hours per week for a maximum period of 60 hours. The Instituto Técnico de Capacitación Productiva will be the organization providing the training. After finishing, the beneficiary will get a job certificate.
2) Take an internship in the assigned company to finish the training. The beneficiary will need to comply with 35 hours per week.

If the users comply with the established co-responsibilities, the Ministry of Social Development deposits GTQ 2,000 (USD 300) to the employer, who will, in turn, pay to the beneficiary the equivalent of 40% of the current minimum wage plus an incentive bonus of GTQ 250 (USD 35).

The young population of the whole country is eligible, but they should be registered at the Sistema de Administración de Becas (SAB).

The responsible institution and the executing agency are the Ministry of Social Development. The funding is provided by the Government of Guatemala.

	2014	2015	2016	2017
Budget				
US$	413,852	623,216	589,677	1,117,551
%GDP	0.0007%	0.0011%	0.0009%	0.0016%
Budget Execution				
US$	316,079	383,317	579,071	1,098,234
%GDP	0.0005%	0.0007%	0.0009%	0.0016%
People Coverage				
Effective	299	1,014	345	704
% Population	0.0019%	0.0064%	0.0021%	0.0043%
Cash Transfers (US$)-Monthly				
Max amount per capita	215	215	215	215

Mi Beca Artesano

This program also ended in 2018. The objective of the program is to strengthen and develop people's skills through training in handcrafted products to improve their family income. This scholarship has a duration of 3 to 6 months of training and technical assistance. The program is especially oriented to rural areas and to the organization of groups so that the training process contributes to improving their productivity. The amount of the scholarship is between GTQ 1,200 (USD 170) and GTQ 1,800 (USD 260). The program tries to empower families to establish their own business.

The beneficiaries are adults, preferably women, in a situation of poverty or extreme poverty, without formal employment, who have skills for handicrafts. The people will have to comply with 80% of the training and have made samples of the product they will try to produce for sale. Even though it is a national program, it targets neighborhoods with extreme poverty levels.

The responsible institution and the executing agency is the Ministry of Social Development. The funding is provided by the Government of Guatemala.

	2014	2015	2016	2017
Budget				
US$		736,646	705,629	1,800,782
%GDP		0.0013%	0.0011%	0.0026%
Budget Execution				
US$	823,695	559,330	670,252	1,767,055
%GDP	0.0014%	0.0010%	0.0011%	0.0026%
People Coverage				
Effective	4,934	3,183	4,000	10,441
% Population	0.0316%	0.0200%	0.0246%	0.0631%
Cash Transfers (US$)-Monthly				
Min amount per capita	170	170	170	170
Max amount per capita	260	260	260	260

Programa de generación de empleo y educación vocacional para jóvenes en Guatemala

The objective of the program is to improve the standard of living of young people in Guatemala, from 14 to 29 years old, by providing them with quality job opportunities. The program supports the creation and/or improvement of technical skills, strengthen the institutional framework of a national youth employment system and promotes independent work through SMEs.

It is aimed at facilitating the inclusion of young people into productive activities in existing companies, as well as through the creation and/or strengthening of Micro, Small and Medium Enterprises (MSMEs). This component incorporates an innovative model of Business Development Offices (ODE) at the local level.

It also gives technical assistance to the Employability Services under the direction of the Ministry of Labor along with the SMEs program under the Ministry of Finance.

There is no quantitative information about this program in the table below.

The responsible institution and the executing agencies are The Ministry of Finance, Ministry of Education and Ministry of Labor and Social Welfare. The funding is provided by the Government of Guatemala.

TOTAL LABOR PROGRAMS-GUATEMALA

	2014	2015	2016	2017
Budget				
US$	413,852	3,645,422	3,486,822	5,263,350
%GDP	0.0007%	0.0062%	0.0055%	0.0077%
Budget Execution				
US$	1,139,774	2,133,015	3,414,904	5,180,967
%GDP	0.0019%	0.0036%	0.0054%	0.0075%
People Coverage				
Effective	5,233	8,990	10,633	18,147
% Population	0.0335%	0.0565%	0.0655%	0.1097%

Source: ECLAC 2022- Database of non-contributory social programs

It includes Programa Beca Social Primer Empleo, Beca Social Educación Media, Beca Social Educación Superior y Beca Social Artesano.

Social Pensions

The Economic Contribution of the Elderly was designed to protect the elderly or disabled population who lack economic resources and who are left without the right to other types of pensions. Also, both preventive and curative medical care is offered to the beneficiaries of this program, under the responsibility of the Ministry of Public Health and Social Assistance.

Beneficiaries: people older than 65 years old.

The institution responsible is the Ministry of Labor and Social Welfare. It is financed by the Government of Guatemala.

	2014	2015	2016	2017	2018
Budget					
US$		65,971,549	66,447,919	69,917,443	65,579,094
%GDP		0.10%	0.10%	0.09%	0.08%
Budget Execution					
US$	63,112,425	64,234,080	65,329,488	67,467,914	65,246,068
%GDP	0.11%	0.10%	0.10%	0.09%	0.08%
People Coverage					
Effective	107,038	107,824	103,167	103,083	101,673
% Population 60+	11.19%	10.98%	10.14%	9.79%	9.34%
Cash Transfers (US$)					
Monthly contribution	51.73	52.25	52.63	54.13	53.20

Source: ECLAC 2022- Database of non-contributory social programs

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REFERENCES

AHO, 2020.https://es.aviagen.com/assets/Broiler_Economics/BE-December2020.pdf

American Immigration Council (2021), Immigrants in the United States https://www.americanimmigrationcouncil.org/sites/default/files/research/immigrants_in_the_united_states_0.pdf

ANAVI, 2020 https://www.anavih.com/noticias/boletin-informativo-6ta-edicion-agosto-2020/

ANAVI, 2021. ASOCIACIÓN NACIONAL DE AVICULTORES DE GUATEMALA. Situación de huevos y pollos de engorde ha cambiado en respuesta al COVID-19. Webinar minutes.

AVINEWS, 2020. Avicultores hondureños reducen ventas por 40%. https://avicultura.info/honduras-reduce-ventas-productos-avicolas-40-coronavirus/

Andrews, C., A. de Montesquiou, I. Arévalo Sánchez, P. Vasudeva Dutta, B. Varghese Paul, S. Samaranayake, J. Heisey, T. Clay, and S. Chaudhary. 2021. The State of Economic Inclusion Report 2021: The Potential to Scale. Washington, DC: World Bank.

Banco de Guatemala 2020. INFORME DE POLÍTICA MONETARIA A SEPTIEMBRE DE 2020. https://www.banguat.gob.gt/sites/default/files/banguat/Publica/comunica/informe_pol_mon_sept2020.pdf

Banco de Guatemala 2021a. INFORME DE POLÍTICA MONETARIA A MARZO DE 2021. https://www.banguat.gob.gt/sites/default/files/banguat/Publica/comunica/informe_pol_mon_mar2021.pdf

Banco de Guatemala 2021b. ÍNDICE MENSUAL DE LA ACTIVIDAD ECONÓMICA (IMAE) A ABRIL DE 2021. https://www.banguat.gob.gt/sites/default/files/banguat/Publica/IMAE/2013/IMAE_abril21.pdf

Banco de Guatemala 2021c. Índice, Intermensual, Interanual y Acumulada. https://www.banguat.gob.gt/page/indice-intermensual-interanual-y-acumulada

BANRURAL, 2020. https://dca.gob.gt/noticias-guatemala-diario-centro-america/bid-otorga-prestamo-por-us-100-millones-para-financiar-a-pymes/

BCIE, 2020. Facilidad de Apoyo a las MIPYMES. https://www.bcie.org/bcie-ante-covid-19/facilidad-de-apoyo-a-la-mipyme

Caruso, G., C. G. Canon, and V. Mueller. Spillover effects of the Venezuelan crisis: Migration impacts in Colombia. Oxford Economic Papers. Article in press. First published online on November 29, 2019. https://doi.org/10.1093/oep/gpz072.

Cattaneo, A., and S. Robinson. 2020. Multiple moves and return migration within developing countries: A comparative analysis. Population, Space and Place 26 (7): e2335. https://doi.org/10.1002/psp.2335.

Ceballos, F., and M. A. Hernandez. 2020. The migration propensity index: An application to Guatemala. IFPRI Discussion Paper 1953. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.133849.

Central American Immigrants in the United States. AUGUST 15, 2019. SPOTLIGHT. By Allison O'Connor, Jeanne Batalova, and Jessica Bolter. https://www.migrationpolicy.org/article/central-american-immigrants-united-states-2017

Clemens, Michael A (2017). How Central American Youth Test Outdated U.S. Immigration Laws. Americas Quarterly Clemens, Michael A. (2020). The Emigration Life Cycle: How Development Shapes Emigration from Poor Countries. IZA DP No. 13614 AUGUST 2020.

Chapman, Madison; Martinez, Roberto; Hedley, Darren; Nagel, Maria; Jodar, José; Lawson McDowall, Julie and Welcome Radice, Holly. (2022) Cash and voucher assistance within social protection preparedness in Central America, Mexico, and the Dominican Republic. USAID and CALP, March 2022

Congressional Research Service (2021). In Focus IF11151. Central American Migration: Root Causes and U.S. Policy. Updated April 22, 2021. https://fas.org/sgp/crs/row/IF11151.pdf

de la O Campos, Ana Paula; Villani, Chiara; Davis, Benjamin and Takagi, Maya. 2018 "ENDING EXTREME POVERTY IN RURAL AREAS. Sustaining livelihoods to leave no one behind."

de la O Campos, Ana Paula; Villani, Chiara; Davis, Benjamin and Takagi, Maya. 2018 "ENDING EXTREME POVERTY IN RURAL AREAS. Sustaining livelihoods to leave no one behind."

Diaz-Bonilla, Carolina, Laura Moreno Herrera, and Diana Sanchez Castro. Forthcoming. "Projected 2020 Poverty Impacts of the COVID-19 Global Crisis in Latin America and the Caribbean." Poverty and Inequality Monitoring Brief (PIM). Washington, DC: World Bank.

Díaz-Bonilla, E. (2010). Globalization of agriculture and food crises: Then and now. In B. Karapinar & C. Häberli (Authors), Food Crises and the WTO: World Trade Forum (pp. 49-80). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511712005.004

Díaz-Bonilla, Eugenio. 2015. Macroeconomics, agriculture, and food security: A guide to policy analysis in developing countries. Washington, D.C.: International Food Policy Research Institute (IFPRI). http://dx.doi.org/10.2499/9780896298590

Díaz-Bonilla, Eugenio. 2016. Volatile volatility: Conceptual and measurement issues related to price trends and volatility. In Food price volatility and its implications for food security and policy, eds. Matthias Kalkuhl, Joachim von Braun, and Maximo Torero. Chapter 2, pp. 35 - 57. http://dx.doi.org/10.1007/978-3-319-28201-5_2

Díaz-Bonilla, E., V. Piñeiro and S. Robinson (2018).). U.S. immigration policies may harm economies, worsen poverty in Central American countries. NOVEMBER 9, 2018. https://www.ifpri.org/blog/us-immigration-policies-may-harm-economies-worsen-poverty-central-american-countries

Diaz-Bonilla, Eugenio; Loboguerrero, Ana Marie; Verchot, Louis; Viglizzo, Ernesto; and Mirzabaev, Alisher. 2018. Financing "A sustainable food future". T20 Argentina: Food Security and Sustainable Development Task Force Brief. https://t20argentina.org/publicacion/financing-a-sustainable-food-future/

Diaz-Bonilla, Eugenio. 2020. Fiscal and monetary responses to the COVID-19 pandemic: Some thoughts for developing countries and the international community. In COVID-19 and global food securi-ty, eds. Johan Swinnen and John McDermott. Part Seven: Policy re-sponses, Chapter 22, Pp. 98-101. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.133762_22

Díaz-Bonilla, Eugenio; Laborde Debucquet, David; and Piñeiro, Valeria. 2021. Guatemala: The impact of COVID-19 and preliminary policy implications: Interim report. LAC Working Paper 16. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134410 It was originally issued in October 2020.

Diaz-Bonilla, Swinnen, and Vos. 2021 “Financing the Transformation to Healthy, Sustainable, and Equitable Food Systems.” In 2021 Global Food Policy Report: Transforming Food Systems after COVID-19 (Washington, DC: IFPRI).

Díaz-Bonilla, E. 2021 Financing SGD2 and Ending Hunger. https://sc-fss2021.org/wp-content/up-loads/2021/05/FSS_Brief_Financing_SDG2_and_Ending_Hunger.pdf

Diaz-Bonilla, Eugenio; Flores, Luis; Paz, Flor; Piñeiro, Valeria; and Zandstra, Tamsin. (2021). Guatemala: The impact of COVID-19 and policy implications: Second report. LAC Working Paper 21. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134534

Díaz-Bonilla, 2021 Using the new IMF Special Drawing Rights for larger purposes: Guaranteeing ‘pandemic recovery bonds’ OCTOBER 22, 2021https://www.ifpri.org/blog/using-new-imf-special-drawing-rights-larger-purposes-guaranteeing-%E2%80%98pandemic-recovery-bonds%E2%80%99

Diaz-Bonilla, Eugenio; and Centurión, Miriam. 2022. Improving livelihoods and reducing outmigration from the Northern Triangle in Central America: The potential role of cash transfers in expanded social safety nets. LAC Working Paper 27. Washington, DC: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.135912

Economic Commission for Latin America and the Caribbean (ECLAC) (2018), Atlas of migration in Northern Central America (LC/PUB.2018/23), Santiago, 2018

ECLAC, 2022. Non-contributory Social Protection Programmes Database. Latin America and the Caribbean https://dds.cepal.org/bpsnc/home.

ENA 2020, reported by PrensaLibre, 2020 https://www.prensalibre.com/economia/maiz-recupera-terreno-y-la-cosecha-crecio-8-4/#:~:text=El%20informe%20detalla%20que%20la,se%20estim%C3%B3%20en%2040.9%20millones.FAO, 2016. “Mejorar los sistemas de protección social para fomentar el desarrollo rural y la seguridad alimentaria”

Escobedo Aguilar, 2018. Cadena del Maíz de Guatemala. Centro Agronómico Tropical de Investigación y Enseñanza (CATIE).

FAO, 2016. “Mejorar los sistemas de protección social para fomentar el desarrollo rural y la seguridad alimentaria” http://www.fao.org/re-duce-rural-poverty/resources/resources-detail/es/c/1054070/

FAO, 2017 Social protection for forest-dependent communities http://www.fao.org/forestry/49810-0e3cf49a1603cf7fc3ecb119381623888.pdf

FAO, 2018. “FAO and Cash+. How to maximize the impacts of cash transfers” http://www.fao.org/resilience/resources/resources-de-tail/en/c/1106391/GAFTAWorld, 2020. Prepare agriculture for the next Covid-19. Issue 246. Nov. 2020. https://www.gafta.com/write/Me-diaUploads/Gaftaworld/GaftaworldNov20.pdf

Filgueira, F. and E. Espíndola (2015)),“Toward a system of basic cash transfers for children and older persons: an estimation of efforts, im-pacts and possibilities in Latin America”, Social Policy series, No. 216 (LC/L.3934), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC)

GAFTAWorld, 2020. Prepare agriculture for the next Covid-19. Issue 246. Nov. 2020. https://www.gafta.com/write/MediaUploads/Gafta-world/GaftaworldNov20.pdf

Gantz, 2021https://www.wattagnet.com/blogs/25-latin-america-poultry-at-a-glance/post/41932-was-the-year-of-the-corn

Garcia Jimenez and Gandlgruber, 2014. Gobernanza y acuerdos institucionales en las cadenas del frijol y del maíz en Centroamérica.

Gentilini, Ugo, Mohamed Almenfi, John Blomquist, Pamela Dale, Luciana De la Flor Giuffra, Vyjayanti Desai, Maria Belen Fontenez, Gui-llermo Galicia, Veronica Lopez, Georgina Marin, Ingrid Veronica Mujica, Harish Natarajan, David Newhouse, Robert Palacios, Ana Patri-cia Quiroz, Claudia Rodriguez Alas, Gayatri Sabharwal, and Michael Weber 2021. Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures. “Living paper” version 15. (May 14, 2021). World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/33635 License: CC BY 3.0 IGO.

Google COVID-19 Community Mobility Reports https://www.google.com/covid19/mobility/ retrieved 06/11/2021

Guatemala Ministry of Economy, 2019. Situación del Sector Avícola Guatemala.

Hale, Thomas; Webster, Sam; Petherick, Anna; Phillips, Toby and Kira, Beatriz (2020). Oxford COVID-19 Government Response Tracker, Blavatnik School of Government. https://www.bsg.ox.ac.uk/research/research-projects/oxford-covid-19-government-response-tracker)

Headey, Derek; Ruel, Marie. 2020. The COVID-19 nutrition crisis: What to expect and how to protect. Apr 23, 2020; in https://www.ifpri.org/covid-19

IDB,2020. Summary of the main economic, monetary, and financial policy measures taken in the face of the global pandemic COVID-19.

IDB, 2020. IDB expands coverage for COVID-19 and public health risks in contingent loans. Press release.

IDB, 2020. IDB helps vulnerable people in Guatemala fight COVID-19. a US$100 million project will help vulnerable people reach minimum levels of consumption. Press release.

IMF, 2020. World Economic Outlook: A Crisis Like No Other, An Uncertain Recovery. https://www.imf.org/en/Publica-tions/WEO/Issues/2020/06/24/WEOUpdateJune2020

IMF, 2020. Country Report No. 20/201. GUATEMALA. REQUEST FOR PURCHASE UNDER THE RAPID FINANCING INSTRUMENT. June 2020.

IMF (2021). Guatemala: Article IV Consultation. IMF Country Report No. 21/111. June 2021.

IMF-Fiscal Monitor 2021

Instituto Nacional de Estadística (INE), 2019-2020. ENA, 2018. Encuesta Nacional Agropecuaria Guatemala.

INE (2021). Encuesta Agropecuaria 2020. Guatemala National Statistics Institute.

International Labor Organization (2020) Unemployment, informality and inactivity plague youth in Latin America and the Caribbean). 16 March 2020

INVESTOPEDIA TEAM. What Exactly Does the EBITDA Margin Tell Investors About a Company? Updated March 23, 2022. https://www.investopedia.com/ask/answers/042415/what-exactly-does-ebitda-margin-tell-investors-about-company.asp

Isaacs, A. (2019) MIGRATION IN CENTRAL AMERICA An analysis of migration trends, drivers, policy and actors. Seattle International Foundation.

Johns Hopkins University, 2021. Mortality Analyses. Coronavirus Resource Center https://coronavirus.jhu.edu/data/mortality retrieved 06/10/2021

Laborde, David; Martin, Will and Vos, Rob. 2020b. Estimating the Poverty Impact of COVID-19. The MIRAGRODEP and POVANA frameworks. Technical Note. June 2020. IFPRI. https://www.researchgate.net/publication/342068871_Estimating_the_Poverty_Impact_of_COVID-19_The_MIRAGRODEP_and_POVANA_frameworks_1

Lance, J. (2014). Conditional Cash Transfers and the Effect on Recent Murder Rates in Brazil and Mexico. Latin American Politics and Society, 55-72.

Meloni, O. (2014). Does Poverty Relief Spending Reduce Crime? Evidence from Argentina. International Review of Law and Economics, 28-38.

Machado, D. B., Rodrigues, L. C., Rasella, D., Lima Barreto, M., & Araya, R. (2018). Conditional cash transfer programme: Impact on homicide rates and hospitalisations from violence in Brazil. PloS one, 13(12), e0208925. https://doi.org/10.1371/journal.pone.0208925

Our World in Data https://ourworldindata.org/coronavirus-testing retrieved 06/11/2021

Our World in Data https://ourworldindata.org/covid-vaccinations retrieved 06/11/2021

Oxford University “COVID-19 GOVERNMENT RESPONSE TRACKER” https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker

Ortiz, I.; Valverde, Fabio; Pal, Karuna; Behrendt, Christina and Acuña Ulate, Andres. (2017), “Universal social protection floors: costing estimates and affordability in 57 lower income countries”, EES Working Paper, No. 58, Geneva, Social Protection Department, International Labour Organization (ILO)

Pearson, Carl A. B.; Van Zandvoort, Kevin; Jarvis, Chris I.; Davies, Nicolas G.; Thompson, Sam; Checchi, Francesco; Jit, Mark; and M. Eggo. Rosalind 2020. Modelling projections for COVID19 epidemic in Guatemala. LSHTM CMMID COVID19 Working Group. 16 Jun 2020 v3.

Prensa Libre, 2020. Maíz recupera terreno y la cosecha creció 8.4%. https://www.prensalibre.com/economia/maiz-recupera-terreno-y-la-cosecha-crecio-8-4/#:~:text=El%20informe%20detalla%20que%20la,se%20estim%C3%B3%20en%2040.9%20millones.

Sadler, Marc Peter; Millan Arredondo, Alberto; Swann, Stacy A.; Vasileiou, Ioannis; Baedeker, Tobias; Parizat, Roy; Germer, Leah Arabella; Mikulcak, Friederike; Sadler, Marc Peter. 2016. Making climate finance work in agriculture. Washington, D.C. World Bank Group. http://documents.worldbank.org/curated/en/986961467721999165/Making-climate-finance-work-in-agriculture

Seyfert, Karin; Barca, Valentina; Gentilini, Ugo; Luthria, Manjula and Abbady, Shereen. (2019). Unbundled: A framework for connecting safety nets and humanitarian assistance in refugee settings. DISCUSSION PAPER. No. 1935. SOCIAL PROTECTION & JOBS. SEPTEMBER 2019. World Bank.

Parry, I.; Black, S. and Vernon, N. (2021). “Still Not Getting Energy Prices Right: A Global and Country Update of Fossil Fuel Subsidies,” IMF Working Paper. WP/21/236 (IMF, Washington, DC, 2021).

US Dry Bean Council 2020 http://www.freelandbeanandgrain.com/images/E0136601/2020_Black_Bean_SD_Outlook.pdf

Wiblin, Brent. Senior Managing Director, First Republic Bank. November 8, 2021. What is EBITDA and How to Calculate It. https://www.firstrepublic.com/articles-insights/life-money/build-your-business/what-is-ebitda-and-how-to-calculate-it#:~:text=An%20EBITDA%20margin%20of%2010,or%20an%20EBITDA%20margin%20percentage

Winder, Natalia. 2018 “Protección social: Sinergias con agricultura y resiliencia.” Presentation Punta Cana, April 2018

WHO, 2021. Guatemala. https://covid19.who.int/region/amro/country/gt retrieved 6/10/2021

World Bank Group, 2020. The Potential Impact of COVID-19 on GDP and Trade. Policy Research Working Paper 9211. file:///C:/Users/floreslg/Downloads/SSRN-id3573211.pdf

World Bank. 2021. The Gradual Rise and Rapid Decline of the Middle Class in Latin America and the Caribbean. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/35834)

World Bank 2021.SMS-Supported High-Frequency Phone Surveys on COVID-19,https://www.worldbank.org/en/programs/lsms/brief/lsms-launches-high-frequency-phone-surveys-on-covid-19 retrieved 08/17/2021

World Bank, 2021a. The World Bank in Guatemala: Context. https://www.worldbank.org/en/country/guatemala/overview retrieved 06/11/2021.

World Bank, 2021b: World Development Indicators. https://datacatalog.worldbank.org/dataset/world-development-indicators retrieved 06/11/2021.

World Bank. 2021c. The Gradual Rise and Rapid Decline of the Middle Class in Latin America and the Caribbean. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/35834

World Bank, 2022, Guatemala SCD Update Building a Stronger Social Contract through Productive, Inclusive and Sustainable Growth. March 2022

World Development Indicators- World Bank

World Bank- ASPIRE Database

World Bank- Enterprise Surveys

World Data Lab, 2021. World Poverty Clock. https://worldpoverty.io/map retrieved 06/11/2021.

World Food Program, 2020. Double burden': Malnutrition is biting into Guatemala's economy, says report. https://www.wfp.org/stories/double-burden-malnutrition-biting-guatemalas-economy-says-report

Zuluaga, Daniela, Adrien Vogt-Schilb and Marcos Robles. 2019. How cash transfers can support the fight against climate change. October 9, 2019. https://blogs.iadb.org/sostenibilidad/en/how-money-transfers-can-support-the-fight-against-climate-change/

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