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GUATEMALA: THE IMPACT OF COVID-19 AND POLICY IMPLICATIONS

SECOND REPORT

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BACKGROUND

Amid concerns about the beginning of the COVID-19 pandemic, Guatemala, in January 2020 decreed travel bans from China, 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 actions2 to protect the health and safety of all persons in Guatemala.

This document updates a previous report (Díaz Bonilla, Laborde and Piñeiro, 2021) on the impact of the COVID-19 pandemic on food systems in Guatemala. First, it brings up to date the evolution of the pandemic, using different indicators. Second, it summarizes the main policy responses, costs, and financing. Third, it updates the evolution of key economic and nutritional variables up to the time of this writing (June, 2021). Fourth, there is a more detailed analysis of the evolution of some food value chains that are central for food consumption in Guatemala. Fifth, main results for 2021 and 2022 of previous modeling work are briefly presented. A final section discusses policy considerations in light of the updated analysis.

EVOLUTION OF THE PANDEMIC

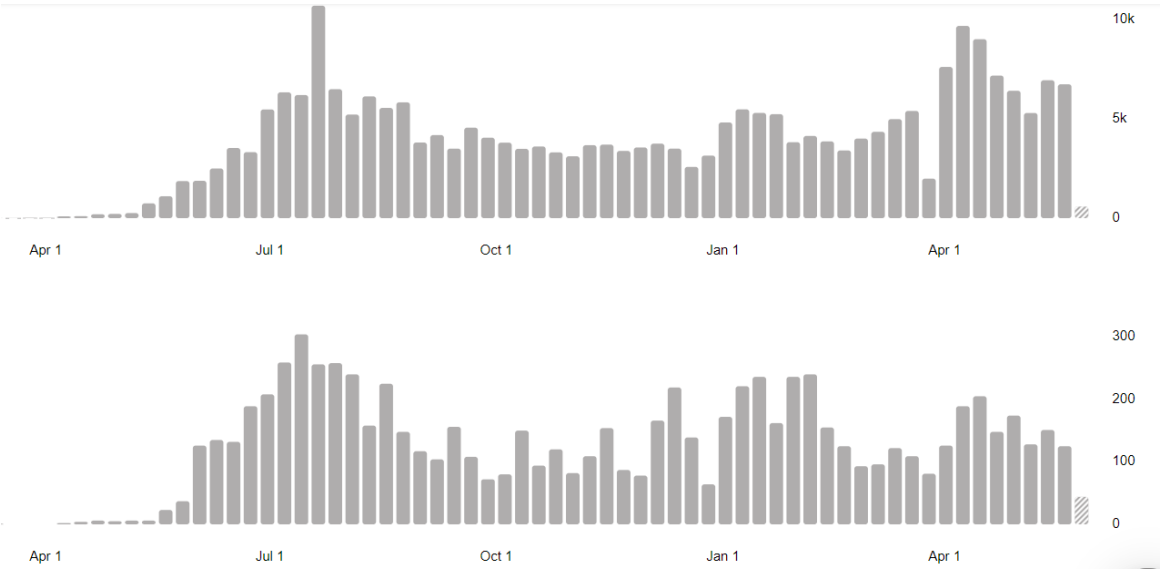
Since the beginning of the pandemic and until June 10, 2021 there have been 263,836 confirmed cases of COVID-19 with 8,331 deaths (WHO, 2021).

Chart 1 shows the daily evolution of cases (top panel) and of deaths (lower panel) (note the difference in scale of the right axis).

[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.

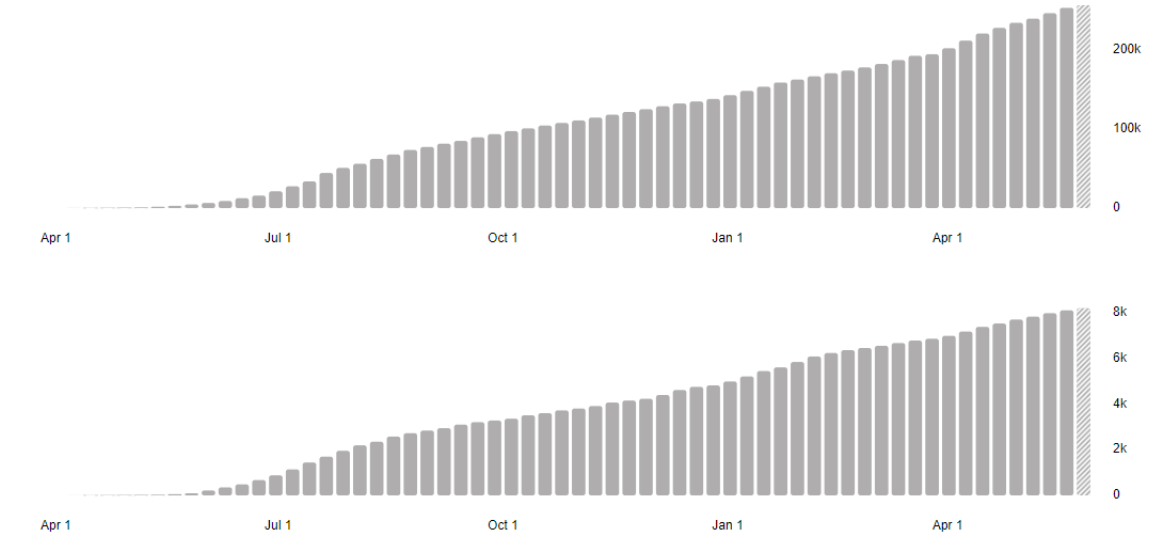
Chart 1: Daily Evolution of Cases and Deaths Related to COVID-19



Source: WHO, 2021.

Chart 2 shows the same variables but with the daily values accumulated.

Chart 2: Cumulative Value of Cases and Deaths Related to COVID-19



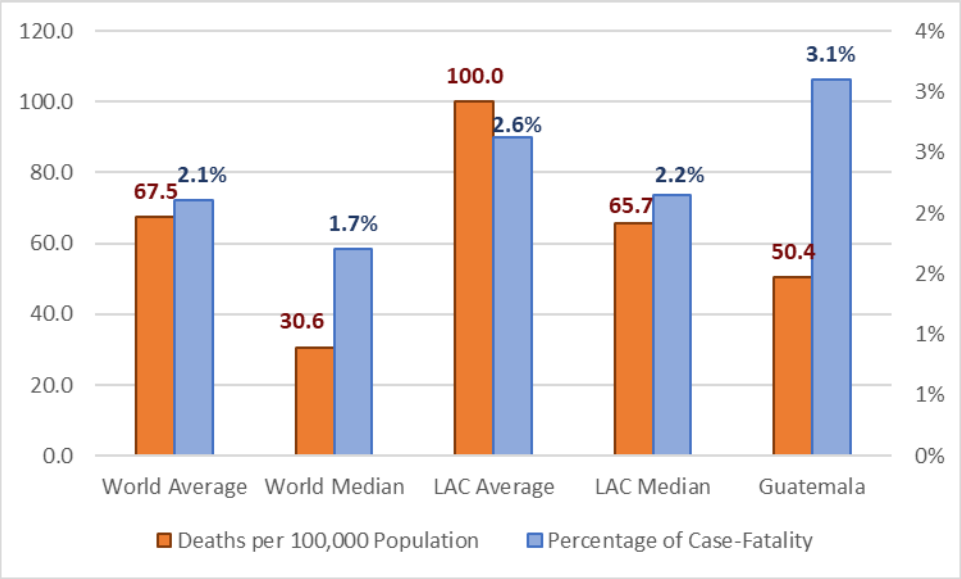
Source: WHO, 2021.

Chart 1 with the daily number of deaths (lower panel) suggests that the peak of the pandemic was in July-August of 2020, but the country suffered other smaller waves in January-February and then April-May of 2021. Still, the section of the chart with the daily number of cases (top panel) shows a stronger wave currently taking place. The fact that even though cases are above last years first wave, but the number of deaths is not, may reflect several facts such as (a) the statistics did not capture well the cases in the first wave; (b) improvements in the treatment of those affected by COVID-19; and (c) differences in the ages/vulnerability of the population affected (with more people vulnerable affected in the

first wave). Nevertheless, the current strong wave of cases may also lead to a delayed increased in the number of deaths later in the year.

Chart 3 uses two indicators, death per 100,000 population (left axis from the reader) and the percentage of fatality to cases (right axis), to compare the conditions in Guatemala to those in the world and LAC (data for June 15 2021).

Chart 3: Deaths per 100,000 Population and Percentage of Case-Fatality



Source: Johns Hopkins University, 2021.

Considering the indicator of deaths per 100,000 population, Guatemala is above the world median, but below the world average and LAC median and average. However, in the rate of fatalities per cases, Guatemala appears above all the comparators.

POLICY RESPONSES

The Government of Guatemala took a series of measures, which are here 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 discussed in what follows.

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 extends the “Estado de Calamidad Pública” en Guatemala).

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

Central coordination.

On May 24 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 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 has been 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.

Policy responses related to health aspects

Obviously, when confronting a pandemic, health-related policies are central. In the previous 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, here a fourth category is included: the advances of the vaccination program.

Policies to prevent or reduce contagions.

While these policies and interventions have been crucial to control the pandemic initially, they have also been the ones with a more direct impact on the economic slowdown. 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, sport and entertainment events, and public gatherings in general; sanitary practices in workplaces, and precautionary measures such as masks and social distancing.

The more drastic measures took place between March and June. Since then, the government announced several measures oriented to reopening the economy. On June 2 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 going to be determined according to the decrease in the number 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 pandemic, in turn related to the behavior of the population regarding the implementation of a series of measures to prevent the transmission of COVID-19.

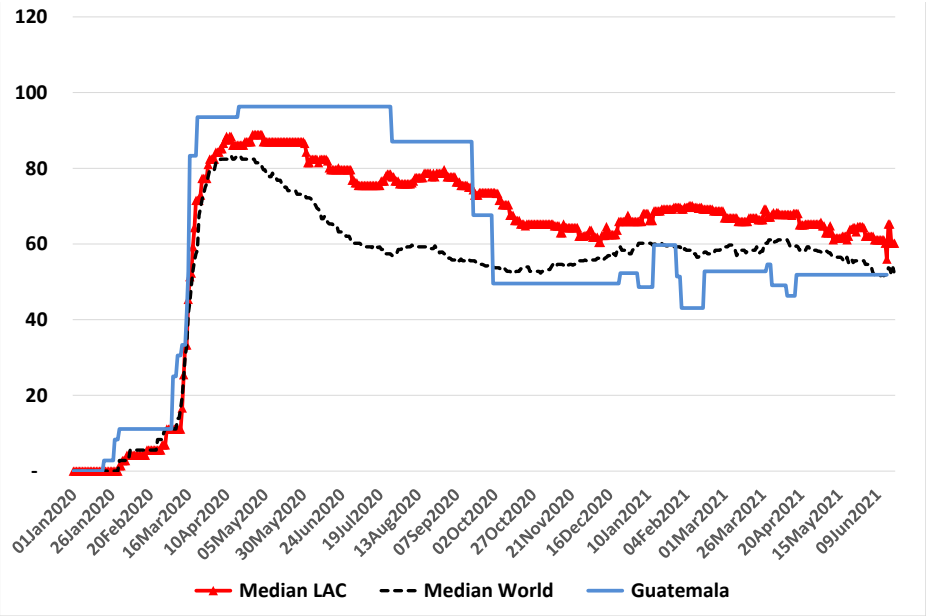
Then on July 25 through the "Acuerdo Ministerial Número 187-2020 del Ministerio de Salud Pública y Asistencia Social," it was determined that the restrictions imposed on a specific location will depend on the current health alert there. Those locations were to be classified as "red-maximum", "orange-high", "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 in 2020 were detailed in the previous report (Díaz-Bonilla, Laborde, and Piñeiro, 2021). Since September 2020 the government started to lift restrictions. The change can be appreciated visually using the "stringency index" calculated by the Blavatnik School of Government of Oxford University (Chart 4).[3] 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 below both comparators mostly since October 2020, and has remained, with some variations, at a lower level since then. Now Guatemala has converged to the world median, but it is still below the index for LAC countries (see Chart 4).

[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. The indicators included in the index include a) closings of schools and universities; b) closings of workplaces; c) cancelling of public events; d) restrictions on gatherings (by the number of people involved); e) closing of public transport; f) stay at home requirements; g) restrictions on internal movements; and h) restrictions on international travel.

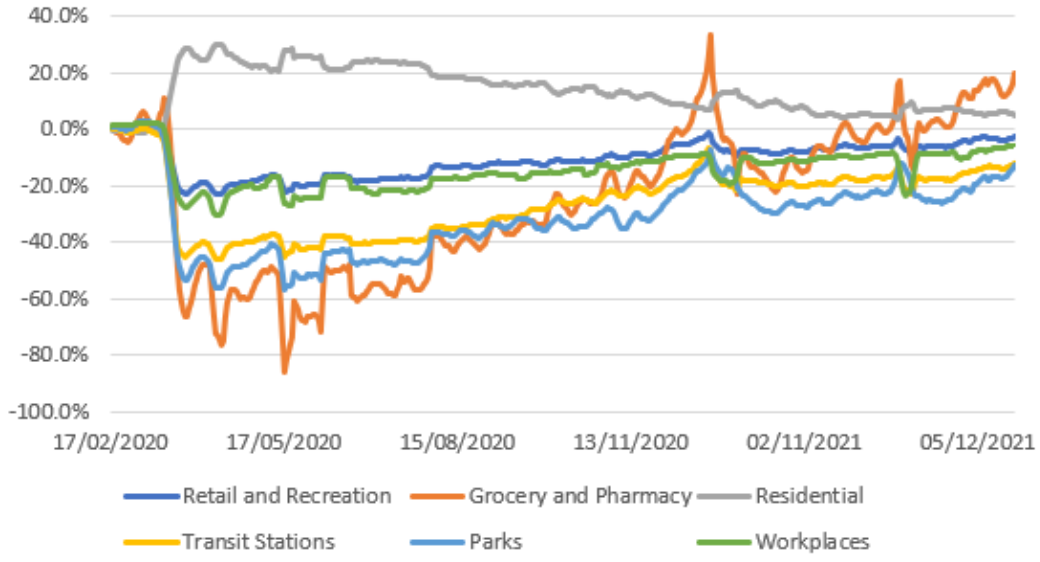
Chart 4: Stringency Index-Guatemala



Source: authors using Oxford University "stringency index"

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 5.

Chart 5: Changes in Mobility (Percentage from Baseline)



Source: Google COVID-19 Community Mobility Reports

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 of the equivalent time of the year before the pandemic.

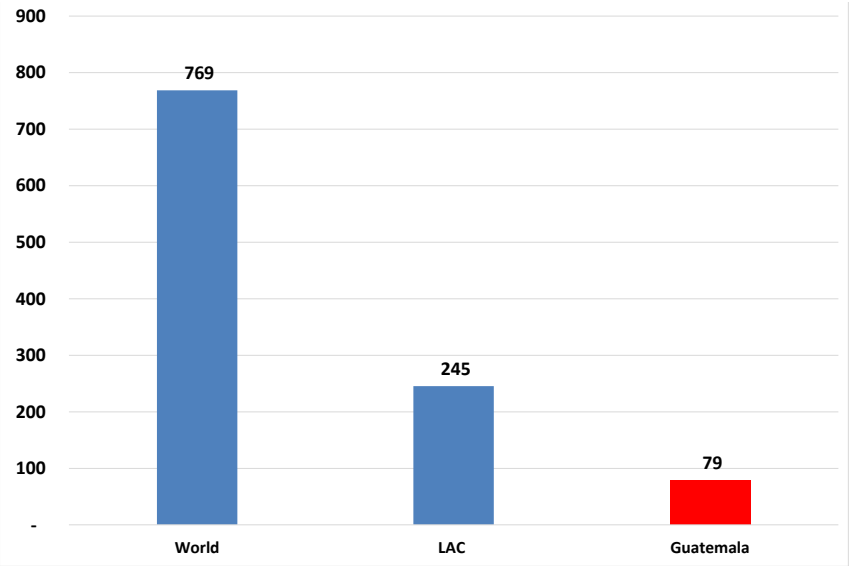
Chart 5 shows the daily values for the indicators, starting with February 17th, 2020 and ending with the last data reported at the time of writing this report. It is clear that in February 2020, when no measures of containment were in place, there were no visible changes with respect to the baseline mobility. Though, as can be observed, in March, there is a strong decline in mobility that reached its bottom in April and May, with values between 20% to about 80% below the levels before the pandemic. Since then, with the easing of restrictions, mobility has been increasing, getting closer to normal levels. This is particularly the case of mobility related to grocery shopping and pharmacy, which showed a sharp increase around the holidays at the end of 2020, and in fact moved above the pre-pandemic values by now (about +9%). Still as of June 2021, mobility values for other activities have not yet returned to previous levels: l -11% below baseline values for “Retail and recreation,” -15% for “Parks,”-21% for “Transit stations,” and -15% for “Workplaces.”

The increase in mobility appears correlated with the current wave of daily cases and deaths discussed before.

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 can be determined by location.

Chart 6: Cumulative Total COVID-19 Tests per 1000 people



Source: Our World in Data

Chart 6 compares total cumulative COVID-19 testing per 1,000 people in Guatemala with average testing across the LAC region and the world (early June, 2021). Testing for COVID-19 began in Guatemala in March 2020 after the first case was detected. Between March 2020 and June 2021, 1,480,193 tests have been carried out. It is evident that Guatemala is 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). The comparatively lower level of testing means that it is possible that a number of cases are unreported.

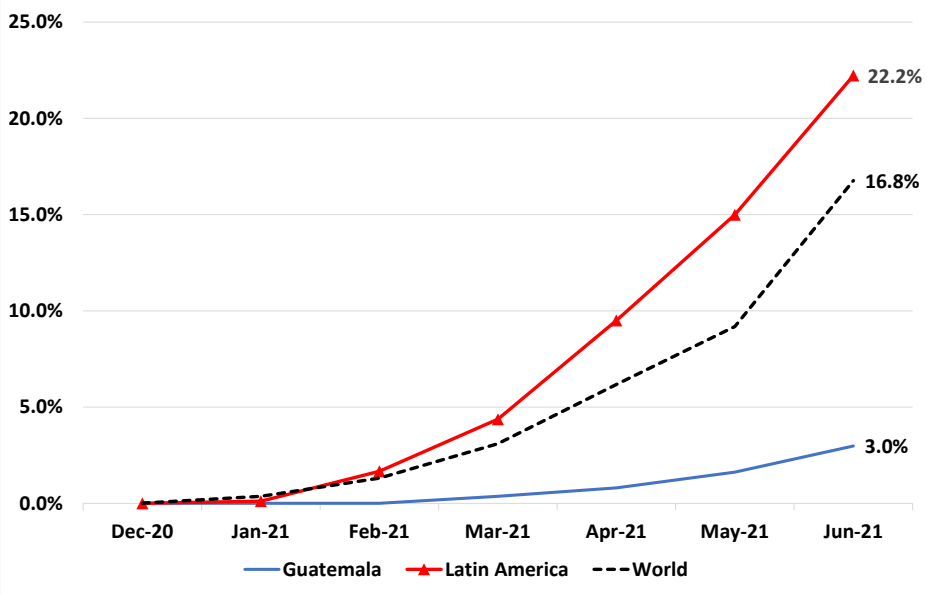
Policies designed to treat the sick.

There have been several initiatives that the Government took including the addition of 3,000 beds for critical cases (almost multiplying by 10 the previously existing capacity; with a US$1 million grant from the Central American Bank of Economic Integration (March); plans to distribute three million washable masks to the Guatemalan public (April); additional investments in protection supplies for medical personnel including latex gloves, gowns, hats, disposable masks, N95 masks, shoes, personal protective suits, visors and protective glasses (May); importation of ventilators (July); a new system of health information dissemination, through the website of the Ministry of Public Health and Social Assistance (July); expansion of the Hospital Regional de Occidente for critical patients (August); distribution of COVID-19 drug kit for patients with mild symptoms (August) (IFPRI, Policy tracker).

Vaccination program

The next Chart 7 shows the advances in vaccinations measured as the percentage of the population with at least one dose, comparing Guatemala with the median of the world and LAC.

Chart 7: 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. In early June 2021 Guatemala had administered close to 650,000 vaccines. That implies that the country, with about 3% of the population vaccinated with at least one dose, is clearly below the comparators. Currently only Oxford-AstraZeneca, Moderna and Sputnik V are being administered (data

from Nicole E. Basta & Erica E.M. Moodie on behalf of the McGill University COVID19 Vaccine Tracker Team. Available at covid19.trackvaccines.org). Guatemala has also received vaccines from the COVAX program, and a small donation from Israel (Moderna). Phase 1 of the vaccine program has been nearly completed, covering essential workers in the health sector, fire fighters, paramedics, funeral workers and caregivers. Phase 2, started in May vaccinating those older than 60 years, and it was expected to continue this month with the population over 50 years. The government was planning to vaccinate 100% of the adult population through August (IMF, Policy Tracker). But currently is clearly behind that goal, facing a shortage of vaccines and delays in the promised suppliers (particularly of the Sputnik V vaccine).

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 has 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; 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.

*"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 focuses on vulnerable families, including the elderly. It is 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 and therefore 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 started to be 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).

The recent report by the World Bank (2021c) has estimated that the mitigation measures in Guatemala appear 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. This places 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]).

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

[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.

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 contribute to strengthening the demand side of the economy.

Credit and banking facilities and regulations.

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, and on June 24, 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 are 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 millon 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. The Ministries of Labor and of the Economy were responsible for determining the conditions and requisites to receive the subsidy, and to monitor the administration of the program (executed by the Corporación Hipotecaria Nacional, the national mortgage corporation bank). The request has to be presented by the employer, through the website of the Ministries of Labor or of the Economy. Expected beneficiaries: 300,000 households (1,5 million people) with private sector workers affected by the suspension of non-essential activities.

*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, 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) were postponed 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.

COSTS AND FINANCING

To confront the pandemic the Executive proposed and Congress approved three fiscal packages, totaling about 3.4% of GDP.[6] Table 1 shows the breakdown of the additional programs approved.

Table 1: Additional Spending Related to the Pandemic

	% of GDP
Health care programs	0.2
Social protection (cash transfers and similar)	1.2
Salary subsidies	0.3
Funding SMEs	0.6
Other	1.1
Total	3.4

Source: IMF 2021.

The program is being 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), US$594 million from the IMF.

*Borrowing in international and local markets. Guatemala borrowed US$1,200 million from international markets on April (which the IMF indicates would cover somewhat more than one third of the expected issuance in 2020 both in domestic and international markets).

*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). As of this writing the IMF estimated that the Banco de Guatemala has bought some 10.600 million quetzals (or about 96% of the total value authorized by Congress).

The fiscal stimulus financed through increased indebtedness and money printing has been absolutely necessary to expand health services and investments and to avoid a larger breakdown in economic ac-

[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

tivity and social conditions. As for many countries worldwide, questions regarding how to deal with increased debt to GDP ratios and the monetary expansion could only begin to be addressed when the pandemic is under control.

Table 2 shows the evolution of government debt (internal and external) as a percentage of the GDP.

Table 2: Government Debt (internal and external)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Central Government Debt	25.1	26.5	26.5	31.5	32.4	33.4	34	34.2	34.2	34
External	11.4	11.5	11.8	13.5	14.5	14.4	14.2	13.6	13.2	12.3
Domestic	13.7	15	14.7	18	17.9	19	19.8	20.5	20.9	21.7

Source: IMF 2021 Article IV.

The table shows the important jump in 2020 (about 5 percentage points of the GDP) to confront the pandemic, divided into an increase of about 1.7 percentage points in external debt and some 3.3 percentage points in domestic debt.

ECONOMIC AND SOCIAL CONDITIONS IN 2020

Before the impact of COVID-19 Guatemala's GDP per capita had been growing at a modest annual average of 1.7% during the last five years previous to the pandemic (2015-2019), with yearly inflation of about 3.7%. Fiscal deficit, debt and inflation were under control and it was predicted inflation would remain within the 4 ±1 percent target established by the Monetary Board through 2020.

But then the pandemic hit in a context in which Guatemala remains 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) is close to 49% and at the national poverty line was 59.3% (with data from the last household survey of 2014). The World Bank (2021c) estimated that poverty at 5.5 PPP dollars was about 43.3% (about 7.2 million people) in 2019. 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 (which perpetuates low growth, poverty and inequality) due to the low level of central government revenues: just somewhat more than 11 % of GDP on average in the last five years, when 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).

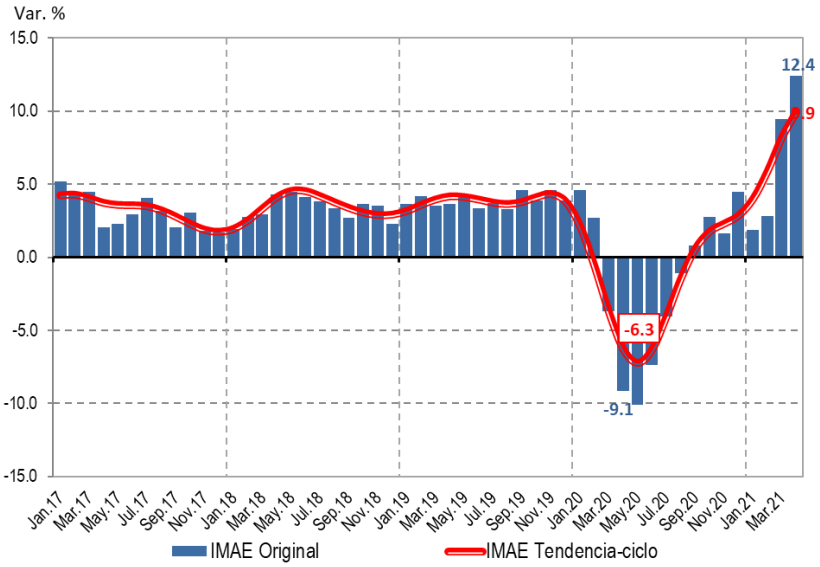
The current pandemic has worsened the already worrying economic and social indicators in the country. In addition to the impact of the domestic lockdown and containment policies, Guatemala, has also been affected by deteriorated world economic conditions, during the first part of 2020. After that, the Bank of Guatemala (2021a) reports that the recovery in the United States and other trading partners

towards the end of 2020 has resulted in an increase of 6.5% in the FOB value of exports, by February of 2021.

The recovery in the US has also been reflected in the flow of remittances: according to the Banco de Guatemala (2021a) by March 31, 2021, remittances reached US$3,135.3 million, higher by US $745.8 million (31.2%), compared to the amount in the same period of the previous year. With the strong recovery of the US economy and its labor market, it is expected that remittances to Guatemala will increase by 13-16% during 2021. Remittances have represented around 12% of the GDP in the last 5 years.

Chart 8 shows the annualized growth rate of the monthly index of economic activity calculated by the Banco de Guatemala from January 2017 until March 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, a rapid recover afterwards. By April of 2021, the index shows values 12.4% higher than the observed in April 2020 (although the increase in growth is from the low levels of the previous year). (Banco de Guatemala, 2021b).

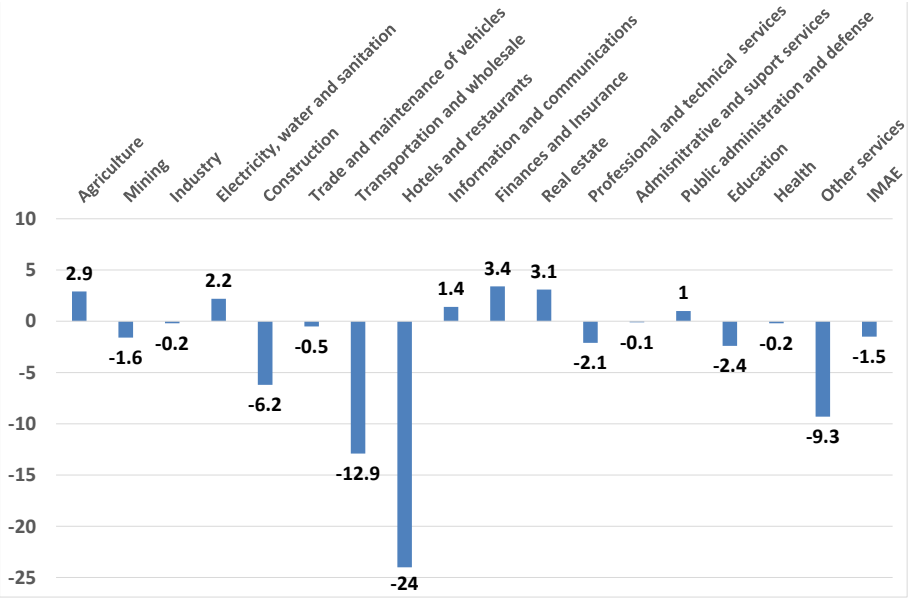
Chart 8: Monthly Index of Economic Activity (Annualized growth rate)



Source: Banco de Guatemala 2021b.

Chart 9 shows the evolution of the economy in 2020 by sectors (preliminary data, as of March 2021; Banco de Guatemala, Informe de Política Monetaria, Marzo 2021). The Chart shows that the largest decline in 2020 was in hotels and restaurants, followed by transportation, construction, other services, and education. On the other hand, agriculture grew by 2.9%. Other sectors that grew in 2020 include electricity, water and sanitation, some specialized services, and public administration.

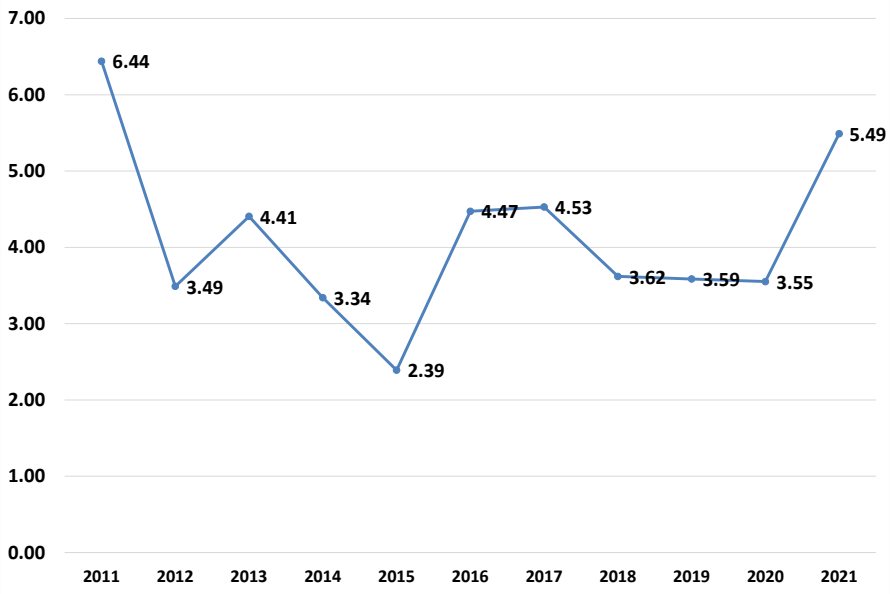
Chart 9: Annualized Growth Rates of Economic Activity by Sector



Source: Banco de Guatemala, 2020.

Chart 10 shows the accumulated inflation in every year for the last decade up to May 2021 (the last value now available) measured as variations of the Consumer Price Index. Inflation for 2020 closed below previous years (3.55% annual increase in the CPI). The pandemic did not accelerate inflation but rather reduced it in some items. However, inflation in the first five months of 2021 (January-May 2021), compared to the average from the same months the previous year 2020 appears to have accelerated: it is about 5.5% greater than the similar period in the previous year.

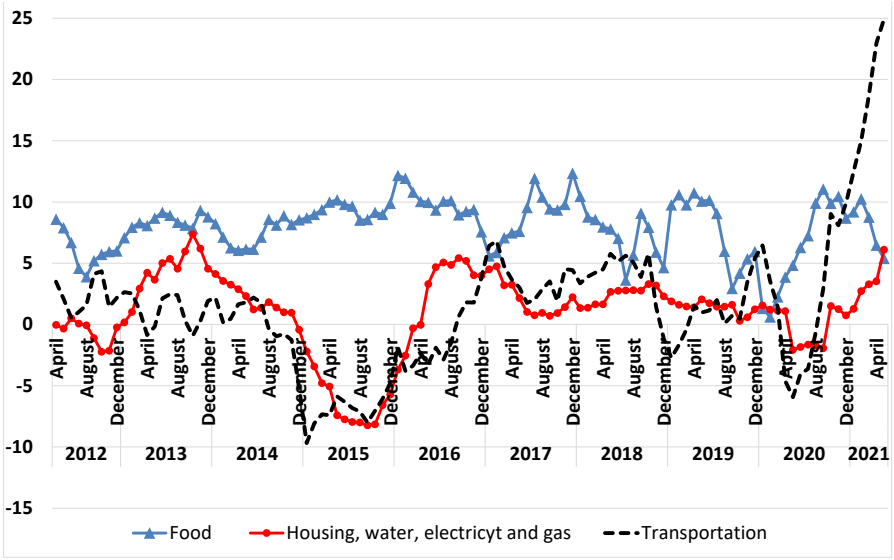
Chart 10: Annual Inflation (CPI, annual % change)



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

This is in part due to a base effect (there was a dip in inflation at the beginning of 2020, therefore the base of comparison is lower). But it also reflects an acceleration in inflation rates mainly in transport, food and non-alcoholic beverages, housing and utilities (water, gas, electricity, and other fuels) which were affected by increases in world prices of fuels and some agricultural commodities (Chart 11).

Chart 11: Annualized Inflation rates by month by categories of expenditures (%)

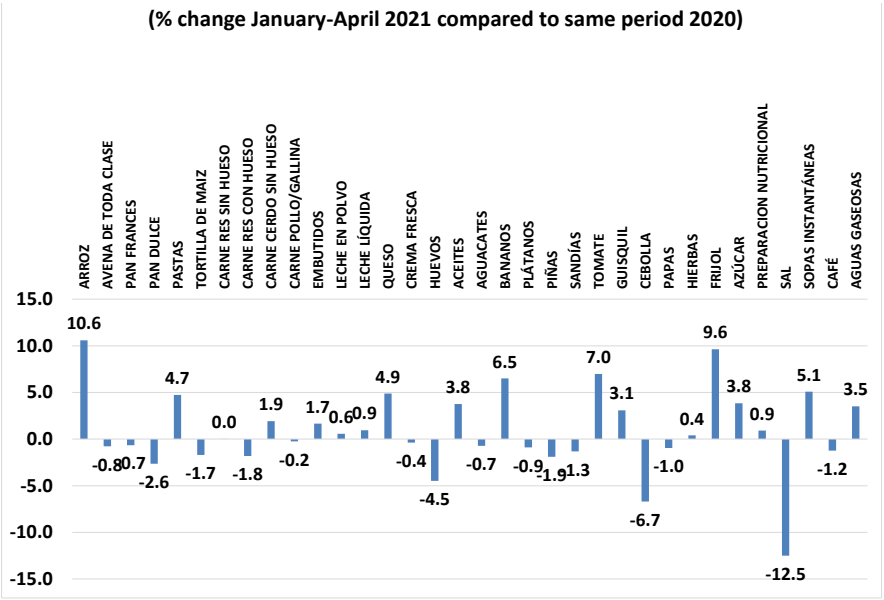


Source: Banco de Guatemala, 2021a.

Still, the acceleration in food prices seems to be abating and it does not appear to be worse than in previous years, even with the jump in global prices of some agricultural products.

Chart 12 goes deeper into the components of the basic food basket, which includes 34 items. The Chart compares the average prices in January-April 2021 with the same period the previous year.

Chart 12: Price Change in Products of the Basic Food Basket



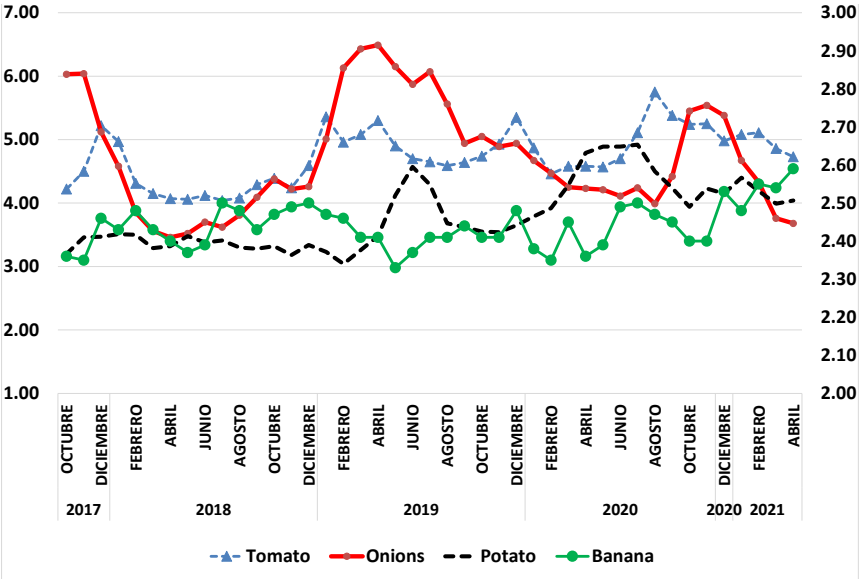
Source: INE Canasta Básica Alimentaria

Only rice (affected by changes in world prices that in the first quarter of 2021 were about 16-17% above the same quarter in 2020), shows increases in prices above 10%. The consumption of that product in Guatemala depends on supply from world markets, with imports representing about 86-87% of total domestic consumption of rice.

The next product with the largest price increases is beans (about 9.6%). This product is analyzed in greater detail later because of its importance in Guatemala's diet and because it largely depends on domestic value chains (while as noted rice was basically imported). Only three other products show prices increases above 5% (bananas, tomatoes, and instantaneous soups). All the other products (a total of 29) had increases below 5% and 15 in fact showed declines in prices compared to a year before.

Next, Chart 13 shows the evolution of prices for some fruits and vegetables (tomatoes, potatoes, and onions are in the left axis from the reader, while banana is on the right axis) (all prices are for a normalized weight of 460 grams).

Chart 13: Prices of Fruits and Vegetables



Source: authors with data from INE

Although there were some increases mostly in the initial months of restrictions related to the pandemic (resulting from some supply disruptions and some panic buying by consumers), prices seem to have returned to previous average levels, except onions that are below, and bananas that are somewhat above.

The exchange rate has been stable (Chart 14), after a spike at the beginning of the lockdown. This helped to stabilize inflationary expectations and the cost of imported items.

Chart 14: Exchange Rate (Quetzals per US dollar)

Source: authors with data from Banco de Guatemala

ANALYSIS OF KEY FOOD VALUE CHAINS

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. Here the focus is on four products: maize, beans, poultry meat and eggs.

Table 3: Basic Food 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
Subtotal	1089.0	43.5	40.5	58.8
TOTAL	2506	100	68.6	100

Source: authors using FAOSTAT

Table 3 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 almost 44% of the calories and some 59% of the proteins in the consumption of that country. With wheat and products, and

sugar they represent almost ¾ of all calories consumed, and also with wheat and products,[7] but now with bovine meat, those products amount to 80% of the proteins consumed.

In what follows there is first a description of the basic production characteristics of each of the four value chains selected (maize, beans, chicken meat and eggs) and the channels through which the pandemic have impacted those products. 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. Then, there is a discussion of how they have dealt with the challenges imposed by the COVID-19 pandemic. Initial policy responses influenced the demand and supply of these important food items. Still, all value chains have fared relatively well notwithstanding the pandemic. It confirms that food production is among the least affected industries in Guatemala and one with the highest potential to recover from the pandemic.

Brief description of the value chains and effects related to COVID-19

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 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.

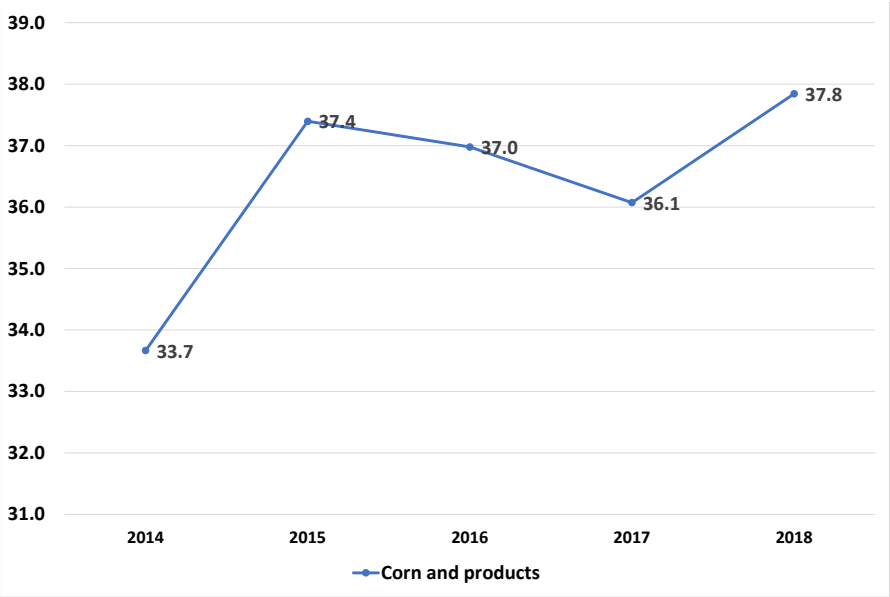
a. Guatemala maize value chain

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.

Next Chart 15 shows the percentage of imports over domestic consumption of maize and products. However, it does not distinguish between white maize that is for human consumption mainly in tortillas, while yellow corn is used in animal feed formulas. The Chart also includes maize products.

[7] The consumption of wheat and products in Guatemala depends completely on imports.

Chart 15: Imports as % of Domestic Consumption



Source: authors with FAOSTAT data

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). Because of the different dynamics in both types of maize, understanding the effects of COVID-19 in this specific sector requires separating the analysis into white and yellow maize.

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

Table 4: White maize

Value Chain Function	Critical value chain characteristics	COVID-19 effect
Input supplies and production	Largest number of actors of any food value chain in Guatemala which makes it difficult to reach and coordinate with 8.7% of the agricultural planted area in the country is dedicated to maize (ENA, 2019-2020). Production levels 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).	National support programs to support producers face sizable challenges to reach most, spatially dispersed farmers.
	Hillside agriculture practiced by most smallholder farmers with limited access to improved seeds and fertilizers.	Change in cost of inputs, particularly fertilizers
	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 limitations and an overall increase of cost of living.
	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.

Commer-cializa-tion	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 have been increases in production and logistics costs.

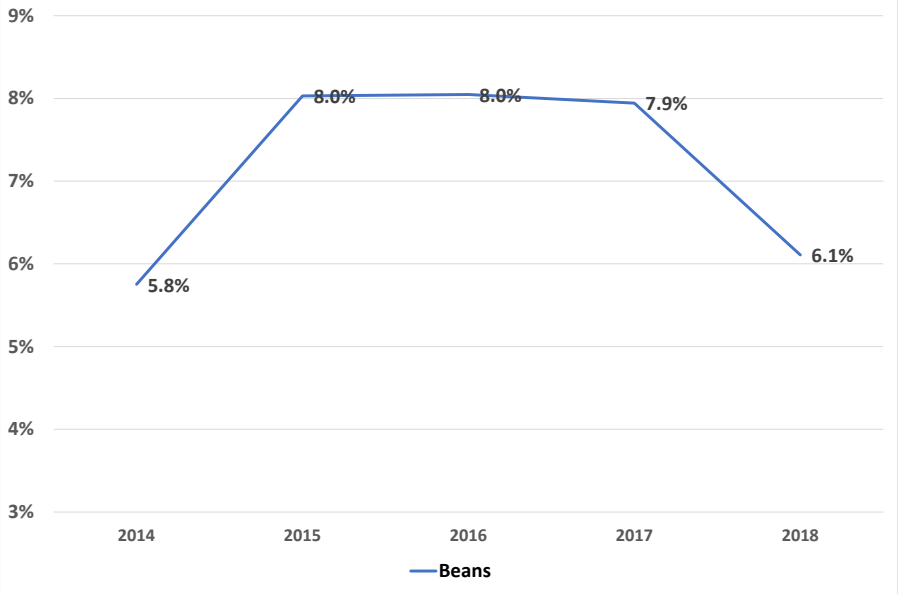
Table 5: Yellow Maize

Value Chain Function	Critical value chain characteristic	COVID-19 effect
Input supplies	In 2018 alone, roughly 988,000MT of yellow corn were imported mainly from the United States. Guatemala is not 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).	Getting access to corn has been difficult as other countries with large poultry sectors (China, U.S. and Brazil) are buying feed more aggressively than usual.
	Local maize production reports for 2020 are not available yet, but an increase in local supply is also forecast.	Change in cost of inputs, particularly fertilizers
Commer-cialization	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)

b. Guatemala bean value chain

Chart 16 shows the percentage of imported beans (and pulses) in domestic consumption. Basically, Guatemalan consumption of these products depend on domestic production, but as noted later, there is a component of imports that makes that world prices also influence the national market of this product.

Chart 16: Imports as % of Domestic Consumption



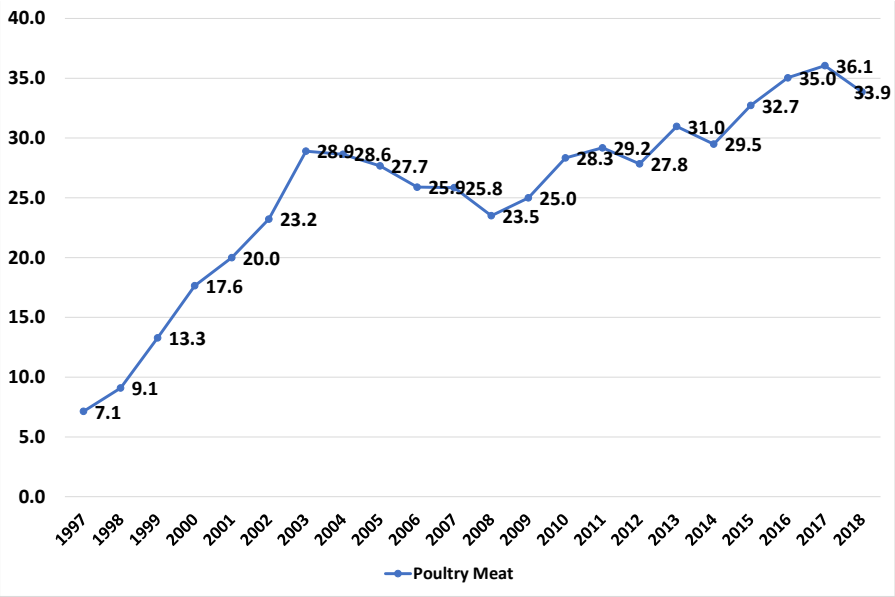
Source: authors with data from FAOSTAT

Table 6: Beans

Value Chain Function	Critical value chain characteristic	COVID-19 effect
Input supplies and production	193,000ha planted (1.7% of the cultivated area in Guatemala (ENA 2019-2020). 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). 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 10% above the normal changes from season to season.
	Most of the area planted is under 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% of bean growers plant quality seed of improved varieties.	COVID-19 has restricted the ability of farmers to access quality seed of improved varieties. Much progress gained in dissemination of bean varieties was lost which would lead to lower yields.
	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 year for 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 of white maize has been uninterrupted. 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 with the exception of 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.	There have been increases in production and logistics costs.

Chart 17 shows the percentage of poultry imports on domestic consumption.

Chart 17: Poultry Imports as % of Domestic Consumption



Source: authors with combined data from PSD/USDA and FAOSTAT

About 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 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 0.2%).

Table 7: Poultry

Value Chain Function	Critical value chain characteristic	COVID-19 effect
Input supplies and production	The country's production is estimated at 572 million pounds (USDA and FAO estimates, the 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.
	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 (MT). 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 containers of mechanically deboned chicken paste, which serves as raw material for the sausage industry. Leading importers are Pollo Lindo and Pollo Rey (FAO) d and MINECO 2019)	Market prices of chicken and eggs have also increased from 15%-18%. The influx of Mexican eggs has alarmed the poultry sector, but it only happens some months out of the year.

Analysis of the operation of selected value chains under the pandemic.

The business climate for the major food value chains under this assessment is divided into three 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 helped to support incomes and employment.[8]

Although the news of nation-wide support programs was well received by the private sector, decision-making among operators of the value chains analyzed have relied on market reaction within their immediate geographic scope. In the case of maize, beans, poultry meat and eggs, 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

[8] For example a World Bank program 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.

had to adjust to tighter food purchasing budgets in a matter of three months with minimum hope of GoG relief programs.

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 had been 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.

The analysis of the impacts of COVID-19 on the four products is summarized below. 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

As noted before, the government strengthened social and food safety nets through a variety of mechanisms, some more rapid and effective than others (WFP 2020). 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 for food production right at the onset of the rainy season 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) 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.

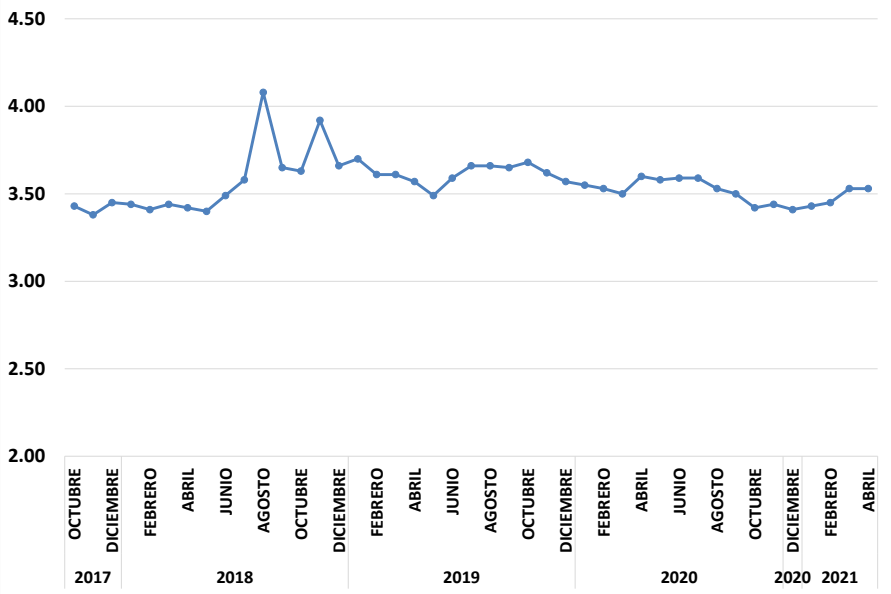
COVID-19 impact on the maize and beans value chains

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) the 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 PrensaLibre, 2020).

Chart 18 shows the price of maize tortilla (data from the "Canasta Básica Alimentaria" reported by INE; last data from April 2021).[9]

Chart 18: Corn Tortilla (Q/460grs)



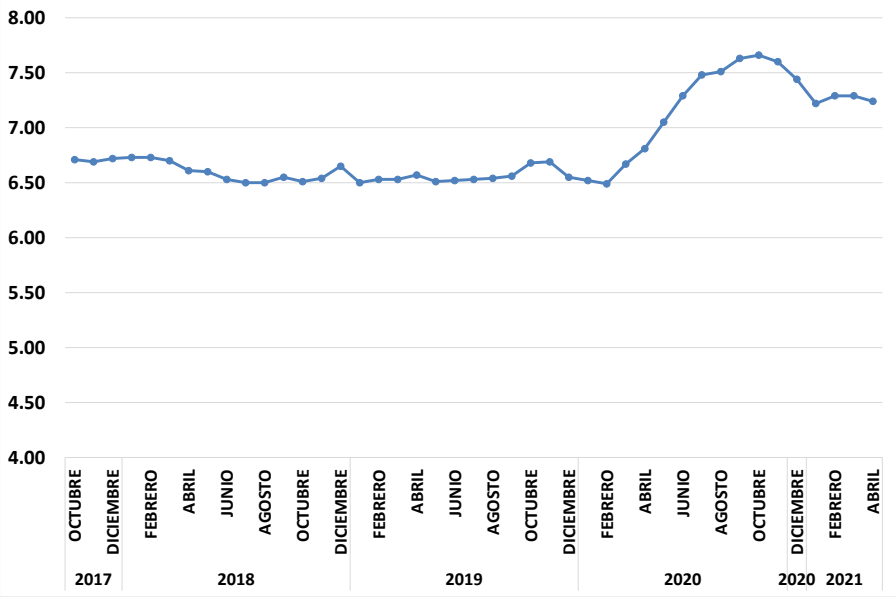
Source: authors with data from INE

It should be noted that this is the consumption of the product already processed (tortillas), which price may move somewhat differently from 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 3) has not changed much from the average during the period considered (since last quarter of 2017), with the exception of the price spike in 2018. In other words, the pandemic does not seem to have registered at the level of consumer prices (although this can be a combination of lower supply and lower demand, and not that there were no problems in the value chain).

Chart 19 shows the evolution of the price of beans ("frijoles") also as registered by INE in its calculations of the Canasta Básica Alimentaria.

[9] 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 19: Beans (Q/460grs)



Source: authors with data from INE.

While the price of corn tortillas did not change much, 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 seems to be explained by some level of panic demand in several countries, and shortages in world markets: 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.[10]

Poultry chicken and eggs have gained market share during 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.

[10] 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.

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. Next Table 4 shows prices of animal feed (interviewee accounts), which shows important increases until about August-October 2020.

Table 8: Field-checked price of feed

Manufacturer	Price April - July	Price August -October	Difference
PURINA	Q.177.00 laying hens	Q.221.00 laying hens	24% increase
	Q.177.00 fattening	Q.215.00 fattening	21% increase
Molinos Santa Ana	Q.185.00 laying hen	Q.185.00 laying hen	Same
	Q.210.00 fattening	Q.220.00 fattening	5% increase

Source: authors from interviews

ANAVI (2020) reported that Guatemala's strong egg consumption culture continued to be stable through June (reflected in consumer prices; see Chart 20), but more efforts were placed to promote consumption as a cost-effective way to purchase protein for the households. ANAVI's president confirmed that the consumption of poultry products during this year showed an increasing tendency despite COVID-19. Poultry meat grew between 2 and 3 percent while the egg consumption between 4 and 5 percent.

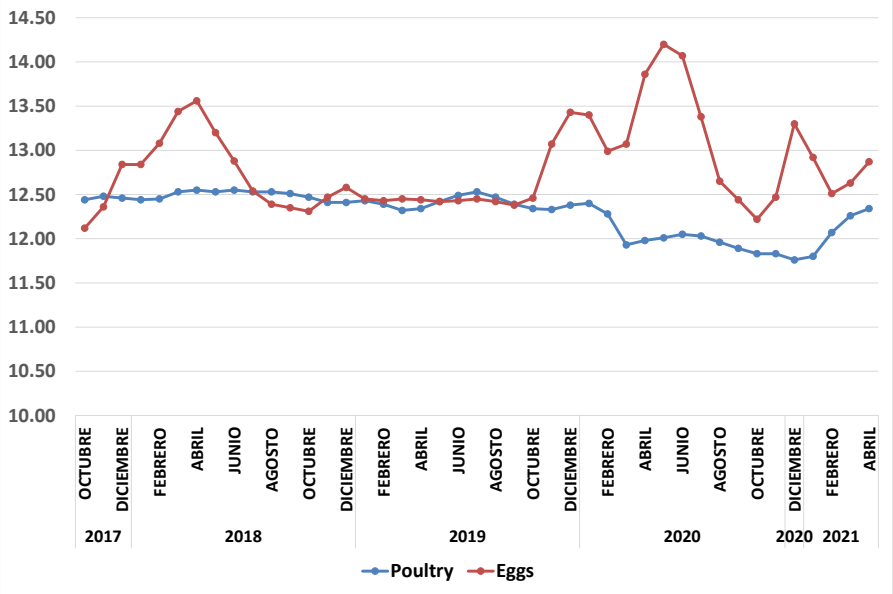
Interviewed in the first months of 2021, some poultry operators confirmed that the biggest challenge during COVID-19 has been securing the feed supply (soy, yellow corn and micronutrients), packaging (paper and plastic), and fertile eggs. These are inputs that are mostly imported, and Guatemalan producers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

In January 2021 another development was that IDB Invest, a member of the IDB Group, approved a loan for US$75 million to the Corporación Multi Inversiones (CMI Alimentos) (a Central American family corporation with more than 40,000 employees operating mainly with food production and restaurants with brands such as Pollo Campero and Pollo Granjero). The financing supports fixed investment maintenance plans, and the strengthening of the operations of the value chain, both regarding the more

than 8,000 suppliers and in relation to the small firms that are the direct sales channel in Guatemala, Honduras, and El Salvador. It is still too early to determine the impact of this project.

Consumer prices for poultry meat and eggs reported by INE are shown in Chart 20.

Chart 20: Poultry (Q/460gr) and Eggs (Q/648gr)



Source: authors with data from INE.

The price of poultry meat at the consumer level was in fact declining during the pandemic, but started to climb again in 2021. However, it reached only the average for the period 2017-2019. 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 declined to that average, only to have a smaller increase afterwards. The last price reported for April 2021 is about 2% above the average price for 2019. Those cycles have been influenced by the strategies of producers (mentioned before) 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 immediately).

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 contraband, does not pay import taxes. The amounts imported are hard to determine, but it is estimated at 5-7% during several seasons 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 Annex 1, had the experience of applying to any of these funds or was aware of what happened to those programs in the poultry business.

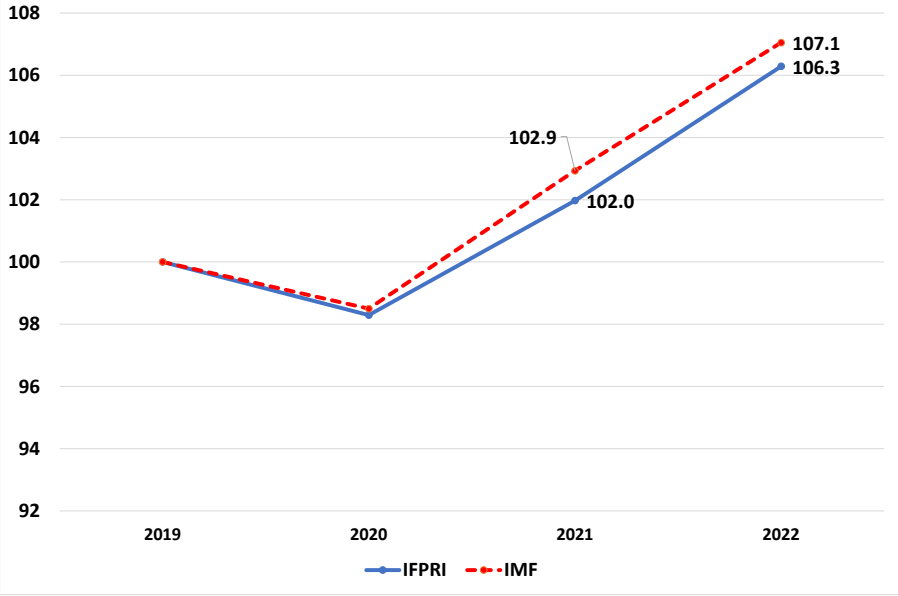
Despite some positive news on market performance, the compounded effect of the pandemic on health, jobs, demand and the functionality of input and credit markets is still undetermined. Continued policy work and governmental support to the economy will be necessary for the next few months until the economy returns to the expected levels of normalcy. Specific case studies are included in Annex 1.

RESULTS FROM THE PREVIOUS SIMULATIONS AND SOME UPDATES

In the previous report we presented simulations for 2020 to 2023 using the MIRAGRODEP model with epidemiological adjustments (see Annex 2 with more details). The simulations included three scenarios: optimistic, intermediate, and pessimistic. They were performed around October 2020, with the information available at that time, and without including governments' policy responses.

The next Chart 21 shows IFPRI simulations (averaging the results for the 3 scenarios) with the current projections by the IMF, which include the existing information until April 2021. The comparison is for total GDP, and it is done rebasing 2019 to 100.

Chart 21: Total GDP (index 2019=100)



Source: authors from IFPRI simulations and IMF/WEO database.

It can be seen that the average of IFPRI projections were very close to the actual values for 2020 but have been slightly more pessimistic for 2021 and 2022 (the difference is less than 1% in total GDP).

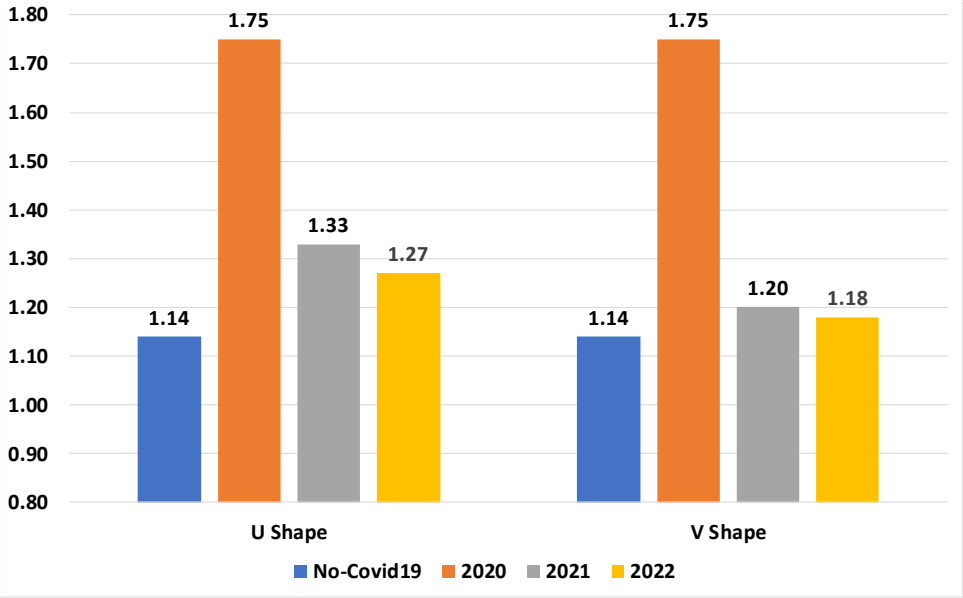
From the sectoral point of view, the IFPRI simulations showed that the agricultural sector would have had positive growth in 2020, while the affected sector were industry and services (which is what happened). For 2021, the simulations suggested that the agricultural sector may be affected negatively by the delayed impact of the pandemic, while the other sectors would have rebounded. This year is still in evolution, so it is too early to tell whether the agricultural sector would be affected by such lagged effects. Also, prices of agricultural commodities in world markets rebounded but for reasons not necessarily related to the impacts of the pandemic. Therefore, the simulations for the current year and the next one will have to be revisited at some point.

The simulations also 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. Dairy, meat and fruits, vegetables and pulses (FVP) were expected to decline more than grains and sugar, while processed foods were not simulated to decline, while vegetables increased. This suggested a reallocation of consumption to less healthy diets. The simulation for 2021 consumption of most products still showed declines compared to the baseline.

In summary, 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 in the previous report) were done without considering the policy responses, which were still evolving at that time. It was shown before that the government of Guatemala expanded social protection and other related programs by about 3.2% of the GDP, which should have certainly cushioned the economic shock of the pandemic on employment and incomes.

Chart 22 shows the estimated evolution of extreme poverty (at 1.9 PPP dollars/capita/day) in the previous report.

Chart 22: 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, 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 even in 2022 above the 2019 levels.

A recent report of the World Bank (2021) estimates the difference in what would have been the poverty levels at 5.5 PPP dollars/capita/day (a higher poverty line) during 2020, considering the situation without and with policy responses.

Table 5 shows the percentage of the poor population at that poverty line in 2019, and the range of estimates in the cases of no policy response, and with such responses for 2020. There are no projections for 2021 or 2022.

Table 9: Guatemala: Population below poverty of line of 5.5 PPP dollars/capita/day

	2019	2020. No policy response	2020. With policy response
Percentage	43.3	47.2–53.9	43.9–49.3
Number (millions)	7.19	8.39	7.74
Change in numbers (millions)		1.2	0.55

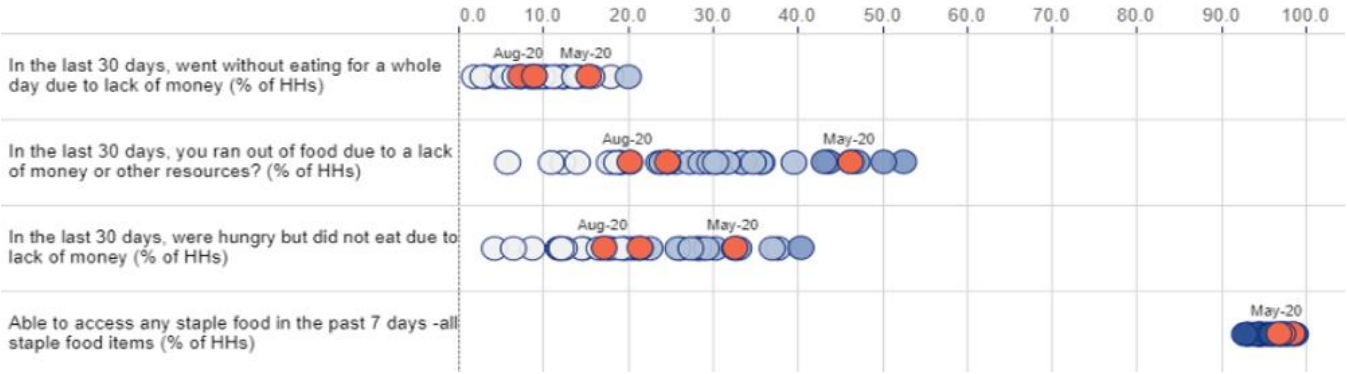
Source: Source: authors with data from Annex 8 WB 2021c from calculations in Diaz-Bonilla, Carolina, Laura Moreno Herrera, and Diana Sanchez Castro. Forthcoming.

The policy response is estimated to have cut by more than half the number of additional poor generated by the pandemic. If the same proportion is applied to the estimates for 2020 reported in Chart 22 at the poverty line of 1.9 PPP dollars/capita/day, then the increase in extreme poor would have been about 275,000 persons and not somewhat more than 600,000.

It should be noted that the latest information available from household surveys in Guatemala is from 2014. Until new household surveys are conducted to update those numbers, the estimates discussed above are preliminary.

There is however information for some variables during 2020 collected by the 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). Among the information collected are the questions on food security reported in Chart 23. It shows the results for Guatemala (orange dot), compared to the answers for other LAC countries with data. The dots also indicate the time of the survey, which allows a tracking by time of the impact of the pandemic.

Chart 23: Food Security Indicators



Source: from LSMS-Supported High-Frequency Phone Surveys on COVID-19

The surveys indicate that by May 2020, about 15% of the respondents have gone at least one day without food due to lack of money. That percentage dropped to about 10% by August 2020. It seems that the negative impact on food security was declining during the year, in line with the opening of the economy. There are not additional surveys for Guatemala after August 2020.

Even with the improvements, if those numbers are extrapolated to the total population, the percentage in August would represent about 1.6-1.7 million people, 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). The third question is less strict than the first (whether the respondent was hungry but not completely lacking food, as in the first question), and therefore the percentage in August 2020 of households suffering that problem was larger than for the first one: 20% (although it was a decline from May when it was closer to 33%). Extrapolating again the results from the surveys, the percentage of the population with hunger in August would have been 3.2-3.4 million persons.

SOME PRELIMINARY POLICY CONSIDERATIONS

In this section, we present some considerations about the policies needed to emerge from the pandemic and, hopefully, improve the welfare conditions in Guatemala, especially for the poor and vulnerable.

Health Issues

As noted in the previous report, the simulations by LSHTM (see Annex 2 for the references) estimated a larger number of deaths absent health mitigation measures than what seems to have occurred in Guatemala with the mitigation measures applied. Therefore, a preliminary conclusion in the previous report was that the health measures implemented in Guatemala would have had the beneficial result of reducing the death toll (from some estimated 19,000 deaths without mitigation measures to about 3,400 deaths). Notwithstanding, it was also noted 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.

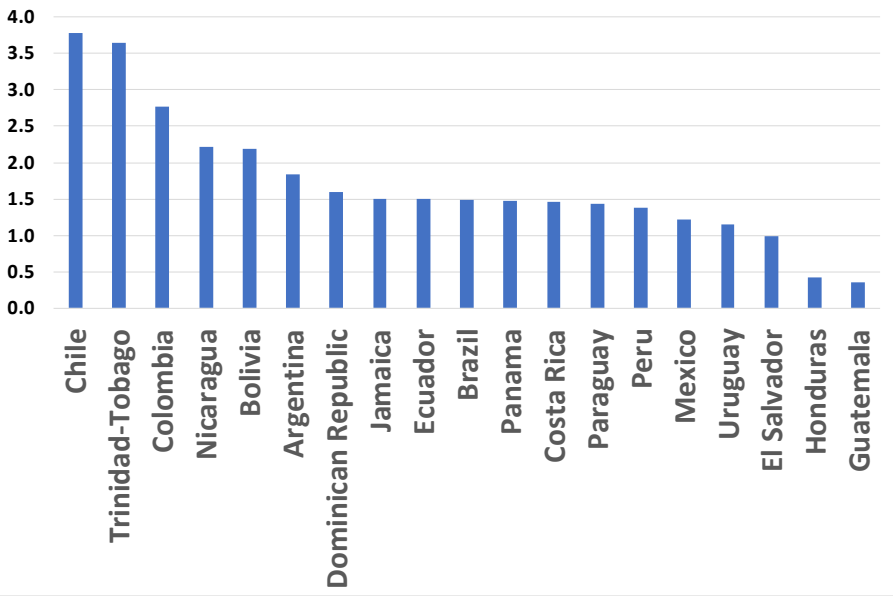
What is clear now is that the opening of the economy, necessary to sustain incomes and employment, has led to the larger levels of mobility documented before, which in turn may be generating the current increase in contagions and deaths. Therefore, the only way out of the dilemma economy versus health

is to step up the work on vaccinations; and this is an area in which, as noted, Guatemala is badly lagging. As an additional component it seems necessary to strengthen testing and contact tracing, and isolation of identified cases, to slow the evolutions of the pandemic, while updating the treatment protocols.

Social protection

The impact of the pandemic will continue in 2021 and beyond. Therefore, social safety nets will have to be maintained and expanded. Before the pandemic, Guatemala had the lowest levels of expenditures on social assistance programs in Latin America and the Caribbean (about 0.3% of GDP in the last data available in 2013) (Chart 24).

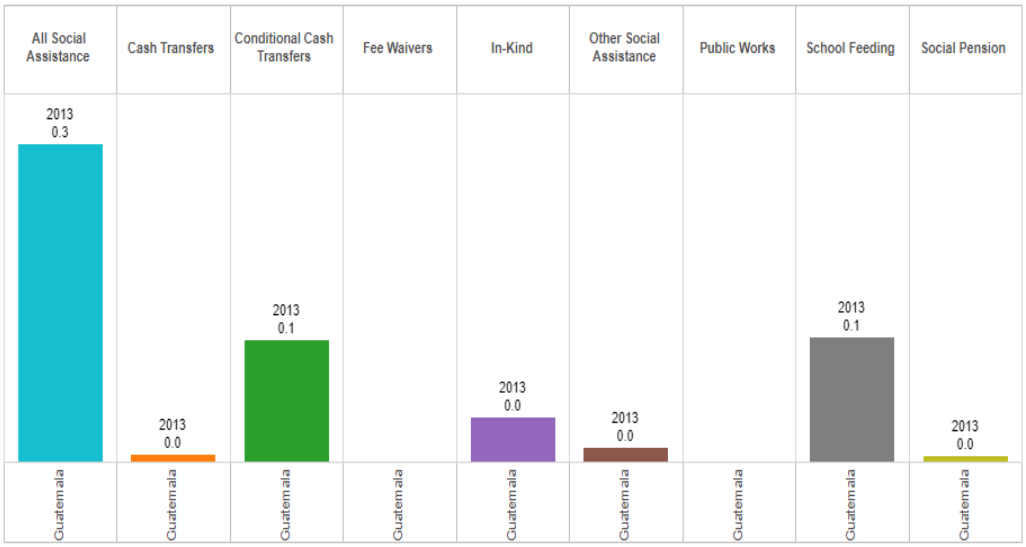
Chart 24: Social Protection (% GDP)



Source: ASPIRE Database, World Bank.

The next Chart 25 shows the distribution of social programs, which are basically conditional cash transfers (CCT) and school feeding.

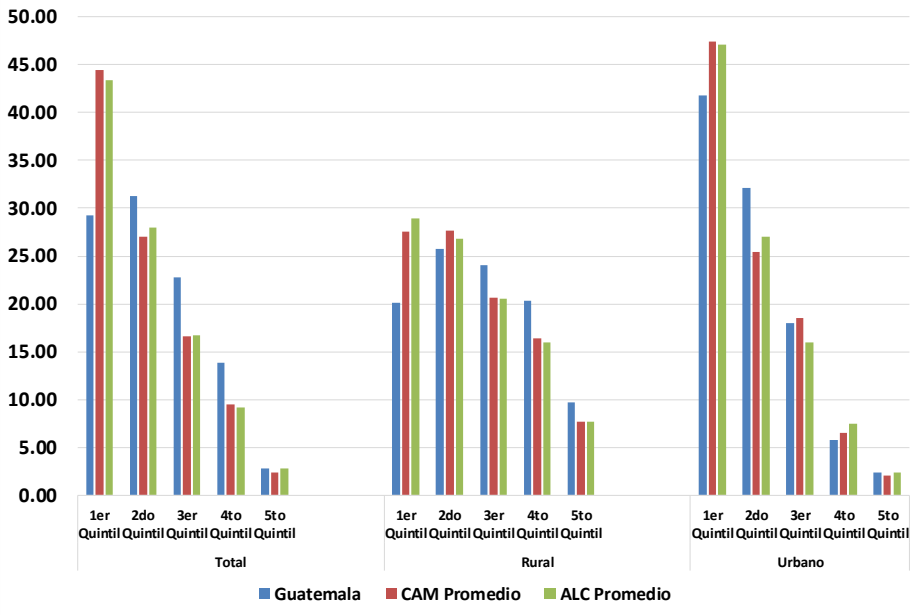
Chart 25: Public Spending on Social Assistance Programs (%GDP)



Source: ASPIRE database, World Bank.

Chart 26 shows the incidence of the CCT program by beneficiaries, i.e. of the total number of people receiving the transfers what percentage of them are in each quintile (the first quintile, being the poorest). That distribution is compared to the average for Central America and Mexico, and for all LAC.

Chart 26: Incidence Beneficiaries



Source: Authors with data from ASPIRE, World Bank.

Guatemala appears to have fewer beneficiaries in the first quintile than the comparators, and more in the third and fourth, which suggests a failure in targeting. The problem seems to be more pronounced in rural areas.

Unfortunately, these numbers are based on old household surveys (2013-2014). It is crucial to update the information to have a clearer view of what is the coverage of current social programs.

The additional expenditure on social protection associated with the pandemic reached about 1.2% of the GDP. If maintained, that value would place Guatemala more in line with other LAC countries (although on the lower end of the range; see Chart 25). The country's poor would certainly benefit from both an increase in the funding for those programs and better targeting.

The second aspect (the need for better targeting) is obvious if the objective is to help the poor, when now part of the money is leaking to higher income groups.

Beside the increase in funding and better targeting, a third aspect to consider is the reconceptualization of the operation of CCTs to adapt them to rural conditions. It has been argued that in many of the countries, social assistance programs in rural areas have simply been a mechanical extension of the urban social protection system, in which those in formal employment receive benefits within contributory systems and the poor and those with informal jobs are served with non-contributory schemes, to try to remedy ex post labor problems and income distribution.

This discussion is leading to consider the development of specific models of social protection that consider the specific characteristics of the peasantry, small producers, and informal workers in rural areas (see, for example, Natalia Winder 2018; Ana Paula de la O Campos et al., 2018; FAO, 2016, 2017 and 2018).

Guatemala could analyze the adequacy of conditional cash transfer programs in rural areas, expanding the focus to productive and technological support that can contribute to improving the economic and environmental sustainability of the families involved. It seems relevant the analysis and creation of an instrument for the rural area that can combine the social, productive, and environmental dimensions, with a percentage of cash transfers related to poverty levels; another to cover the additional cost of implementing sustainable adaptation and mitigation technologies; and another for environmental, forest, biodiversity, and ecosystem protection/restoration services. This instrument could include other forms of productive, organizational and commercial support for poor producers.

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 Andrews et al. 2021). Special emphasis will be placed on the support to women and youth.

These instruments may be particularly important to reduce migration. 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).

Although the causes of migration are complex and involve push and pull factors, a recent study by Ceballos and Hernandez (2020) go deeper into the characteristics of the households of people that migrate, through a "migration propensity index" estimated for Guatemala. It uses a reduced set of indicators (from IFPRI's household surveys) to assess the likelihood that one or more individuals from a given household will emigrate out of the country.[11] They analyzed 48 variables and selected 12 that correctly identify 93 percent of eventual emigrating and non-emigrating households. They show that the families that receive "Bolsa Segura," produce in more than 1/10 of a hectare of land, grow a high-value crop, have made improvements in their homes, and are older and more educated are less likely to migrate. Those findings offer several clear entry points for better policy interventions that improve the livelihoods

[11] The estimated variable was whether someone in household migrated to another country in the previous 12 months

of poor people while reducing migration, including the expansion of social protection and social assistance programs.[12] Additionally, the emergence of the "new poor" from the current pandemic should also lead to expansion and reconfiguration to the urban programs.

Nutrition problems

Lower incomes or no incomes (and perhaps increases in prices in the domestic prices of some foods due to supply disruptions and devaluations) are in general leading to declines in food purchases in general and to some shifting of purchases towards cheaper and less nutritive products (buying more starchy and calorie-intensive products and less of those rich in proteins, vitamins and minerals) (Headey and Ruel. 2020). These problems are also highlighted in the simulations presented here. 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).

Food (and nutrition) insecurity 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 three 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 such as improving credit programs.

Food value chains

This report has summarized the situation of the Guatemala maize, beans and poultry (meat and eggs) value chains during the COVID-19 pandemic from April 2020 through the second quarter of 2021. In one of the most atypical years for the recent history of the country, the food value chains under study have shown a level of resiliency that was not expected a year ago. Actors in the four value chains have shown they can adapt to difficult conditions and move towards their gradual recovery.

Addressing COVID-19 disruptions from here on involves addressing market failures that were already the norm prior to COVID-19, particularly for the basic grains sector. 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. How to benefit them all 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 (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.

[12] 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.

Other problems are the limitations by small farmers for the uptake of the technological advances in climate-smart approaches. One is the lack of financing, both for them and their associations and cooperatives, and for the public and private institutions working in the sector. There are basically four sources of finance: 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 some levels of returns considered adequate, also include environmental and social objectives (Díaz-Bonilla, 2021). One of the problems, however, is the lack of projects and investable opportunities organized for small farmers and structured in ways that can attract financial resources (Sadler et al. 2016). 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; involving, in the case of water projects, complex issues of water rights and environmental sustainability; and need 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 assets too) as 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).

Macroeconomic policies for the pandemic

Public debt, which was below 27% of the GDP in 2019, is estimated to increase to about 35% by 2023 (IMF, 2020) indicating 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.

Fiscal, monetary, and exchange rate policies will have to be managed in a consistent manner to ensure a sustainable macroeconomic path going forward (Díaz-Bonilla, 2020).

In particular, the scheme of “zero hunger bonds” could be utilized as explained in Díaz-Bonilla 2021.[13] In a separate document this possibility will be discussed in greater detail, particularly in the context of both the program for the Central American triangle and the Summit of the Americas.

[13] The specific design 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.

REFERENCES

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

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

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-mipymeCeballos, 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.

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.

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 responses, 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/uploads/2021/05/FSS_Brief_Financing_SDG2_and_Ending_Hunger.pdf

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

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 alimenta-ria” http://www.fao.org/reduce-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-detail/en/c/1106391/GAFTAWorld, 2020. Prepare agriculture for the next Covid-19. Issue 246. Nov. 2020. https://www.gafta.com/write/MediaUploads/Gaftaworld/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, Guillermo Galicia, Veronica Lopez, Georgina Marin, Ingrid Veronica Mujica, Harish Natarajan, David Newhouse, Robert Palacios,

Ana Patricia 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 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/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020

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

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

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

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

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;

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

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

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

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 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

ANNEX 1. CASE STUDIES

Case 1. Micro Enterprise Level
Xalín Iquic, a small poultry farmer in San Juan Sacatepequez

Mr. Iquic has been in the poultry meat and egg business for over ten years. He mentioned that the most critical factor for his operation to stay afloat is the cost of inputs. His most critical factor is staying physically close to his client base to minimize time and cost of delivery. Riding on these key business practices, he has been able to navigate the COVID-19 pandemic without changing his base stock of 500 hens per galley which allows his company to supply eggs 365 days a year and generate extra income by treating the chicken manure which he supplies to flower production farms around the same town.

Case 2. Small Enterprise Level
Asociación Comunidad Esperanza (ACE) in Alta Verapaz

Mr. José Enriquez of ACE's poultry farm expressed that his operation did not suffer adverse effects on the price or demand eggs. Mr. Enriquez was nervous at the beginning of the pandemic (April-May) as demand increased following the social-distancing government measures.

This egg producer manifested that a decrease in demand was experienced during June and July 2021, due to the illegal sale of eggs from Mexico. Knowing that this is a phenomenon that has happened before during some months out of the year, his company started marketing more aggressively reminding clients that Mexican eggs only have a five-day shelf-life as it was produced weeks before it arrived to Alta Verapaz. By comparison, local ACE eggs can last up to 15 days. This helped his company get back on track with demand.

Case 3. Medium Enterprise Level
Mr. Carlos Fortin Caal in Purulha Baja Verapaz

With an installed capacity of 2500 stock, Mr. Fortin Caal slaughters 1500 chickens every two weeks for regional market. Although he was nervous at the onset of the pandemic social-distancing regulations, his company experienced a sudden increase in demand. Not only that was positive, but the price of chicken that remained stable at $0.90/lb from January through March 2020, increased to $1.22/lb by mid-April 2020. This advantage in a higher price was positive for his operation and against his expectations during COVID-19. Also, contrary to other operations, the cost of feed and broiler chickens has only experienced a slight 3% increase. Mr. Fortin Caal also receives income from treated chicken manure sold to the nearby vegetable farms.

Case 4. Industrial Producer
Avícola Villalobos (AV)

AV is a high-tech, large capacity poultry meat operation with nationwide distribution channels. Their strong volume capacity, brand positioning (Pollo Rey) and company structure allows them to react to market shocks creating different supply scenarios that absorb price shocks easier than smaller opera-

tions. During a phone interview with Production Manager for the Pollo Rey brand, Engineer Carlos Garcia, he indicated that government regulations on social distancing had an impact during the beginning of the pandemic. The pandemic forced this operation to adapt to a new normal by the use of three competitiveness measures. First, scaling back poultry meat production by 30 percent during the months of April and May in direct respond essentially as a product of government actions. Reducing the stock population from 100,000 to 70,0000 units per galley was one of the changes made at the company.

Second, a lower price management was necessary to withstand the price set by illegal competition from Mexican contraband chicken during the months of May through July. And third, the company prolonged the maturity time of broilers from 38 to 45 days generating a maximum weight of 3.60 pounds/unit. This measure generated a determining factor in the quality of chicken meat which combined with a competitive price helped them stay afloat. Unfortunately, the pandemic also forced the furloughing of some personnel in the galleys

The price of chicken was stable at $0.85/lb during the July-October period with an increase of 18% in the final months of 2020. This increase could be due to a combined effect of increased demand for the holiday season, more product substitution away from beef and pork and less or same level of production by small-scale, local competitors.

The company plans in increase production by 10% in 2021 in response to market intelligence from ANAVI which has forecast per capita consumption of chicken in Guatemala to increase 33% in 2021 from 41.45lb to over 60lb (ANAVI 2020).

ANNEX 2. SIMULATION MODEL

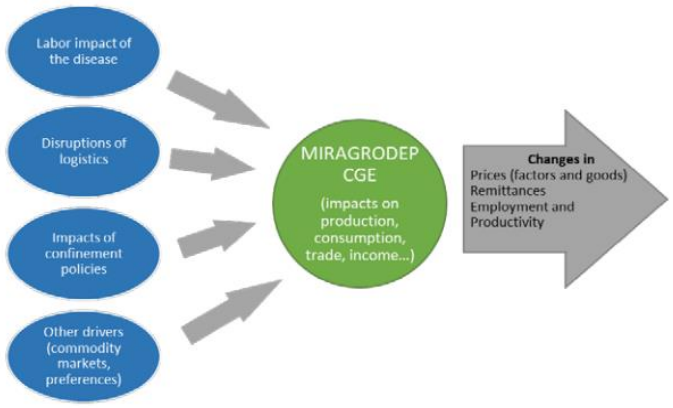
The simulations start with year 2020 and extend to 2021 and 2022. There are three global reference scenarios and they are compared to the counterfactual of no Covid-19. Those three potential scenarios are related to the speed of recovery represented by different shapes of the upturn. A first scenario is **V-shaped.** It assumes quick control of the outbreak, financial stimulus for investors, central bank support and continued demand from national, regional and international markets. The second global scenario is **U-shaped.** It includes financial stimulus and central bank support, but the control of the outbreak is slower and/or the recovery of demand from national, regional and international markets is also sluggish. The third global scenario is **W-shaped,** with a slow recovery of demand that stays below pre-outbreak levels, followed by countries prioritizing national/regional markets over international markets, which would force a change in investment strategies and reallocation of capital across countries/regions. This scenario could also happen with a second outbreak of the virus.

The implications of the economic slowdown for poverty and food insecurity depend on the assumptions made about the duration of the pandemic and the transmission mechanisms.

The analysis was done focusing on a COVID-19 scenario for 2020 and under a range of assumptions of short-term impacts of the pandemic for the next two years. The factors underlying the socio-economic effects of COVID-19, such as health impacts, and the mitigation strategies the countries impose, including social distancing measures, restrictions on labor mobility and on international transport, define the design of the scenarios. Then using IFPRI's MIRAGRODEP model, this paper analyzes the impact of the pandemic on economic growth, incomes, employment, consumption, prices, trade, and poverty.

The direction of causality in the model is shown in Chart 12.

Chart 27: Modeling Framework



Source: Laborde, Martin, and Vos, 2020.

The methodology builds on David Laborde, Will Martin, and Rob Vos (2020) but differs in the epidemiological assumptions, which are based on the scenarios run by the London School of Hygiene and Tropical Medicine (LSHTM) (Pearson, Van Zandvoort, Jarvis, Davies, Thompson, Checchi, Jit, and Eggo. 2020).

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