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A Small Macro Econometric Model of Azerbaijan Economy

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Abstract

In the presented article, the construction of the Macroeconometric model for short- and medium-term forecasting of indicators of socio-economic development in the economy of Azerbaijan has been carried out. The model consists of 64 variables (41 endogenous, 23 exogenous) and 41 equations, built in four blocks (national income account, deflators, balance of payments and public finance). The database of the model is formed in four parts, covering the years 1995-2017 on an annual basis, including national income account, deflators, balance of payments and public finance. The development of the database was carried out together with the State Statistical Committee of the Republic of Azerbaijan (SSC) in full compliance with UN standards. The methodology used includes time series stationarity tests, ARIMA models, vector error correction models and other econometric methods. As a result, a compact macroeconometric model for the economy of Azerbaijan was established. Based on the model, predictions were processed in the short-term scientific research approach and compared with the actual results.

Keywords: *Macro Econometric Model, Azerbaijan Economy, Forecasting, Building Database, Regression Analysis, Time Series.*

Introduction

Macroeconometric models have been considered a very important tool in macroeconomic forecasting and policy evaluation in the last three decades, reflecting useful analyzes of structural relationships between key macroeconomic variables. These models reflect the cross-sectoral interactions of the main macroeconomic indicators, taking into account the specific characteristics of the economy. It allows to predict the main indicators of these sectors in the short and medium term. It is not possible to measure the full relationships in the economy through separately estimated regression equations. Because it is not possible to study the changes in the outcome indicators with separately estimated regression equations. Such an approach leads to wrong conclusions when organizing impact analyzes and forecasting for the economy as a whole. For this reason, the macroeconometric model is built in the form of a system of linear equations using econometric methods based on the balance between the goods and services market and the money market. In this case, the established model can be important in the preparation of long-term forecasts and scenarios, while giving short- and medium-term forecasts. It also allows policy decision makers to identify cause and effect relationships across policy and target variables.

Although the equations and graphs of IS-LM, AD-AS and Mandella-Fleming models, which are briefly described in all macroeconomic textbooks, explain economic processes in detail, they cannot provide any additional knowledge about the construction, calibration and practical use of such models. Building even the simplest of these types of models in accordance with economic-mathematical requirements requires additional knowledge and competence. However, the developed models appear to be very simple in use, and there is a need to further expand the model in order to study the economic effects in more depth, allowing to adequately explain the subtle macroeconomic points during use.

The characteristics of macroeconometric models can be summarized as follows:

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Taking into account the specific features of its economy, it reflects the inter-sectoral interactions of the main macroeconomic indicators and allows the forecasting of the main indicators of these sectors in the short term;

It is constructed in the form of a system of linear equations using econometric methods based on the equilibrium between the goods and services market and the money market.;

The macroeconometric model can be important in preparing long-term forecasts and scenarios as well as providing short- and medium-term forecasts.

In the article, the construction of a compact macroeconometric model for the economy of Azerbaijan was carried out from the world experience and theoretical-methodological aspect. So, in the initial case, the indicators were selected, processed, systematized in the form of blocks, and the database was structured and built.

In the next stages, the statistical characteristics of the indicators selected in sequence were investigated and developed to build the model, Box-Jenkins ARIMA (Autoregressive Moving Average Models) models were built, the factors affecting the endogenous indicators were determined and their equations were evaluated, and finally, the model was formed in the EViews econometric software package.

Literature Review

In general, the theoretical foundations of macroeconometric models, which use econometric evaluation methods in world practice, are given in many important books on macroeconomics. It is possible to say that the theoretical framework is mainly in line with the macroeconomics book written by Olivier Blanchard and David R. Johnson. In the mentioned book, the economy is mainly divided into three periods (short, medium and long) and given in the form of blocks and connections. Also, the identities and behavior equations and the factors affecting them were analyzed in the form of functions [5].

Of course, today there are enough literatures in which the theoretical foundations of macroeconometric models are explained. In general, the theoretical framework is not too complicated and difficult. The main point is to build macroeconometric models based on that theoretical framework in the example of a specific country, determining the specific characteristics of the given country. Such models were developed by official government agencies of those countries, Asian Development Bank (ADB) or researchers of leading research centers. Based on the analysis of the reports of macroeconometric models established by countries, the indicators used in the model for each country are listed as endogenous and exogenous.

Table 1. Main Features Of Macroeconometric Models Built For 11 Selected Countries

	Endogenous variables	Exogenous variables	Equations	Blocks of the model
Bangladesh [28]	56	14	37 behavioral equation, 19 identity	consumption, investment, production, government, trade, money, price
Bosnia Herzegovina [33]	68	29	29 behavioral equation, 39 identity	goods and services market, foreign sector, labor market, financial market, public sector, supply
Malaysia [17]	28	14	24 behavioral equation, 4 identity	production, aggregate demand, state budget, price
Pakistan [25]	18	33	13 behavioral equation, 8 identity	production, aggregate demand, fiscal, foreign trade, monetary and price

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Philippines [10]	65	10	48 behavioral equation, 17 identity	investment, government, trade, production, price, monetary, labor
Kazakhstan	41	22	29 behavioral equation, 12 identity	GDP production, GDP expenditure, monetary, balance of payments, price and index, labor, public finance
Kyrgyzstan	38	18	13 behavioral equation, 25 identity	GDP production, GDP expenditure, monetary, balance of payments, price and index, labor, public finance
Russian Federation [18]	48	6	24 behavioral equation, 24 identity	
Slovenia [34]	62	27	25 behavioral equation, 37 identity	
Turkey [9]	96	42	28 behavioral equation, 68 identity	goods market supply, goods market demand, labor market, money, wages and prices, balance of payments, public sector
United Arab Emirates [24]	25	23	11 behavioral equation, 14 identity	issue sector, public sector, monetary sector, foreign sector

Source: prepared by the author using literature

We can note that the Institute for Scientific Research on Economic Reforms has experience in building a macroeconometric model of the economy of Azerbaijan. The Institute for Scientific Research on Economic Reforms has taken a somewhat sensitive approach to the construction of the macroeconometric model of the country. In this field, the institute was satisfied only with the training of personnel with the necessary knowledge and skills and the study of international experience. Such a position was related to the international experience of the impossibility of obtaining an adequate model that can fully express the market regularity due to the incomplete formation of market relations in transition economy countries. The macroeconometric model to be prepared by the Institute in 2010 based on the experience of Turkey was postponed due to the lack of improvement of the database and the failure to obtain the equations of the initially estimated production functions adequately. In the last attempt, the adequacy of the behavioral equations covering the commodity and money market was ensured, so the Institute considered the application of the first macroeconometric model, AZMEKMOD, suitable for use. Although the model is not very extensive, it is of great practical importance.

Within the framework of cooperation with The Central Asia Regional Economic Cooperation (CAREC) Institute, national expert Professor Vilayat Valiyev has built a compact macroeconometric model of Azerbaijan. The established model is compact and cannot fully express the economy of Azerbaijan. Also, the scientific-research oriented approach to the process of building the model and the lack of full practical experience in terms of policy evaluation made it difficult to take into account the necessary comments and suggestions [15].

At the same time, the Institute has carried out quite a lot of scientific research for econometric evaluation. Thus, the research was carried out in the direction of the changes in the prices of socially important food products and the selection of the factors affecting this change and the measurement of their impact [36].

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Task Statement

We would like to inform you that the preparation of forecast indicators of socio-economic development in Azerbaijan is defined in the "Rules for Compilation and Implementation of the State Budget" approved by the decision No. 75 of the Cabinet of Ministers of the Republic of Azerbaijan dated May 24, 2004. This rule was prepared in accordance with the Law of the Republic of Azerbaijan No. 358 "On the Budget System" dated July 2, 2002 and this law. In order to ensure the implementation of this decision, the requirement of the Ministry of Economy is the preparation of socio-economic forecast indicators for the next year and the next 3 years of the Republic of Azerbaijan.

The presented article was prepared at the Institute for Scientific Research on Economic Reforms on the basis of the research work carried out on the basis of the order of the Ministry of Economy.

The construction of a macroeconometric model evaluated through time series using statistical and econometric methods in the economy of Azerbaijan will allow both answering the questions posed, providing short-term forecasts, and also enabling policy decision-makers to determine cause and effect relationships on policy and target variables.

Design and Methodology

One of the preliminary tasks when performing econometric evaluations is to check the statistical properties of the series. For this purpose, a number of tools and statistical methods are used. Augmented Dickey-Fuller tests (ADF-test) are used to check the stationarity of the series. These tests were performed using the EViews 9 statistical software package.

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \cdots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t \qquad (1)$$

Where α is a constant, β the coefficient on a time trend and p the lag order of the autoregressive process.

Statistical Properties of Variables in the Model

It is necessary to study time series properties of every series in models, and preferably also in the database. Several tools (such as graphs) and statistics are used to this end.

Autoregressive Moving Average (ARIMA) Models

After studying statistical properties of all the series, Box-Jenkins autoregressive moving average (ARIMA) models are built. These models are very useful and relatively easy to implement, but requires very long time series data. Essentially, empirical probabilities observed in the past are projected into the future. A long time series data will include all possible events with associated probabilities. If there is a crisis, long time ago, data which include that observation will incorporate that likelihood in estimations and therefore in forecasts. A rule of thumb on data requirement is a minimum of 5-6 economic cycles (or 30-40 years of data). If an economy had 5 consecutive years of decline in real GDP, and total number of observations for an analysis is only 10, those years surely dominate forecasts based on that data. The effect of those 5 consecutive declines will diminish if there are 50 “normal” years following those declines. As a first approximation, ARIMA models are very useful, provided there are large number of observations. There are at least two reasons for building time series models: 1. They do not require any information on other variables. One just needs a long series for the variable at hand. 2. In a model framework, there are exogenous variables which are fed into the model. If there is no prior information, or no information on policy, ARIMA forecasts for these exogenous variables may be used in such models. Once, forecasts of those variable are made available, they may replace ARIMA models, without making any changes in the model. Although, in principle ARIMA models are very easy to implement, there may be more than one model giving similar forecasts. Here, an example on real GDP will be given.

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Econometric Models, Co-integration, and Error Correction

Econometric models in the tradition of Tinbergen and Klein are very useful in looking at the system as a whole and working with a simpler representation of the entire economic system. They were used extensively in 1960 and 1970. However, economic crises which were primarily associated with oil shocks in 1970 s pointed to problems with these models. These models tried to capture the workings of the economy with the help of statistical techniques developed earlier. It was implicitly assumed in these models that the structural relationships in the economy will not change in the future. Oil price hikes proved that this assumption was not supported in real life. The credibility of econometric models diminished during that time. Later efforts, have been trying to resolve some of the issues associated with the full economic system models. There are alternative approaches which address issues related to early econometric models. One alternative was advocated by Engle and Granger. They make a distinction between the long-run equilibrium and the short one. They propose a method which determines the long-run relationship between two or more variables, based on theory and also on data. The short-run movements are fluctuations around that long-run equilibrium relationship, and there is reversion to that long-run relationship. Macro modeling framework used here is based on Engle-Granger co-integrating regressions and error correction models coupled with mixed data sampling (MIDAS) regressions to allow for the possibility of making use of all available data. All these are then put into a Keynes-Klein type of macro model to represent the full economic system. At this point, there is a monthly model and an annual model. Forecasts from the monthly model are utilized in the annual model. Mixed frequency approach enables one to use most up to date data. If monthly data for the January 2016 through September 2016 are available, there is a value in using these in an annual model with data ending for the year 2015. Engle and Granger noted that if two variables which are non-stationary are used in a regression, then the estimated equation may have a very high determination coefficient and highly significant coefficient (spurious correlation). In such a situation regular test statistics are misleading. It is recommended to use a modified version of classical least squares which alleviates the problem of the correlation with the disturbance term. It is a two-step procedure where co-integrating regression is estimated first using a method such as fully modified least squares or dynamic least squares, and then residuals from this regression are used in the error correction model (ECM).

Co-integrating regression: Y=a +b X + e, Error correction model: D(Y)=c D(X)+g e(t-1) or D(Y)=c D(X)+g (Y(t-1)-a-b X(t-1)), where a, b, c, and g are constants. Here, private consumption equation is given as an example.

Data

Since macroeconometric models are directly data-based, first of all, the formation of a perfect statistical data base for building the model was performed. Thus, the data presented by the State Statistics Committee (SSC) and other state bodies are not sufficient for building the model. It is known that the indicators of the System of National Accounts (NSS) published by the SSC were formed by applying different methodologies for different periods. For this reason, the re-preparation of the indicators based on the same methodology was carried out together with the DSK and the statistical database of the model was prepared [31]. The database covering for 1995-2017 and consists of four blocks: national income account, deflators, balance of payments and public finances. It should be noted that the presented data may differ from the data provided in official statistical publications, as methodological approaches have changed during the period. When forming the database of macroeconomic indicators, the requirements of the main macroeconomic identities on time series were checked.

When collecting macroeconomic indicators, changes in statistical classifications and calculation methodologies in 1995-2017 created additional problems. Thus, in 1995-2017, there were several changes in the classification of economic activities. In accordance with this, physical volume indices were also calculated for different classifications. The calculation of producer price indices by types of economic activities began in 1999 in the agricultural sector, in 2001 in the industrial sector, in 2009 in the calculation of import and export prices, and in 2007 in the construction and installation works.

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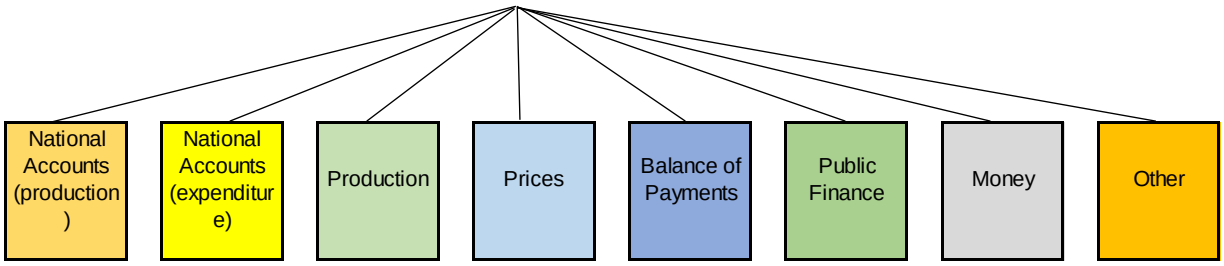
As it can be seen, in accordance with the process of deepening and development of reforms in the field of statistics, the macro-indicators themselves are still undergoing the process of formation. Since prices act as the main variable in macroeconometric models, developing a system of indicators expressed in real or constant prices along with nominal indicators is a problem.

Currently, since 2009, the full volume of data is available to form the database for the macroeconometric model. However, since it is very unlikely to build an adequate model based on a 10-year time series, in order to extend the time series across the country, the possibilities of calculating other indicators were theoretically used based on the incomplete data of previous years. First of all, it refers to the calculation of deflator indices on the basis of physical volume indices and the calculation of real indicators on this basis. The formation of the database was made possible as a result of discussions with the statistics authorities, considering the theoretical and practical point of view, and these methodologies were applied to obtain the missing data. Although these data are not official statistical data, they are important for research purposes.

All this, of course, cannot but affect the structure of the macroeconometric model to be built and the selection of behavioral equations to be evaluated. In the future, the enrichment of the database with better quality time series and the extension of the series itself may allow the construction of more comprehensive macroeconometric models.

Figure . The Structure Of The Data Template



Source: prepared by the author

Model Structure

A macroeconometric model was formed with the database prepared on the basis of annual data covering the years 1995-2017. The model was empirically implemented in the EViews 9 software package. The blocks of the model in general form are given below.

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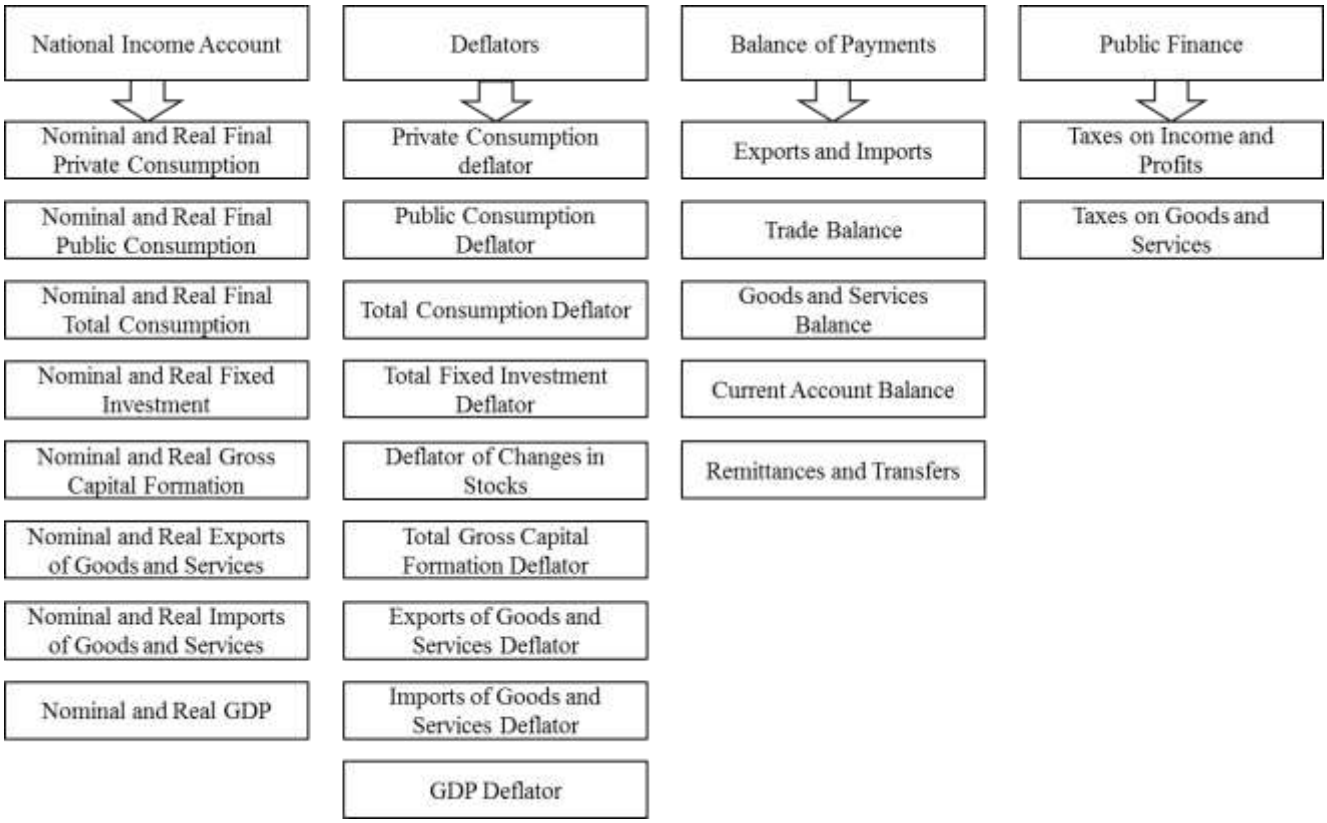
Figure . The Scheme Of The Blocks Of The Model



Source: prepared by the author

The components given in the scheme for each block were evaluated econometrically. Each equation is given in implicit function form as follows. Note that the apparent functions of these given econometric equations obtained from the EViews 9 software package are given in the appendix.

National Income Account

Nominal and Real Final Private Consumption

Eq1: AZERCONPR = F(AZEANW, AZECAPEXP, AZECPI, AZECUREXP, AZERCONPR, AZEUSDERAV, t)

Eq2: AZERCONPR = F(AZEDCONPR, AZERCONPR)

Nominal and Real Final Public Consumption

Eq3: AZERCONPU = F(AZECAPEXP , AZECUREXP, AZEDCONS, AZERCONPU, t)

Eq4: AZECCONPU = F(AZEDCONPU, AZERCONPU)

Nominal and Real Final Total Consumption

Eq5: AZERCONS = F(AZERCONPR, AZERCONPU, AZERCONS)

Eq6: AZECCONS = F(AZECCONPR, AZECCONPU)

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Nominal and Real Fixed Investment

Eq7: AZERGFCF = F(AZERGFCF, AZERIFC, t)

Eq8: AZECGFCF = F(AZEDGFCF, AZERGFCF)

Nominal and Real Gross Capital Formation

Eq9: AZERGFCS = F(AZECSTOCKS, AZEDSTOCKS, AZERGFCF, AZERGFCS)

Eq10: AZECGFCS = F(AZEDGFCS, AZERGFCS)

Nominal and Real Exports of Goods and Services

Eq11: AZERYEXGNFS = F(AZEPOILPB, AZEPOILV, AZERYEXGNFS, AZESERBALE, AZEUSDERAV, t)

Eq12: AZECYEXGNFS = F(AZEDYEXGNFS, AZERYEXGNFS)

Nominal and Real Imports of Goods and Services

Eq13: AZERYIMGNFS = F(AZEDYIMGNFS, AZERCONPR, AZERYIMGNFS, AZESERBALI, AZEUSDERAV)

Eq14: AZECYIMGNFS = F(AZEDYIMGNFS, AZERYIMGNFS)

Nominal and Real GDP

Eq15: AZERGDP = F(AZERCONPR, AZERCONPU, AZERGDP, AZERGFCS, AZERYEXGNFS, AZERYIMGNFS, t)

Eq16: AZECGDP = F(AZECCONPR, AZECGFCF, AZECSTOCKS, AZECYEXGNFS, AZECYIMGNFS, AZERCONPU)

Deflators

Private Consumption Deflator

Eq17: AZEDCONPR = F(AZEDCONPR, AZEDGDP)

Public Consumption Deflator

Eq18: AZEDCONPU = F(AZECPIIMPAV, AZEDCONPU, t)

Total Consumption Deflator

Eq19: AZEDCONS = F(AZEDCONPR, AZEDCONPU, AZEDCONS)

Total Fixed Investment Deflator

Eq20: AZEDGFCF = F(AZECPI, AZEDGFCF)

Deflator of Changes in Stocks

Eq21: AZEDGFCS = F(AZEDGFCF, AZEDGFCS)

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Total Gross Capital Formation Deflator

Eq22: AZEDYEXGNFS = F(AZECPIEXPAV, AZEDYEXGNFS, AZEPOILPB, t)

Exports of Goods and Services Deflator

Eq23: AZEDYIMGNFS = F(AZECPIIMPAV, AZEDYIMGNFS, AZEUSDERAV, t)

GDP Deflator

Eq24: AZEDGDP = F(AZEDCONS, AZEDGDP, AZEDGFCF, AZEDYEXGNFS, AZEDYIMGNFS)

Balance of Payments

Exports and Imports

Eq25: AZECEXP = F(AZECEXP, AZEPOILPB, AZEPOILV)

Eq26: AZECIMP = F(AZECYIMGNFS, AZEUSDERAV, t)

Trade Balance

Eq27: AZETB = F(AZECEXP, AZECIMP)

Goods and Services Balance

Eq28: AZESERBAL = F(AZESERBALE, AZESERBALI)

Eq29: AZEGSBAL= F(AZESERBAL, AZETB)

Current Account Balance

Eq30: AZECAP = F(AZEGSBAL, AZENINC)

Remittances and Transfers

Eq31: AZECURTRN = F(AZECREMUSD, AZECURTRN, t)

Eq32: AZECREMNC = F(AZECREMUSD, AZEUSDERAV)

Public Finance

Taxes on Income and Profits

Eq33: AZEINCTX= F(AZECGDP, AZEINCTX, t)

Taxes on Goods and Services

Eq34: AZETAXGS = F(AZECCONS, AZECYIMGNFS, AZETAXGS, t)

Eq35: AZETAXREV = F(AZEINCTX, AZETAXGS, t)

Eq36: AZEGOVREV = F(AZENONTAX, AZETAXREV, AZETRANSFNF)

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Eq37: AZEBEXP = F(AZECAPEXP, AZECUREXP)

Eq38: AZEGOVREVTOT = F(AZEGOVREV, AZEGOVREVOTH)

Eq39: AZEBEXPTOT = F(AZEBEXP, AZEEXPOTH)

Eq40: AZEBUDBAL = F(AZEBEXPTOT, AZEGOVREVTOT)

Eq41: AZEFIN = F(AZEDOMFIN, AZEEXTFIN)

Results

As a result, forecasts were developed based on the macroeconometric model. Note that the database of this model covers the years 1995-2017. For this purpose, developed forecasts are provided for the years 2018-2022. This allows us to make predictions for 2020-2022, as well as checking the compatibility of the forecasts with the actual data of 2018 and 2019. It should be noted that the model does not take into account the effects of the current coronavirus pandemic. Updating the database won't help either. Thus, the inclusion of those years would worsen the results because the effects of the pandemic had a shock effect at the end of the time series.

In such a situation, shocks related to the pandemic can be taken into account in the inclusion of exogenous indicators as a way out. However, this will not help to obtain consistent results. Because the model was formed on the basis of annual indicators. Also, there is little time series covering the effects of the pandemic.

For your information, we are currently working on updating the database of the macroeconometric model and reworking the model. At the same time, scenario evaluations are carried out through input-output models for assessing the effects of the pandemic.

During the implementation of the predictions presented in the article, the initial nature of the model and its scientific-research orientation were taken into account and developed on this basis. Thus, exogenous variables were taken into account in the model by forecasting through ARIMA models.

Conclusıon

In general, the generalization of the opinions on the model leads to the conclusion that trying to solve issues involving different directions and multiple economic indicators with one model does not allow achieving balanced results in the end. It also opens the way to a departure from scientific principles and a more mechanistic expansion. Therefore, it is important to take into account the solution of various economic issues relevant to the experience of the developed world with several separate more advanced models, as well as the determination of equilibrium conditions between the market of goods and services and the financial market. Thus, making better policy decisions requires more advanced models. A comprehensive statistical database and highly qualified personnel working as a team are needed for the development of models. Also, the methodological basis of the used models, user manuals and training modules must be available.

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Appendix 1

Description of The Variables Used in the Macroeconometric Model

	Model name	Exog/Endog		Indicator name
1	AZEANW	Exog	Exog	Average nominal wage
2	AZEBEXP	Endog	Eq37	Government expenditures
3	AZEBEXPTOT	Endog	Eq39	Government expenditures Total
4	AZEBUDBAL	Endog	Eq40	Budget Balance
5	AZECAP	Endog	Eq30	Current Account Balance
6	AZECAPEXP	Exog	Exog	Capital expenditures
7	AZECCONPR	Endog	Eq2	Private consumption expenditures
8	AZECCONPU	Endog	Eq40	Public consumption expenditures
9	AZECCONS	Endog	Eq6	Final consumption expenditures
10	AZECEXP	Endog	Eq25	BOP, Exports
11	AZECGDP	Endog	Eq16	Gross Domestic Product
12	AZECGFCF	Endog	Eq8	Gross Fixed Capital Formation
13	AZECGFCS	Endog	Eq10	Gross Capital Formation
14	AZECIMP	Endog	Eq26	BOP, Imports
15	AZECPI	Exog	Exog	Consumer Price Index
16	AZECPIEXPAV	Exog	Exog	Price index of export deliveries of products to the previous year
17	AZECPIIMPAV	Exog	Exog	Price index of imports of goods? To the previous year
18	AZECREMNC	Endog	Eq32	Remittances in AZN
19	AZECREMUSD	Exog	Exog	Remittances in USD
20	AZECSTOCKS	Exog	Exog	Change in Stocks
21	AZECUREXP	Exog	Exog	Current expenditures
22	AZECURTRN	Endog	Eq21	Current transfers
23	AZECYEXGNFS	Endog	Eq12	Exports of goods and services
24	AZECYIMGNFS	Endog	Eq14	Imports of goods and services
25	AZEDCONPR	Endog	Eq17	Private consumption expenditures Deflator
26	AZEDCONPU	Endog	Eq18	Public consumption expenditures Deflator
27	AZEDCONS	Endog	Eq19	Final consumption expenditures Deflator
28	AZEDGDP	Endog	Eq24	Gross Domestic Product Deflator
29	AZEDGFCF	Endog	Eq20	Deflator of gross fixed capital formation
30	AZEDGFCS	Endog	Eq21	Deflator of gross capital formation
31	AZEDOMFIN	Exog	Exog	Domestic financing
32	AZEDSTOCKS	Exog	Exog	Deflator of change in stocks
33	AZEDYEXGNFS	Endog	Eq22	Deflator of exports of goods and services
34	AZEDYIMGNFS	Endog	Eq23	Deflator of imports of goods and services
35	AZEEXPOTH	Exog	Exog	other expenditures
36	AZEEXTFIN	Exog	Exog	External financing
37	AZEFIN	Endog	Eq41	Financing

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38	AZEGOVREV	Endog	Eq36	Government revenues
39	AZEGOVREVOTH	Exog	Exog	other revenues
40	AZEGOVREVTOT	Endog	Eq38	Government revenues Total
41	AZEGSBAL	Endog	Eq29	Goods and services Balance
42	AZEINCTX	Endog	Eq33	Taxes on income and profits
43	AZENINC	Exog	Exog	BOD, Net income
44	AZENONTAX	Exog	Exog	Non-tax revenues
45	AZEPOILPB	Exog	Exog	Price of Oil Brent, dollars per barrel
46	AZEPOILV	Exog	Exog	Oil, including gas condensate, thousand ton
47	AZERCONPR	Endog	Eq1	Real private consumption expenditures
48	AZERCONPU	Endog	Eq3	Real public consumption expenditures
49	AZERCONS	Endog	Eq5	Real final consumption expenditures
50	AZERGDP	Endog	Eq15	Real Gross Domestic Product
51	AZERGFCF	Endog	Eq7	Real gross fixed capital formation
52	AZERGFCS	Endog	Eq9	Real gross capital formation
53	AZERIFC	Exog	Exog	Investment in fixed capital
54	AZERYEXGNFS	Endog	Eq11	Real exports of goods and services
55	AZERYIMGNFS	Endog	Eq13	Real imports of goods and services
56	AZESERBAL	Endog	Eq28	BOP, Services Balance
57	AZESERBALE	Exog	Exog	Exports (FOB) services
58	AZESERBALI	Exog	Exog	Imports (FOB) services
59	AZETAXGS	Endog	Eq34	General taxes on goods and services
60	AZETAXREV	Endog	Eq35	Taxes revenues
61	AZETB	Endog	Eq27	Trade Balance
62	AZETRANSFNF	Exog	Exog	Transfers from National Fund
63	AZEUSDERAV	Exog	Exog	Exchange rate per USD average of the period
64	T	Exog	Exog	Trend factor