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A SMALL MACROECONOMIC MODEL: MODELLING AND FORECASTING FOR MONETARY AND FISCAL POLICIES IN INDONESIA

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ARTICLE INFORMATION	ABSTRACT
	This paper constructed a small macro econometric model of Indonesia using annual time series data from 1986 to 2011. The model consists of 6 behavior, 1 identity equations, 7 endogenous and 5 exogenous variables. The model is generated by using simultaneous-equation simulation and the Two Stage Least Square (TSLS) technique.Then the dynamic simulation of the whole model is performed. The performance of the model on the historical data is evaluated based on Root Mean Square Percentage Error (RMSPE).Fiscal and monetary policies are simulated in order to develop the multiplier. Finally, forecasting is generated to identify the future economic performance of Indonesia. *Paper ini berusaha menciptakan model makro ekonometrik dari Indonesia dengan skala yang kecil. Data yang digunakan adalah data runtun waktu tahunan dari tahun 1986 sampai tahun 2011. Model yang dibentuk terdiri dari 6 persamaan 'behavior' dan 1 persamaan identitas. Sementara itu model juga terdiri dari 7 variabel endogenus dan 5 variabel eksogenus. Teknik yang digunakan adalah Two Stage Least Square (TSLS) dengan menggunakan simultaneous equation simulation. Simulasi dinamis diujikan terhadap model secara keseluruhan dan dievaluasi dengan melihat nilai dari Root Mean Square Percentage Error (RMSPE). Setelah mendapat model yang sesuai dilakukan dua simulasi terhadap model yaitu dengan simulasi kebijkanan fiscal dan moneter serta simulasi untuk forecasting.*

1 INTRODUCTION

Recently, the usage of econometric models in a country, regional or even world has been expanded. Econometric model play a significant role for a country to determine the direction of its policy, particularly, those related to the economic policies. By constructing econometric model, policy makers could measure and forecast the impact of policy changes on their economy, particularly fiscal, monetary or mix policies. Moreover, they could make forecast of the economic performance for some period ahead.

The objective of this study is to construct a small macro econometric model for Indonesia; thereafter the model can be used for policy analysis and forecasting. Second objective is to conduct policy analysis, namely fiscal, monetary and mix policies. To identify the endogenous variable which is impacted by the policy such as GDP, investment, consumption, interest rate, export and import. Finally, this paper would also make forecasting of the economic performance of Indonesia in the next 5 years.

This study will develop a Small Scale Macroeconomic Model (SSMM) to explain economic behavior and the relation among endogenous and exogenous variables. SSMM is a comprehensive model that could obtain direct analytical solution even with fewer equations. The model is consists of 6 behavior and 1 identity equations that generated by using simultaneous-equation simulation and the Two Stage Least Square (TSLS) technique. This study consists of simplified model and variables to represent the real economic condition such as GDP, household consumption, government expenditure, private investment, export, import, official exchange rate, domestic interest rate, lending interest rate and money supply (M2).

This paper is structured as follows: First chapter presents the introduction that consists of background, the objective, data methodology and the organization of the paper. Second chapter discuss macroeconomic condition in Indonesia. The third chapter presents the model specification and estimation. The fourth chapter simulates the fiscal and monetary policy through the model. The chapter 5 conducts forecasting of the macroeconomic condition of Indonesia. Finally, the sixth chapter provides the conclusions.

2 OVERVIEW OF THE MACROECONOMIC SITUATION AND THE DATA

As the recent survey of development reported by Mahi and Nazara (2012), Indonesia has a good performance in economic development during these four decades. Apart from the crisis 1997, the growth rate of Indonesia has grown fast since 1980 and in the final

Table 1. Descriptive of The Data

	GDPID	HHC	INV	G	X	M	DR	LR	M2	XCRID	GDPUS	DD
Mean	1442385	824923.1	328692.3	113765.4	602307.7	486076.9	4.789861	8.847554	804903.8	5895.645	10329.62	58773.08
Median	1415000	843000	306000	97500	567500	435000	4.662262	9.552211	607000	8138.463	10450	45900
Maximum	2460000	1360000	602000	203000	1220000	942000	13.90054	16.50759	2880000	10389.94	13200	144600
Minimum	690000	376000	137000	67700	236000	186000	-19.32042	-26.23292	28000	1282.56	7030	-8000
Std. Dev.	490255.4	302371.9	124804.1	40327.74	271466.8	213995.1	6.806394	8.209665	822189.2	3728.355	2150.011	43630.84
Skewness	0.342355	0.104471	0.436146	1.035965	0.624805	0.452597	-1.585599	-3.057347	1.049064	-0.11226	-0.056961	0.315628
Kurtosis	2.35168	1.919185	2.464213	2.903902	2.483185	2.212196	7.096858	14.02808	3.111332	1.107459	1.494484	1.967831
Jarque-Bera	0.963243	1.312803	1.13529	4.660642	1.981011	1.560013	29.07747	172.2586	4.782415	3.934798	2.469519	1.585845
Probability	0.617781	0.518715	0.566859	0.097265	0.371389	0.458403	0	0	0.091519	0.13982	0.290905	0.45252
Sum	37502000	21448000	8546000	2957900	15660000	12638000	124.5364	230.0364	20927500	153286.8	268570	1528100
Sum Sq. Dev.	6.01E+12	2.29E+12	3.89E+11	4.07E+10	1.84E+12	1.14E+12	1158.175	1684.965	1.69E+13	3.48E+08	1.16E+08	4.76E+10
Observations	26	26	26	26	26	26	26	26	26	26	26	26

It should be note that: **GDPID** is Gross Domestic Product of Indonesia (constant LCU) in Billion Rupiah, **HHC** is Household final consumption expenditure, etc. (constant LCU) in Billion Rupiah, **INV** is Gross fixed capital formation (constant LCU) in Billion Rupiah, **G** is General government final consumption expenditure (constant LCU) in Billion Rupiah, **X** is Exports of goods and services (constant LCU) in Billion Rupiah, **M** is Imports of goods and services (constant LCU) in Billion Rupiah, **LR** is Real Lending interest rate (%), **DR** is Real Deposit interest rate (%), **M2** is Money and quasi money (M2) (current LCU) in Billion Rupiah, **XCRID** isOfficial exchange rate (LCU per US$, period average), **DD** is Data Discrepancy in Billion Rupiah, **GDPUS** is United State Gross Domestic Product (constant LCU) in Billion Dollar

quarter of 2012, the economy continues to grow a steady pace at 6.2 percent. The figure 1 shows the performance of the GDP of Indonesia from 1960 to 2011.

As reported by The World Bank, [1]The economic outlook for Indonesia in 2013 remains positive despite a weak global economy, but maintaining strong investment growth is vital.Domestic consumption and investment growth remain strong, while improving growth in Indonesia's major trading partners supports a modest recovery in exports.

A strong policy framework is key to facilitating investors' ability to plan ahead and to maintaining the confidence in the future that motivates investment. On the fiscal side, the World Bank projects a full year 2012 deficit of 2.5 percent, slightly higher than the Government's revised Budget target of 2.2 percent of GDP. Revenue growth has moderated but disbursements of capital and material expenditures are still behind their targets, despite strong nominal growth. A more comprehensive figure of Indonesian economy is shown in figure 2.

The data used in this research are annual series data from 1986 to 2011. All the data are in the billion

[1] **Indonesia Economic Quarterly: Policies in Focus**
http://www.worldbank.org/en/news/feature/2012/12/18/indonesia-economic

Rupiah obtained from World Development Indicators (WDI), consist of:

1. Gross Domestic Product of Indonesia in constant LCU **(GDPID)**.
2. Household Final Consumption Expenditure of Indonesia in constant LCU **(HHC)**.
3. Gross Fixed Capital Formation of Indonesia in constant LCU **(INV)**.
4. General Government FinalConsumption Expenditure of Indonesia in constant LCU **(G)**.
5. Exports of Goods and Services of Indonesia in constant LCU**(X).**
6. Imports of Goods and Services of Indonesia constant LCU **(M)**.
7. Real Lending Interest Rate (%) of Indonesia **(LR).**
8. Real Deposit Interest Rate (%) of Indonesia **(DR)**.
9. Money and Quasi Money of Indonesia in current LCU **(M2).**
10. Official Exchange Rate is LCU per US$, period average **(XCRID)**.
11. Data Discrepancy **(DD)** in Billion Rupiah.
12. United State Gross Domestic Product in constant LCU **(XCRID).**

The descriptive of the data are as shown in the table 1.

3 MACROECONOMIC MODEL OF INDONESIA

Table 2. Unit Root Test (Augmented Dickey-Fuller test statistic)

Variables	Level	First Difference	Second Difference
Domestic Interest Rate	-4.157***	-6.072***	-4.925***
Government Spending	-1.360	-4.075**	-8.136***
GDP	-0.366	-3.357*	-6.106***
Household Consumption	-2.410	-4.723***	-8.341***
Investment	-2.029	-3.479*	-5.448***
Lending Interest Rate	-4.655***	-6.388***	-4.897***
Import	-1.929	-4.692***	-5.785***
Export	-1.484	-5.974***	-5.830***
Exchange Rate	-1.115	-6.680***	-8.043***

Note: * significant at 10%, ** significant at 5%, *** significant at 1%

Since this study using time series data, therefore it is important to check the stationary of the data first before doing estimation. Table 2 shows the ADF for unit root test of the data. The result show that only domestic and lending interest rate are stationer in the level, while other stationer in the first difference.

3.1 Behavior Equation

The model used in this paper is a small macro econometric model that consists of 6 behavioral and 1 identity equations. The behavior equations are: private consumption, private investment, export, import, deposit interest rate and lending interest rate. The specification of the behavioral equations is as follows.

3.1.1 Private Consumption

$$C_t = -19581.18 + 0.227198 Y_t + 0.655512 C_{t-1}$$
$$(-1.06) \quad (4.39) \quad (7.68)$$

$R^2 = 0.993 \qquad s = 26500.79$
$DW = 2.17 \qquad$ Durbin $h = -0.303$

The t statistics (in the parenthesis below each estimated coefficient), the R^2, the standard error and the DW statistic are shown for each equation. This equation content lagged dependent variables; therefore the Durbin h statistic is also calculated. Except for constant, the GDP and the previous consumption are significant at 1 per cent confidence level and based on the LM test, there is NO SERIAL CORRELATION in this equation.

From the result we see that **the Short-run Marginal Propensity to Consume (MPC)** for Indonesia is 0.23, suggesting that 1 billion Rupiah increase in real income (as measured by GDP) would increase mean consumption by about 0.23 billion Rupiah.

The Long-run MPC is 0.66 ($\frac{0.227198}{1-0.655512}$). It means when consumers have had time to adjust to the 1 Billion Rupiah change in income, they will increase their consumption ultimately by about 0.66 Billion Rupiah.

4.7.1. Private Investment

$$X_t = -966102.7 + 172.2995 US Y_t - 35.85316 ER_t$$
$$(-5.438951) \quad (7.155276) \quad (-2.581941)$$

$R^2 = 0.87 \qquad s = 102138.7 \qquad dW = 1.054$

$$\text{Multiplier} = \frac{1}{1-0.235574} = 1.308$$

The investment equation contains both a multiplier and the accelerator, with investment also depending on the short-term lending interest rate (LR). From the regression, we have the results that the multiplier and accelerator coefficients are significant at 1 per cent confidence level, and lending interest rate significant at 5 per cent confidence level; while the constant just significant at 13 per cent significance. The multiplier effect is about 1.31 suggested that rising in 1 Billion Rupiah in investment will generate 1.31 Billion Rupiah increase in the equilibrium GDP. The accelerate effect is about 0.33

4.7.2. Export

$$I_t = -48764.16 + 0.329103 (Y_{t-1} - Y_{t-2})$$
$$+ 0.235574 Y_t + 1762.404 LR_{t-5}$$
$$(-1.59) \qquad (3.13) \qquad (12.98)(2.32)$$

$R^2 = 0.94 \qquad s = 28999.38 \qquad DW = 1.067$

The official exchange rate and interest rate have a negative relationship with export. The entire coefficient is significant at 1 per cent confidence level. If the exchange rate increases by 1 Rupiah, the export value will decrease by 35.85 Billion Rupiah and if US GDP increases by 1 Billion Dollar, the export value will increase by 172.3 Billion Rupiah.

4.7.3. Import

$$Mt = -187388.9 + 0.530523 Yt - 16.82788 ERt - 1$$
$$(-5.330707) \quad (15.83243) \quad (-3.971189)$$

$$R^2 = 0.95 \quad s = 48513.98 \quad DW = 1.38$$

The result shows that GDP has a significant positive impact on import at 1% significance level and official exchange rate also has a negative significant impact at 1% significance level. If the GDP increases by 1 Billion Rupiah, the import value will increase by 0.53 Billion Rupiah and if official exchange rate increases by 1 Rupiah, the import value will decrease by 16.8 Billion Rupiah.

4.7.4. Deposit Interest Rate

$$DRt = -2.418732 + 0.401136 (LRt + LRt-1)$$
$$(-1.347772) \quad (4.713158)$$

$$R^2 = 0.49 \quad s = 5.009 \quad DW = 2.56$$

The lending interest rate and domestic interest rate have a positive e relationship. The coefficient is significant at 1 per cent confidence level. If the current plus previous lending interest rate increases by 1 per cent, the domestic interest rate will increase by 0.4 per cent.

4.7.5. Lending Interest Rate

$$LRt = 17.91118 - 9.83E-06 Yt + 0.000121 (Yt - Yt - 1) - 1.08E$$

$$- 05 (M2 - M2t - 1) - 0.122685 (LRt - 1 + LRt - 2)$$
$$(3.63) \quad (-2.25) \quad (8.72)$$
$$(-0.68) \quad (-1.89)$$

$$R^2 = 0.86 \quad S = 3.471 \quad DW = 1.723 \quad \text{Durbin h} = 0.756$$

This equation content lagged dependent variables; therefore the Durbin *h* statistic is also calculated. Except for **M2-M2t-1**, the entire coefficient is significant. The lending interest rate has negative related with GDP but has positive relation with the changes of GDP.

4.8. System and Model

By utilizing the Two-Stage Least Squares method (TSLS), we create the simmulation system and models. In the system, I include 6 behaviour equations as explained above, and incorporate 1 identity equation. All coefficients are significant, except for C (1), C (4), C (14), C (17) and C (19) (the results are in the appendixes). Then I construct the dynamic simulation involving the system and identity equation GDP = consumption + government expenditure + investment + export – import + data discrepancy. The figure 1 below describes the result of the simulations by comparing the endogenous variables with their actual values.

Table 3. RMSPE of The Baseline

	GDPID	HHC	INV	LR	M	X	DR
Before Improvement							
RMSPE:	0.26	0.23	0.29	0.4	0.4	0.41	8.67
After Improvement							
RMSPE:	0.06	0.03	0.17	1.13	0.12	0.16	2.12

4.9. Model Validation

To test the model, the root mean square percentage error (RMSPE) value are obtained. The results are shown at table 3. And the formula of RMSPE is

$$RMSPE = \sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(\frac{Y_t^s - Y_t^a}{Y_t^a}\right)^2}$$

From the result of Root Mean Square Percentage Errors, the entire variable are acceptable (below 5%), except the Domestic interest rate equation (DR). Therefore, it should be improved by using Two Stage Least Square. After make the improvement, the test shows that the Root Mean Square Percentage Errors are acceptable. Therefore this model can be used for the policy simulation and forecasting purposes. Figure 3 describe the result of the simulations by comparing the endogenous variables with their actual values.

5. FISCAL AND MONETARY POLICIES

One of the objectives of this study is to examine the impact of government policies namely fiscal and monetary policies on the economy. This objective could be achieved by examining multiplier analysis. Multiplier is obtained by dividing magnitude of shock change in policy variables to the different between the base-run and the policy simulation.

There are two scenarios that would be presented in this study. First, suppose Indonesian government imposes the expansionary fiscal policy in the economy, in other word government increases their expenditure by 20%. Then, the impact of this policy is shown in the figure 4 and the multiplier is presented in table 4.

From the result of the simulation, we may see that if government increases their spending by 20 %, most of the economics variables will have positive impacts. On average, in time period study, GDP will increase by 1.69%, household consumption increase by o.64%, investment increase by 2.33%. Export and import will increase by 0.97 % and 2.85 % respectively. While, deposit and lending interest rate will decrease as amount of 0.4 %, 9.48 % and 3.74 % respectively.

Second scenario is suppose the government of Indonesia imposes mix policy in the economy. Figure 5 shows the simulation of Mix Policy by incorporating expansionary fiscal policy, by increasing government spending by 10% combine with monetary contraction, by reduce money supply 10% as well. While table 5 illustrates the multiplier resulted from the policy.

Table 4. The Multiplier of Fiscal Policy

Year	DR	GDPID	HHC	INV	LR	M	X
1991	20.79	2.15	-0.61	1.65	25.24	4.28	4.59
1992	-6.88	2.06	-0.76	4.75	-3.25	3.88	2.31
1993	2.88	0.92	-1.11	0.70	-13.91	1.82	0.69
1994	14.89	0.01	-1.27	-1.44	-6.14	0.27	-1.14
1995	24.68	-0.26	-1.25	-1.45	-0.72	-0.18	-1.95
1996	13.57	-0.33	-1.27	0.43	0.63	-0.30	-3.08
1997	-41.99	-0.74	-1.31	-1.11	-6.49	-0.90	-3.35
1998	-3.22	4.32	-1.08	2.18	-21.40	7.23	17.60
1999	-125.79	3.18	-0.29	14.60	-7.92	6.33	3.81
2000	64.79	1.70	0.32	0.76	-12.86	2.84	2.53
2001	-123.90	3.07	0.93	1.25	-36.90	5.23	6.76
2002	-115.01	3.01	1.40	5.11	-3.72	5.27	3.10
2003	-59.02	2.61	1.72	7.57	-11.23	4.26	0.32
2004	459.99	1.58	1.92	0.49	-11.02	2.37	-0.40
2005	139.72	1.49	2.10	-0.57	1.74	2.17	-0.40
2006	-51.84	1.64	2.29	2.91	16.98	2.38	-1.99
2007	-150.11	1.31	2.21	1.69	120.70	1.84	-2.48
2008	354.66	1.53	2.16	0.91	-15.00	2.14	-1.75
2009	33.13	2.85	2.35	2.78	-23.84	4.16	0.72
2010	-416.17	2.14	2.47	4.71	-24.56	3.06	-2.32
2011	-234.33	1.34	2.42	0.93	-44.91	1.79	-3.14
Average	-9.48	1.69	0.64	2.33	-3.74	2.85	0.97

From the results, we observe that if the government of Indonesia imposes the expansionary fiscal and monetary contraction policies to the economic, simultaneously, GDP, investment, export and import will improve with increasing incremental over the simulation period performance in Indonesia. On average, in time period study, GDP increase 0.61 %. Investment, import and export will increase as well as 1.06 %, 1.16 % and 0.97 % respectively. Meanwhile, that policy will make household consumption decrease as 0.4 %. Deposit and lending interest rate decrease as well as the amount 10.7 % and 4.57% respectively.

6.   FORECASTING

Since forecasting performance usually declines with the length of the forecasting horizon. In this study, forecasting is set for next 5 years. It means, in this study, we will forecast up to year 2016.

Firstly, all exogenous variables in this model i.e., exchange rate, US GDP, money supply and Data discrepancy are forecast by employing Exponential Smoothing technique with choosing Holt-Winters – No Seasonal option. For government spending, it is forecasted by estimating with using AR (auto regression) with corporate trend.

Secondly, the model is solved to estimate the future values of all endogenous variables. The figure 4 demonstrates the forecasting results for Indonesia until 2016. It can be seen that all variables tend to have upward trend, except for deposit and lending interest rate. We observe that all variables tend to continue the expanding trend at least up to 2016, except for deposit and lending interest rate.

7.   CONCLUSIONS

This paper attempted to construct a small size macro econometric model (SSMM) for the economy of Indonesian using annual time series data from 1986 to 2011. The model is generated by using simultaneous-equation simulation and the Two Stage Least Square (TSLS) technique. Then the dynamic simulation of the whole model is performed. The performance of the model on the historical data is evaluated based on Root Mean Square Percentage Error (RMSPE).

The model is convenient for simulating fiscal and monetary policy and economic forecasting.   The comparison of the actual, baseline and scenario indicates that growth estimate of the expansionary policies is optimistic. Additionally, the projecting results show that current expanding economic trend will be continued by growth scenes for the Indonesian economy in the future.

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http://www.worldbank.org/en/news/feature/2012/12/18/indonesia-economic

APPENDIX

Table 5. The Multiplier of Mix Policy

Year	DR	GDPID	HHC	INV	LR	M	X
1991	14.59	1.28	-0.98	0.81	14.99	2.76	4.59
1992	-13.06	0.85	-1.48	2.29	-5.37	1.84	2.31
1993	2.74	-0.22	-2.02	-0.97	-11.83	-0.01	0.69
1994	17.13	-1.01	-2.24	-2.46	-5.3	-1.28	-1.14
1995	25.46	-1.25	-2.25	-2.38	-0.73	-1.62	-1.95
1996	12.05	-1.46	-2.34	-1.27	-1.96	-1.92	-3.08
1997	-42.14	-1.81	-2.41	-2.59	-4.99	-2.41	-3.35
1998	-5.71	3.21	-2.19	1.24	-22.7	5.46	17.6
1999	-123.61	2.27	-1.34	13.72	-7.48	4.54	3.81
2000	64.92	0.82	-0.68	0.01	-13.25	1.39	2.53
2001	-123.54	2.07	-0.09	0.12	-36.12	3.54	6.76
2002	-115.05	1.98	0.36	3.89	-3.03	3.47	3.1
2003	-58.52	1.59	0.67	6.42	-10.51	2.6	0.32
2004	462.41	0.59	0.88	-0.44	-11	0.87	-0.4
2005	139.15	0.46	1.04	-1.61	1.07	0.64	-0.4
2006	-52.66	0.57	1.2	1.61	16.39	0.77	-1.99
2007	-149.1	0.21	1.1	0.46	107.98	0.24	-2.48
2008	349.33	0.37	1.01	-0.32	-15.36	0.46	-1.75
2009	34.45	1.48	1.1	1.27	-22.31	2.13	0.72
2010	-418.98	0.78	1.16	2.89	-23.37	1.05	-2.32
2011	-244.6	0.01	1.07	-0.51	-41.15	-0.07	-3.14
Average	-10.7	0.61	-0.4	1.06	-4.57	1.16	0.97

Figure 1. The GDP of Indonesia (in Billion Rupiah) 1960-2011
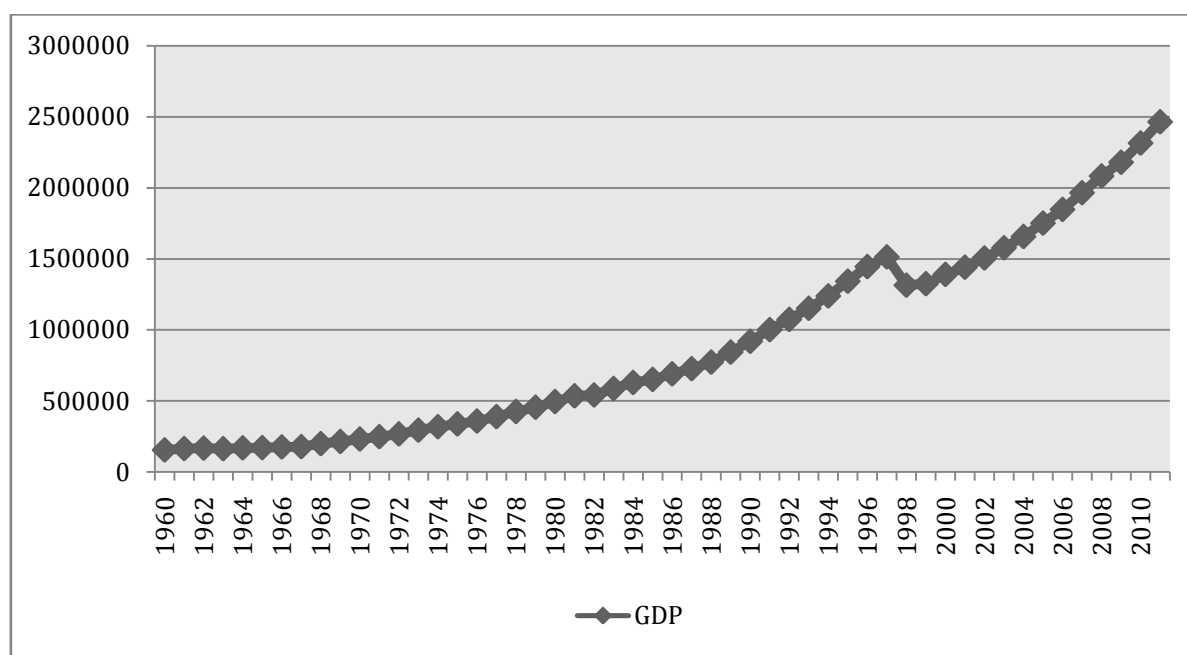
Source: BPS RI

Figure 2. Indonesian's Historical Macro-Economic Indicators

	1990	1995	2000	2005	2010	2011	2012
National Accounts (% change)[1]							
Real GDP	9.0	8.4	4.9	5.7	6.2	6.5	6.2
Real Investment	25.3	22.6	11.4	10.9	8.5	8.8	9.8
Real consumption	23.2	21.7	4.6	4.3	4.1	4.5	4.8
Private	23.9	22.7	3.7	0.9	4.7	4.7	5.3
Government	18.8	14.7	14.2	6.6	0.3	3.2	1.2
Real exports, GNFS	22.5	18.0	30.6	16.6	15.3	13.6	2.0
Real imports, GNFS	30.2	29.6	26.6	17.8	17.3	13.3	6.6
Investment (% GDP)	28.3	28.4	19.9	23.6	32.0	32.0	33.2
Gross domestic savings (% GDP)	32.3	30.6	31.8	27.5	34.4	36.4	36.6
Nominal GDP (USD billion)	114	202	165	286	709	846	878
GDP per capita (USD)	636	1035	804	1,300	2,984	3,498	3,563
Central Government budget (% GDP)[1]							
Revenue and grant	18.8	15.2	20.8	17.8	15.5	16.3	16.2
Non-tax revenue	1.0	4.8	9.0	5.3	4.2	4.5	4.3
Tax revenue	17.8	10.3	11.7	12.5	11.3	11.8	11.9
Expenditure	11.8	13.9	22.4	18.4	16.2	17.4	18.0
Consumption	..	3.9	4.0	3.0	3.8	4.0	4.1
Capital	..	4.6	2.6	1.2	1.3	1.6	1.7
Interest	..	1.4	5.1	2.3	1.4	1.3	1.2
Subsidies	..	..	6.3	4.3	3.0	4.0	4.2
Budget balance	0.4	1.3	-1.6	-0.6	-0.7	-1.1	-1.8
Government debt	41.9	32.3	97.9	47.6	26.0	24.3	23.9
o/w external government debt	41.9	32.3	51.4	22.3	9.5	8.3	7.4
Total external debt (including private sector)	61.0	61.5	87.1	47.7	28.2	27.5	29.5
Balance of Payments (% GDP)[3]							
Overall balance of payments	..	..	..	0.2	-4.3	-1.4	0.0
Current account balance	-2.6	3.2	4.8	0.1	0.7	0.2	-2.8
Exports GNFS	25.6	26.2	42.8	35.2	24.6	26.2	24.1
Imports GNFS	24.0	26.9	33.9	32.2	21.6	23.3	24.4
Trade balance	1.6	-0.8	8.9	3.0	3.0	2.9	-0.3
Financial account balance	..	..	..	0.0	3.7	1.6	2.8
Net FDI	1.0	2.2	-2.8	1.9	1.6	1.4	1.6
Gross official reserves (USD billion)	8.7	14.9	29.4	34.7	96.2	110.1	112.8
Monetary (% change)[3]							
GDP deflator[1]	7.7	9.9	20.4	14.3	8.3	8.1	4.5
Bank Indonesia interest key rate (%)	..	..	..	9.1	6.5	6.6	5.8
Domestic credit	..	..	..	28.7	17.5	24.4	24.2
Nominal exchange rate (average, IDR/USD)[4]	1,843	2,249	8,422	9,705	9,090	8,770	9,387
Prices (% change)[1]							
Consumer price index (eop)	9.9	9.0	9.4	17.1	7.0	3.8	4.3
Consumer price index (average)	7.7	9.4	3.7	10.5	5.1	5.4	4.3
Poverty basket inflation (average)	..	..	..	10.8	8.7	8.2	6.5
Indonesia crude oil price (USD per barrel)[5]	..	17	28	53	79	112	113

Source: The World Bank

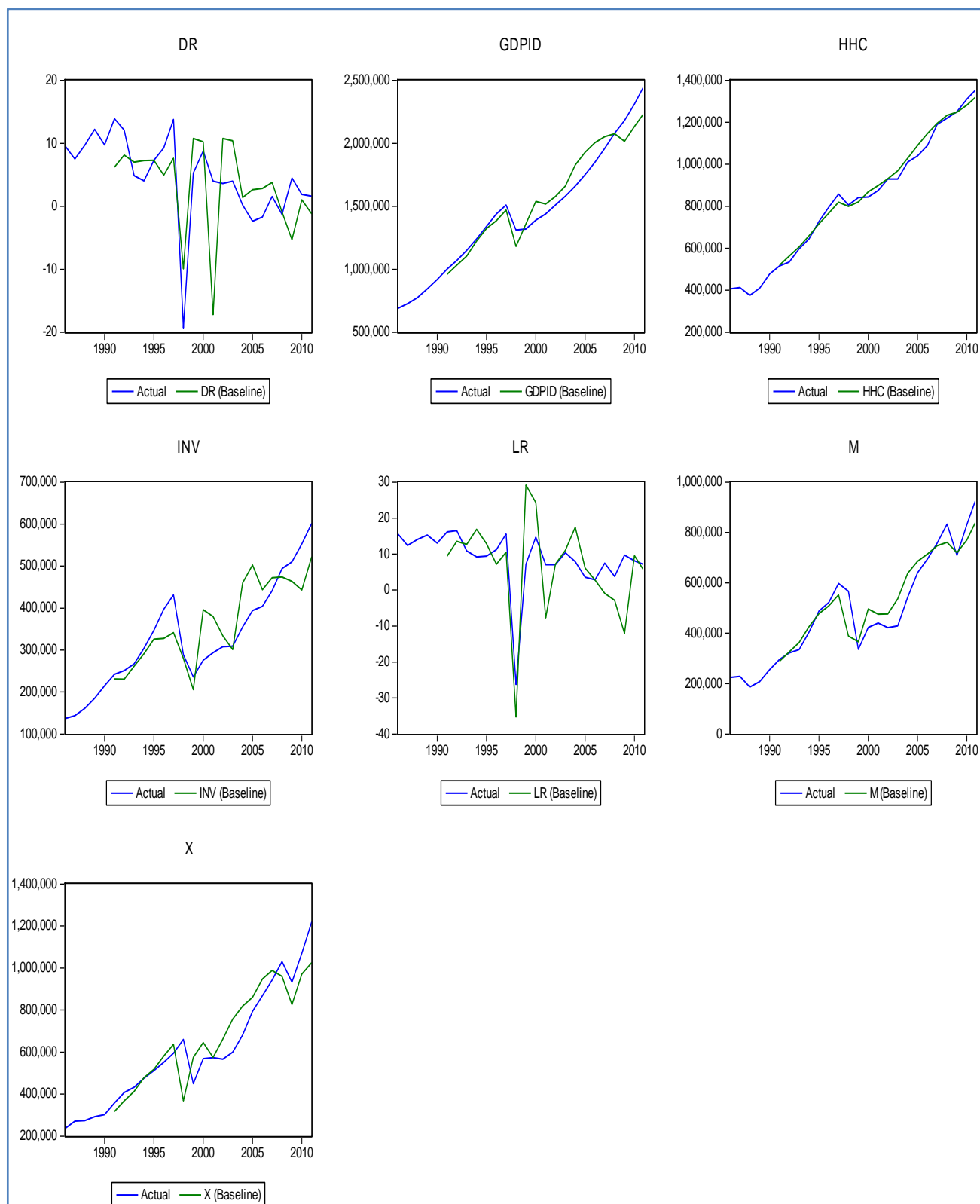Figure 3. Simulation of Endogenous Variables

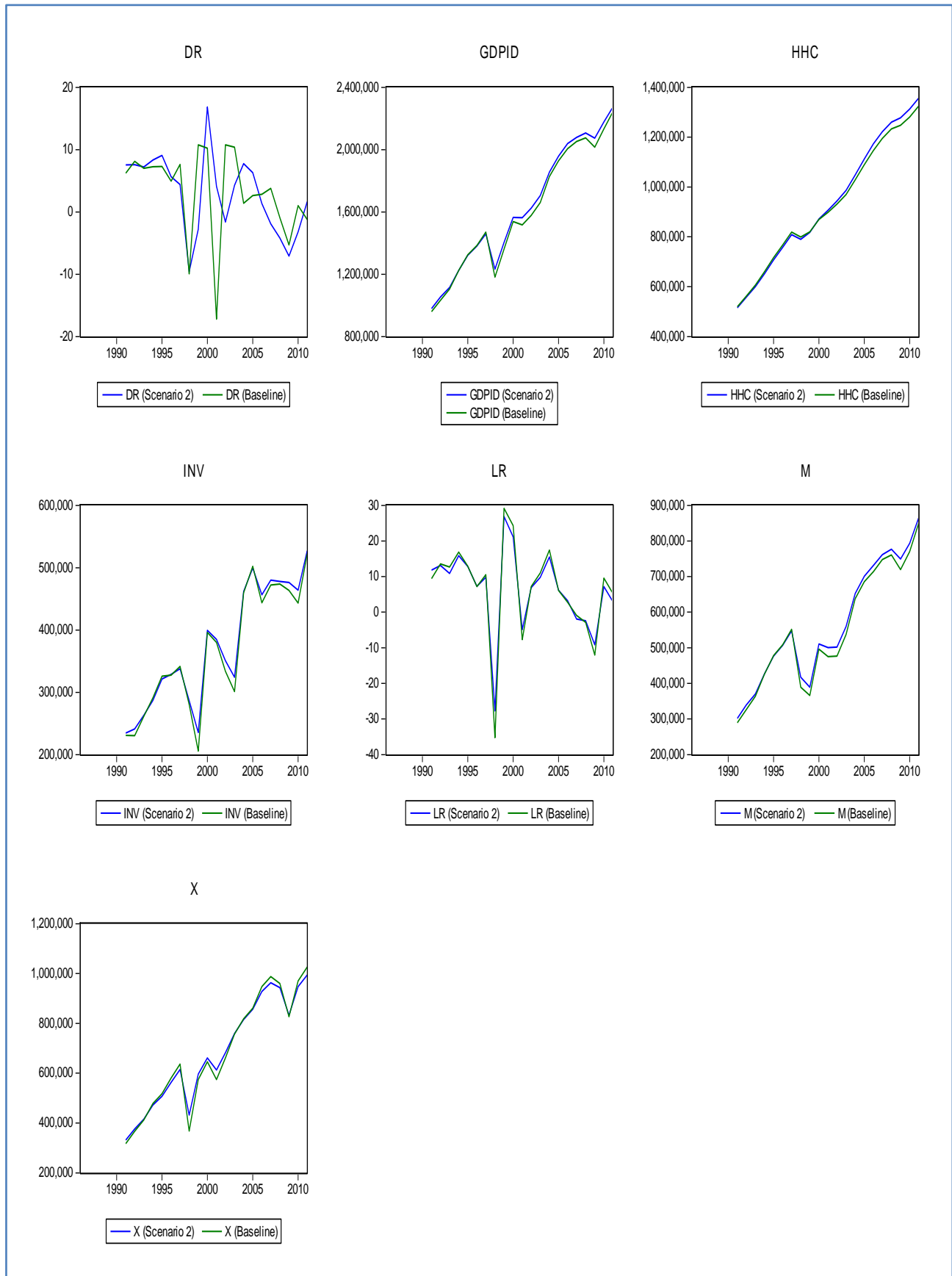Figure 4. Simulation of Expansionary Fiscal Policy
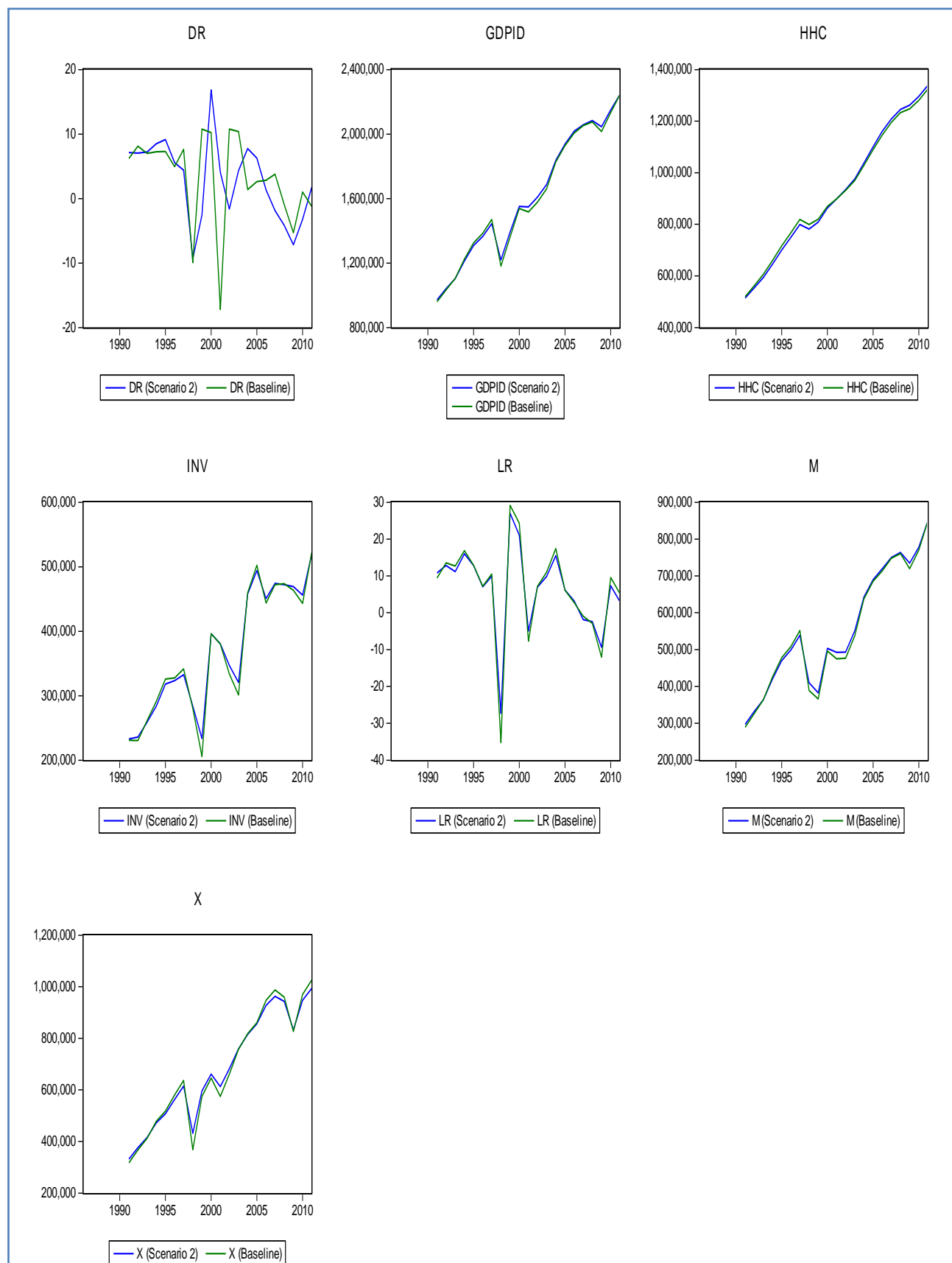
Figure 5. Simulation of Expansionary Fiscal and Monetary Contraction Policy

Figure 6. Forecasting Simulation