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Turkey's Economy and a Policy Alternative
to Protect Labor Incomes**

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July 2020

WORKINGPAPER SERIES

Number 518

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RESEARCH INSTITUTE**

A General Equilibrium Analysis of the Impact of the COVID-19 Outbreak on Turkey's Economy and A Policy Alternative to Protect Labor Incomes *

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ABSTRACT

The COVID-19 pandemic is being experienced as a *multidimensional systemic* crisis based on the simultaneous manifestations of the *supply, demand, and financial* shocks. These effects have already been realized in the exacerbation of deep inequalities in income distribution, in functional, regional, and gender terms; in access to public services that are commercialized; and therefore, in an environment where poverty is experienced with social exclusion due to severe inequalities of income.

The crisis has hit the Turkish economy under a conjuncture where the adverse effects of the 2018 financial turbulence have not yet been alleviated, and the macroeconomic balances have not been resolved in a sustained fashion. Turkey has displayed already high rates of unemployment (at the rate of 13.6%) and inflation (11%) by the end of 2019. Projections by the IMF also reveal that as a result of the economic measures of isolation and employment disruption, Turkey's GDP will likely contract by 5% in 2020.

Given this background, our aim in this study is to analyze the upon-impact effects of the COVID-19 outbreak on Turkish economy and to investigate policy alternatives that can be implemented against these impacts. We utilize a **macroeconomic applied general equilibrium model designed** for this purpose; and examine the effects of the crisis conjuncture caused by the COVID-19 outbreak on sectoral production, employment, wages, and capital revenues, national income, and foreign trade balances. Then, we provide an analysis of defensive policies that can be developed against the crisis.

Key words: Covid19 crisis, Turkey, socially relevant policy, labor, general equilibrium

* This study is supported by a research grant from the *The Scientific And Technological Research Council Of Turkey* (Tübitak-SOBAG) under Project no. 120K541 "**COVID-19 and Society: Social and Economic Impacts of the Pandemic, Problems and Solutions**". The results presented in this study are based on the leading indicators of this research project. The authors wish to thank Tübitak for research support, and to Korkut Boratav, Erol Taymaz, Kamil Yılmaz, Oğuz Oyan, Mustafa Sönmez, Cevat Taşırın and Güneş Tomruk for their valuable contributions and suggestions; and to Gökberk Bilgin for his diligent assistance.

Introduction

The Covid-19 infections were first observed in the Wuhan region of PR China in November 2019 and later announced as a *pandemic* by the World Health Organization on 11 March 2020. Over the course of the last six months, the pandemic has turned into a real threat to the global economy, affecting both the *supply side*, disrupting the value chains in trade and production, and the *demand side*, adversely affecting expenditures on consumption and fixed investments.

In its most recent report, *World Economic Outlook*, The IMF projected that the world economy will shrink by as much as 3% over 2020. In comparison to the earlier projections before the spread of the pandemic in January 2020, the new forecast meant a collapse by 6.3%. Likewise, the UN Conference on Trade and Development (UNCTAD) reported that by the end of April 2020, losses in global exports has already reached 50 billion US\$; and by the end of the year this sum would likely to reach to 800 billion US\$ only in the developing World.

Both UNCTAD and IMF reports expect a severe contraction of the global financial markets. Since the beginning of the pandemic in March 2020, outflows of capital from the developing and emerging economies (DEEs) has already exceeded 70 billion US\$. This has been accompanied by a severe rise of the global debt to 260 trillions US\$ (322% of the global value added), confirming very clearly the view that the adverse economic effects of the crisis will not be mitigated by monetary policies or by credit expansion alone.

Thus, the COVID-19 pandemic is being experienced as a *multidimensional systemic* crisis based on the simultaneous manifestations of the *supply, demand, and financial* shocks. These effects have already been realized as a direct exacerbation of deep inequalities in income distribution, in functional, regional, and gender terms; in access to public services that are commercialized; and therefore, in an environment where poverty is experienced with social exclusion due to severe inequalities of income. Saad-Filho (2020) describes the Covid-19 outbreak as "*a crisis that cannot be resolved without solidarity, industrial policy and public policy of the state.*"

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Given this background, our aim in this study is to analyze the upon-impact effects of the COVID-19 outbreak on Turkish economy and to investigate policy alternatives that can be implemented against these impacts. We utilize a **macroeconomic applied general equilibrium model designed** for this purpose; and examine the effects of the crisis conjuncture caused by the COVID-19 outbreak on sectoral production, employment,

wages, and capital revenues, national income, and foreign trade balances. Then, we provide an analysis of defense policies that can be developed against the crisis.

Our study's technical aspects involve a general equilibrium model based on the macroeconomic balance of the Turkish economy in 2019. Based on an aggregation of 24 sectoral production activities and two labor types (formal and vulnerable / informal), the activities of the national economy in production, employment, income generation, saving and consumption, and market balances are described through algebraic equations. In the model, **the public sector** engages in taxation, transfers and subsidies, and public consumption activities. The model also implements economic policy tools (subsidization of employment and production promotion). Central government budget covers the fiscal expenditures of the policy tools of the economy, and is resolved endogenously by the model. On the other hand, demand for imports, foreign borrowing and export activities of the national economy are again determined internally by the model under the general equilibrium conditions. In this process, the real exchange rate internally solves the domestic economy's foreign exchange demand and earnings balance (current account financing; the balance of payments flows).

Taymaz (2020) has provided one of the first detailed analysis of the impacts of Covid-19 on the sectoral production and employment along with various policy alternatives.. In his analysis, Taymaz utilized a comprehensive dataset of 2017 and sought answer to the question of *“how would Turkey’s economy be affected in terms of sectoral value-added, employment, wages and total employment if the COVID-19 outbreak occurred at the end of 2017?”*. His study is based on the 2012 input-output dataset and is updated using sectoral value-added and employment shares of 2017 (the most recent official sectorial dataset). The methodology of Taymaz (2020) follows is based on the production connections determined by 2012 I/O coefficients and should be considered as a first step of the *partial equilibrium* results. Hence, the methodology does not take into account the effects that may arise as a result of relative price changes, or the consumption/investment demand and foreign trade effects that will be experienced in all sectors due to the ensuing loss of income.

The most crucial factor here is of course, the epidemiological course of the COVID-19 and the uncertainties regarding what economic measures will be and how they will be implemented. These uncertainties will be multiplied by especially job (and human capital) losses that will occur due to prolonged long-term unemployment; damaged business and household balance sheets; an unavoidable tendency towards reduced/postponed consumption and investment expenditures during the epidemic period, along with their adverse macroeconomic demand impact; weakened global production, trade, and investment networks.

Investigation of the Economic Effects of COVID-19 Crisis

Based on all these observations and initial study results, we implement the demand shocks of the Covid-19 outbreak by imposing a significant decline of **61%** in private

consumption and export demand of **61%** in the "restricted" **air transportation, accommodation, and food services** and **tourism** sectors. Other "limited" sectors are assumed to suffer from a 26% further decline in private consumption and exports for the **textile and clothing, petroleum products, machinery, and white goods industry, automobile - motor vehicles, retail trade, and land transportation** sectors. Besides, in line with the sectoral definition and consolidation in the model, the demand for health services is assumed to increase by 20% after the shock.

In the "restricted" sectors, the formal sector real wages are assumed to decline by 18.2% given the low aggregate demand.

Under the "constraint" shocks against the Covid-19 outbreak, the macroeconomic balance of the model is used to analyze the "*upon-impact effects*" of the crisis. These *effects* go beyond the input-output connections of the national economy which are ultimately restricted to the production process. Here we follow the general equilibrium effects of the decline in the income of households and businesses as a result of income losses due to unemployment and wage contraction, leading to the decline in aggregate demand. On the other hand, declining demand causes the public budget deficit to increase due to the decrease of public tax revenues. Shrinking domestic production and demand lead to the redefinition of the national savings-investment deficit (current account balance). In this process, the exchange rate is also re-adjusted to restore the balance of payments in the foreign exchange market. Consequently, the analysis of these *upon impact effects* constitutes a new balance of the now-contracted national economy. All these adjustments take place within the mechanisms of the overall general equilibrium system.

These macroeconomic *upon impact effects* of the CovidD-19 outbreak and the associated demand shocks on the national economy are presented in Table 1. We show the sectoral production and employment effects in Figures 1 and 2.

<Insert Table 1 here>

The model results illustrate that the upon impact economic effects of the restrictions on the Covid-19 outbreak would be an annualized decline of 26.7% in national income (GDP). Shock waves from the restricted sectors decrease total employment (relative to the end of 2019) by 22.8%, from 28.2 million people to 21.8 millions; The unemployment rate is found to increase from the average of 14.2% in 2019 to 33.7%. Private disposable income declines by 26.5%, and the total private consumption expenditure demand decreases by 23%. Besides private consumption expenditures, the contraction in investment expenditures is found to reach 66.7%.

The model results show a 27.8% loss in total export revenues, given the precautionary measures. Import demand also decreases by 29.5%. Given burden of foreign debt servicing and foreign profit transfers, expected improvement in the current balance remains limited. Thereby, pressures in the foreign exchange market lead to a *real depreciation rate* of TL by 30.5% under the Covid-19 outbreak.

The analysis of the effects of the epidemic at the sectoral level indicate that the five sectors that experience the highest contraction in real production relative to 2019, are *accommodation and food services*, by 55.6%; *tourism*, by 51.5%; *construction*, by 48.7%; *air transport* by 47.7%; and *iron and steel* by 40.5%. In addition, private consumption expenditures show considerable declines in *air transport and accommodation and food services and tourism* (61.1%). The sectoral distribution of employment also follows the contraction in production. We further observe that the shrinking demand leads to price and general equilibrium effects spreading over to overall sectors of the economy.

<Insert Figure 1 and Figure 2 here>

Seeking for an Alternative Against the Economic Effects of the Covid-19 Outbreak: Labor Income Support Programme

Covid-19 outbreak has been taking place in a conjuncture where Turkish economy has shown relatively weak macroeconomic balances, with especially the relatively high budget deficit of the public sector (2.9% as a ratio to GDP) and a stagnant fixed capital investment performance. By the end of 2019, when the national income (GDP) growth was only 0.9%, total employment decreased by 703 thousand people compared to the previous year; unemployment rate increased to 13.6% (16% for non-agricultural labor; 23.9% for the young labor force). In this conjuncture, where the total domestic investment expenditures contracted by 12.4% and the exchange rate (TL/US\$) depreciated by 21.9%, the inflation rate remained high at 11.5%. The ongoing decline was resolved by creating a moderate surplus in the current account balance (\$8.7 billion; 1.1% of GDP).

As a result of the expansionary fiscal expenditure policy developed against contraction of the national economy over 2018/19, the *Central Government Budget* registered a deficit in the *primary budget balance* (0.5% as a ratio to GDP) for the first time after many years; the budget deficit reached to 2.9% of the national income. Deterioration of the fiscal balances resulted in increase of the domestic debt stock to 32.1% as a ratio to GDP, and the *rate of internal turnover* jumped to 132.4%.

This structure unavoidably restricts the effectiveness of the policy measures that can be implemented against any crisis.

As an alternative policy package we utilize the macroeconomic general equilibrium model as a social laboratory by taking into account the conditions described above. The priority of this package is directed to the purpose of supporting household incomes, and it is envisaged to be implemented in the form of a direct income support from the public sector. Technical elements of the mentioned *Labor Income Support* (LIS) package are summarized as follows:

- (i) support for wage earners with a continuous annual income transfer, which corresponds to 50% of the average wage of formal labor;

- (ii) support for the small and medium-sized companies and self-employed; and
- (iii) increased public consumption expenditures by 20%.

The model results show that the fiscal burden of the *LIS programme* will be on the order of 123.5 billion TL in 2019 fixed prices and will reach 2.9% of the 2019 national income. As a result of the implementation of the package, 85% of households' wage income losses are to be compensated, and gross domestic product yields a 60% increase relative to the level likely to be created by the Covid-19 outbreak (see Table 1 above).

Thus, relative to the pre-epidemic values realized in 2019, the loss in labor income remains below the program only at 6.67%. Supporting labor incomes in this way will primarily stimulate private consumption demand. Model results state that the consumption expenditures under the LIS program will increase by a 6.67% acceleration relative to the effects of the Covid-19 epidemic. Thus, with these multiplier effects, gains spread throughout the economy. The stimulated incomes through the intermediate input-output linkages lead to a 14.43% expansion in national income (GDP), resulting in national income losses that will be relative to 2019 as 16.17%.

<Insert Figure 3 here>

The LIS program also creates relatively positive results in public sector budgetary balances, and reduces the budget deficit to below half of what had been projected under the Covid-19 scenario. Along with the indirect effects due to the economic recovery, public budget revenues have increased by 45% relative to the COVID-19 environment. Model results indicate a rise by 59% in the production tax revenues relative to COVID-19; and indirect consumption tax revenues also increase by 51%. The increase in corporate income tax revenue reaches 27%. Therefore, against the 274 billion TL in the COVID-19 balance, 57.3 billion TL (274mil - 217mil) of the package cost is "recovered" thanks to the revival created by the proposed alternative strategy. Thus, the ratio of the budget deficit to GDP is reduced from 12.3% under the Covid-19 outbreak, to 6.3% under the LIS package application (2019 level was 2.87%).

<Insert Figure 4 here>

The sectoral distribution of production recoveries is displayed in Figure 5. Model results indicate that the sectors that showed the fastest increase compared to the Covid-19 outbreak are *construction* (54%), *iron and steel* (51%), *cement* (35%), *chemicals* (17%) and *machinery and household appliances* (22%). The revival, which is ultimately based on invigorated consumer demand, is maintained primarily through intermediate goods and investment sectors. On the other hand, these results are due to the increase in the demand for the economy's fixed capital investment by 124% relative to the Covid-19 scenario, decreasing from 66% to 25% relative to 2019.

<Figure 5 will enter here>

In sum, we find that the benefits of an income transfer programme targeting labor incomes will produce quite conducive results, and furthermore, it's fiscal costs will be modest. Yet, conditions for applying such a policy package will surely be dependent on the political will and political determination.

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Table 1.

The Covid-19 Pandemic in Turkey and Labor Income Support Programme: Macroeconomic Results			
	Covid-19 Pandemic	Labor Income Support Programme	
	Changes Against end of 2019 (%)	Changes Against end of 2019 (%)	Changes Against the Effects of Covid-19 Pandemic (%)
GDP	-26.74	-16.17	14.43
Private Disposable Income	-46.48	-14.19	60.32
Labor Income Households	-44.75	-6.67	68.91
Capital Income Households	-47.39	-18.18	55.53
Private Consumption Expenditures	-22.96	-17.82	6.67
Investment Expenditures	-66.65	-25.14	124.48
Total Exports (Billions US\$)	-27.79	-19.27	11.80
Total Imports (Billions US\$)	-29.50	-20.46	12.83
Current Account Balance / GDP (%)	-6.96	18.54	27.41
Exchange Rate Real Depreciation (TL/US\$)	-30.49	-2.60	27.89
<i>Labor Markets</i>			
Total Open Unemployment	137.57	20.20	-49.40
Unemployment Ratio (%)	33.74	17.07	-49.40
Total Employment	-22.77	-3.34	25.15
<i>Public Sector (Central Administration) Budget Balance</i>			
Total Expenditures	-22.13	-9.70	15.96
Public Consumption Exp.	-26.26	-11.51	20.00
Total Revenues	-48.70	-25.50	45.23
Taxes on Production and Employment (Inc.	-51.70	-23.03	59.35
Taxes on Consumption (VAT + SCT)	-47.72	-21.01	51.10
Income Taxes - Households	-46.48	-46.48	0.00
Income Taxes- Corporate Sector	-49.18	-35.42	27.06
Budget Deficit	123.49	76.89	-20.85
Budget Deficit / GDP (%)	12.35	6.34	-48.64
Domestic Debt Stock / GDP (%)	61.63	39.99	-35.11

Figure 1

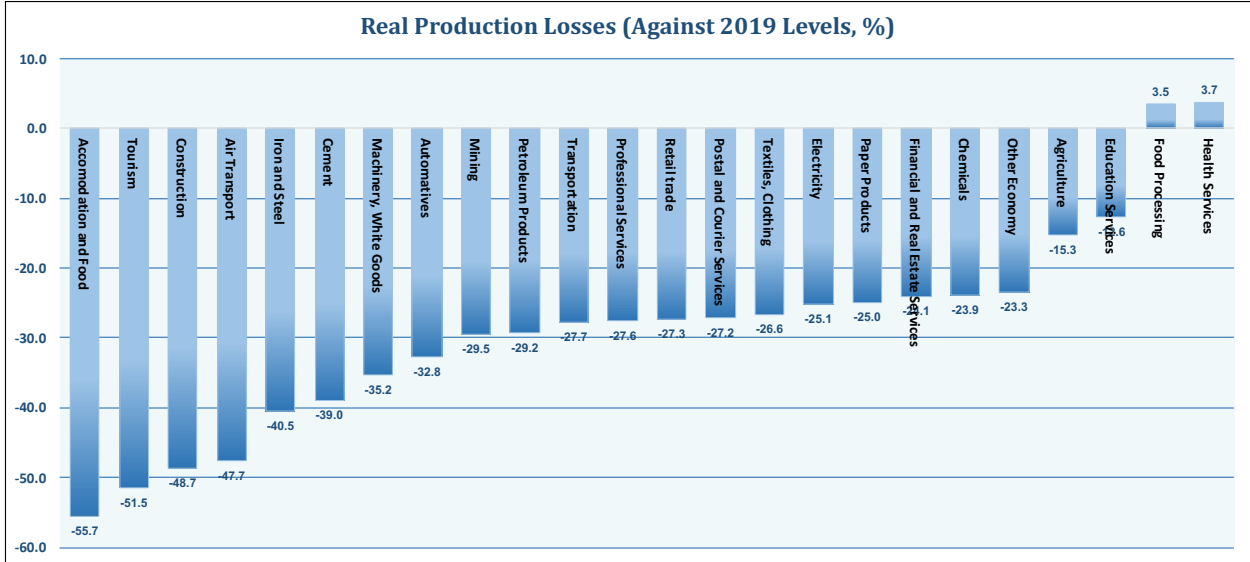


Figure 2

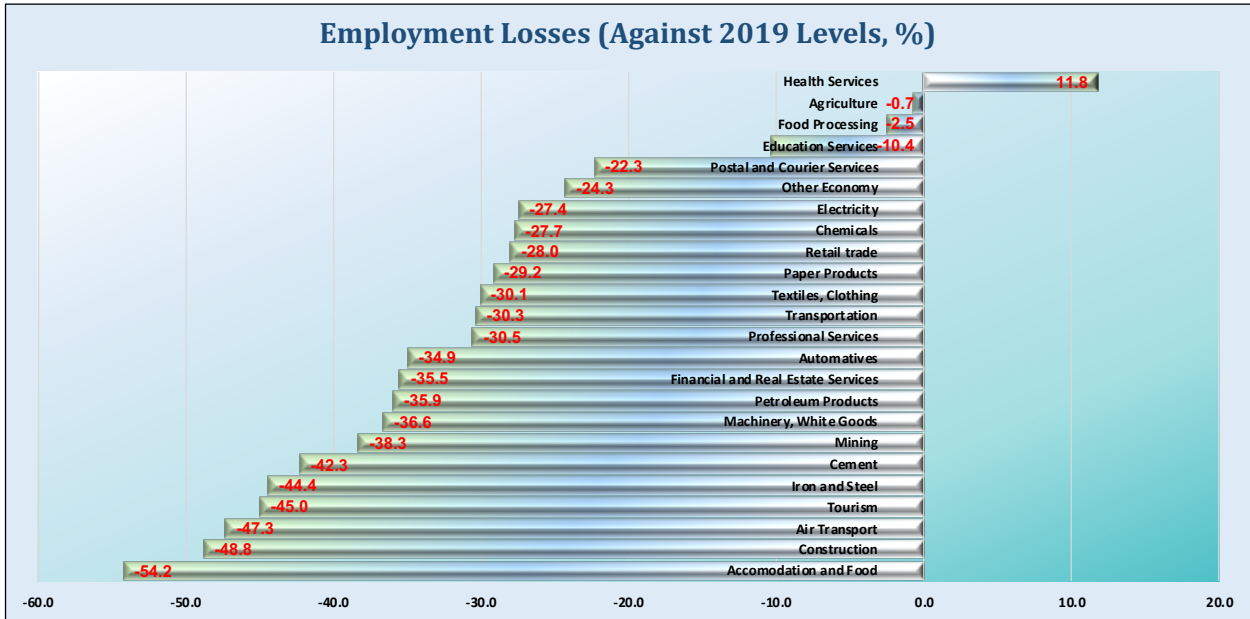


Figure 3

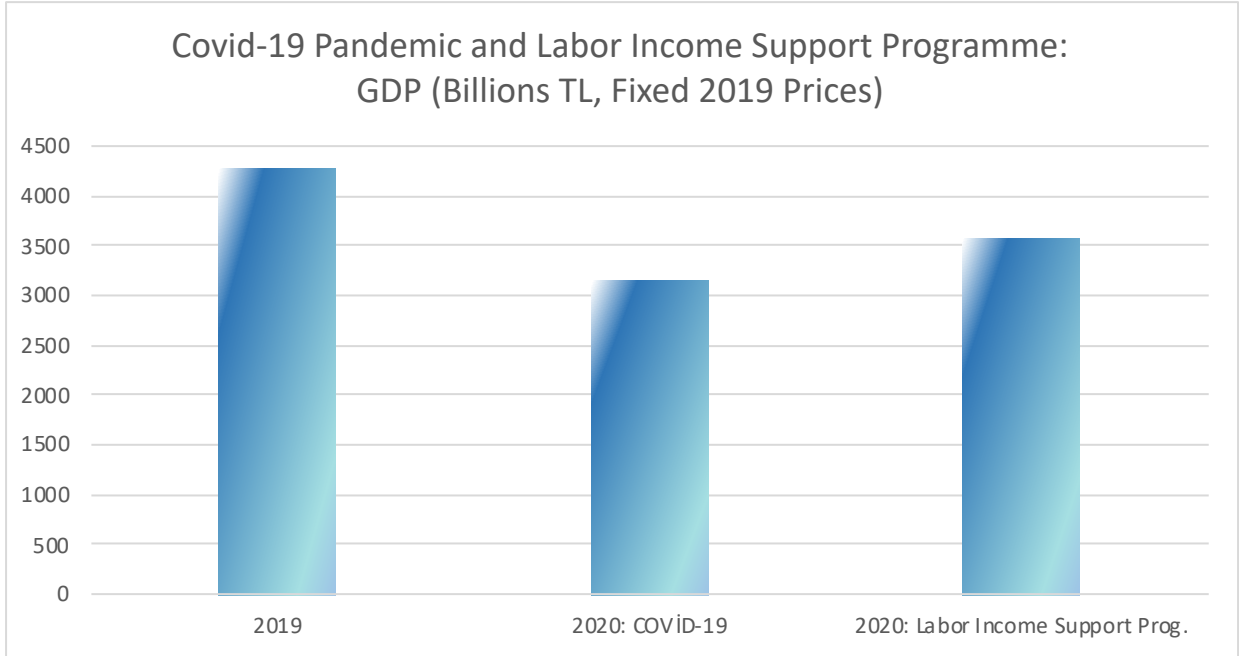


Figure 4

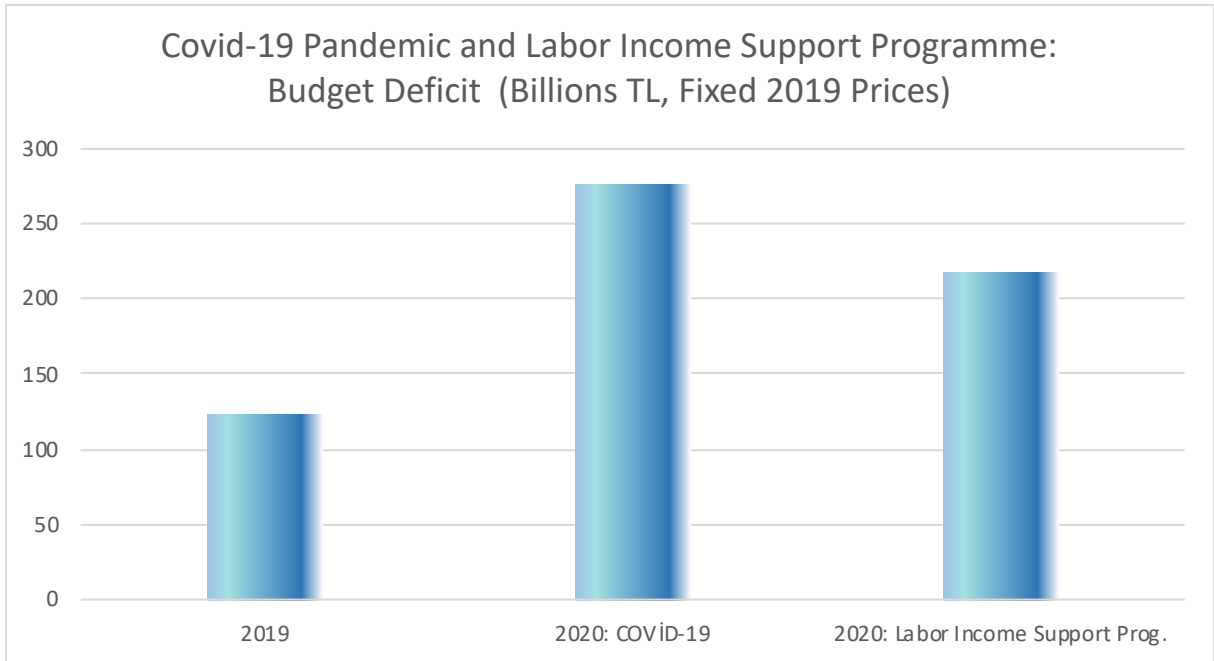


Figure 5

