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MANAGEMENT OF PUBLIC INVESTMENTS BY USING THE ACCELERATOR MODEL

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ABSTRACT

In this study, the development of public investment and exchange in Turkey tested. Between 1990 and 2014, "Evoked Multiplier", "Accelerating" model was used in evaluating the effects of public investments on the development of the industry and the development of industrial production. The SPO and Undersecretariat of Treasury's current account have been stabilized with the GDP deflator. First, the theoretical structure of stimulated multiplier investment model is emphasized. The solutions are logarithmic and exponential. The general principle of the study is that the level of production is also effective on the investment at the desired time, and the investments made in the previous periods will also be effective for the future. The fact that each level of production is defined by capital and that the exact amounts of investments are determined becomes important for future plans at macro level. Making profitable for production is about investments. Determination of the multiplier, depreciation rate and adjustment coefficients for decision makers is becoming important.

Keywords: Management, Investment, Investment Models, Industry, Production, Accelerating Impact
JEL Classification: E22, E61, C18, G11

1. INTRODUCTION

Since its establishment until quite significant breakthroughs in the field of economy of the Republic of Turkey was held. In 1923, the gross domestic product (GDP) reached 19.1 billion TL in 1930 and 30 billion TL in 1935, which was 10.5 billion TL with 1968 factor prices. GDP reached to 29.9 billion TL in 1942, 33.9 billion TL in 1948, 39.2 billion TL in 1950, 46.9 billion in 1954 and 62.6 billion TL in 1959. The per capita GDP is 19,027 in 1968 with factor prices of 1,014,12 TL. At this date a dollar is $ 1.96. At current factor prices, the per capita amount of GDP in dollars is $ 49.73. In 1934, $ 1 = $ 1.26 (Ergin, 1986: 78).

In the first years of the republic, despite the fact that the dinamosu is the agricultural production of the economy, industrialization has been attempted in accordance with Atatürk's instructions. Between 17 February and 4 March 1923, the İzmir Economy Congress was convened and the economic program was determined. Izmir decisions taken by the Republic of Turkey in economic congress is intended to be a fully independent state.

Ataturk, in his speech "complete independence, a strong and independent economy, not to accept the capitulation, a nation that aspires to live humanely, foreign investment, in the past

many mistakes are made and it should not be repetition of the same mistake, not only with the military victory of the new Republic of Turkey with phrases such as ".
He stated that he would be able to survive directly with "esbab-ı iktisadiye, mülâhazat-ı iktisadiye" (Ökçün, 1997: 209). The proposals proposed by the industry group at the Congress and constituting the principles of the "Industry Incentive Law" (Kasalak, 2012: 65) constituted the philosophy of development and development that led to the republican governments.
In 1935, the share of the company was 13.3 percent, the share of services was 44.3 percent, and the share of agriculture was 42.4 percent. The share of the industry gradually decreased until 1950'de 1950'de 11.9 percent has been.
In 1955, the share of the company reached 13.4 percent again. In 1959, the share of agriculture in GDP was 41.4 percent, the share of industry was 14.5, and the share of services was 44.4 percent. In the coming years it is estimated that the population of Turkey, which reaches values in the table below.

Table 1. Population of Turkey

					Percentage (%)		
Year	Total	0-14	15-64	65+	0-14	15-64	65+
2018	**81 867 223**	19 203 792	55 500 077	7 163 354	23,5	67,8	8,7
2023	**86 907 367**	19 601 384	58 438 033	8 867 951	22,6	67,2	10,2
2040	**100 331 233**	19 333 893	64 623 369	16 373 971	19,3	64,4	16,3
2060	**107 095 998**	18 126 086	64 727 126	24 242 787	16,9	60,4	22,6
2080	**107 100 904**	16 813 783	62 873 761	27 413 359	15,7	58,7	25,6

Today, the people living in the provincial and district centers constitute 92.5 percent of the total population.

The share of fixed capital investments in GNP was 7 per cent in 1923 and 8.5 per cent in 1925. The investment / GNP ratio, which was 9.9 percent in 1945, rose to 11.9 percent in 1950, to 15.9 percent in 1955, and to 16.2 percent in 1960. In 1923, fixed capital investments with current prices amounted to TL 66.4 million and in 1945 TL 542.6 billion. 1.1 billion TL in 1950 and 3 billion TL in 1955. In 1930, fixed capital investments totaled 7.5 billion. Total fixed capital investments in 1963 amounted to TL 9.7 billion at current prices. This is 14.5 per cent of GNP. The investment / GNP ratio in 1967 was 16.6 percent and in 1973 it was 17.2 percent.

This rate was realized as 17.7% in 1980 even though it reached 20.7 in 1978.
In 1984, this rate is 18.6 percent. In 1986, this rate increased and reached around 22.0 percent. Total fixed capital investments (public + private) in the year 2001 were 33.5 billion TL. It has been realized. This is 11.1 billion TL. while public investment is 22.4 billion TL. private sector investments. While GDP is 176.5 Billion TL. In other words, the share of total investments in GDP was 19 percent.

Table 2. Total Fixed Capital Investments by Sectors

Sectors	Current Price Millions TL.			Rate of Change (%)		Distribution Ratio (%)		
	2020	2021 (1.)	2022 (2.)	2021 (1.)	2022 (2.)	2020	2021 (1.)	2022 (2.)
Agriculture	21.155	33.122	43.369	56,6	30,9	1,5	1,7	1,9
Mining	33.001	43.941	59.749	33,1	36,0	2,4	2,2	2,6
Production	293.141	447.569	549.672	52,7	22,8	21,2	22,8	23,6
Energy	35.962	42.723	56.750	18,8	32,8	2,6	2,2	2,4
Transportation	451.052	620.430	716.711	37,6	15,5	32,6	31,6	30,8
Tourism	13.945	17.052	19.773	22,3	16,0	1,0	0,9	0,8
Housing	382.753	514.431	603.893	34,4	17,4	27,7	26,2	25,9
Education	39.849	64.787	73.738	62,6	13,8	2,9	3,3	3,2
Health	39.630	77.550	91.260	95,7	17,7	2,9	4,0	3,9
Other services	71.599	98.811	115.332	38,0	16,7	5,2	5,0	4,9
TOTAL	**1.382.086**	**1.960.415**	**2.330.247**	41,8	**18,9**	**100,0**	**100,0**	**100,0**

Source: Presidency of the Republic of Turkey Strategy and Budget.
(1.) Realization Estimate,
(2.) Program

GDP in 2017 is 3035.4 Billion TL. the total fixed capital investments against the realization amounted to 928.6 Billion TL. The share of investments in GDP is 30 percent. In 2001, while the share of public investments in GDP was 6.6 percent, this figure dropped to 4 percent in 2017.

Table 3. Public Fixed Capital Investments by Sectors

Sectors	2009=100 Chained Volume, Millions TL.			Rate of Change (%)	
	2020	2021(1.)	2020(2.)	2021(1.)	2020(2.)
Agriculture	2.613	3.466	4.425	32,6	27,7
Mining	3.475	2.792	4.307	-19,7	54,3
Production	489	225	528	-53,9	134,6
Energy	5.721	3.427	4.464	-40,1	30,3
Transportation	19.321	17.478	17.420	-9,5	-0,3
Tourism	141	75	104	-46,6	38,7
Housing	468	743	827	58,9	11,2
Education	3.945	6.453	6.033	63,6	-6,5
Health	610	4.388	4.028	619,6	-8,2
Other services	11.262	12.461	11.973	10,6	-3,9
TOTAL	4.513	6.271	5.099	39,0	-18,7

Source: Presidency of the Republic of Turkey Strategy and Budget.
(1.) Realization Estimate,
(2.) Program

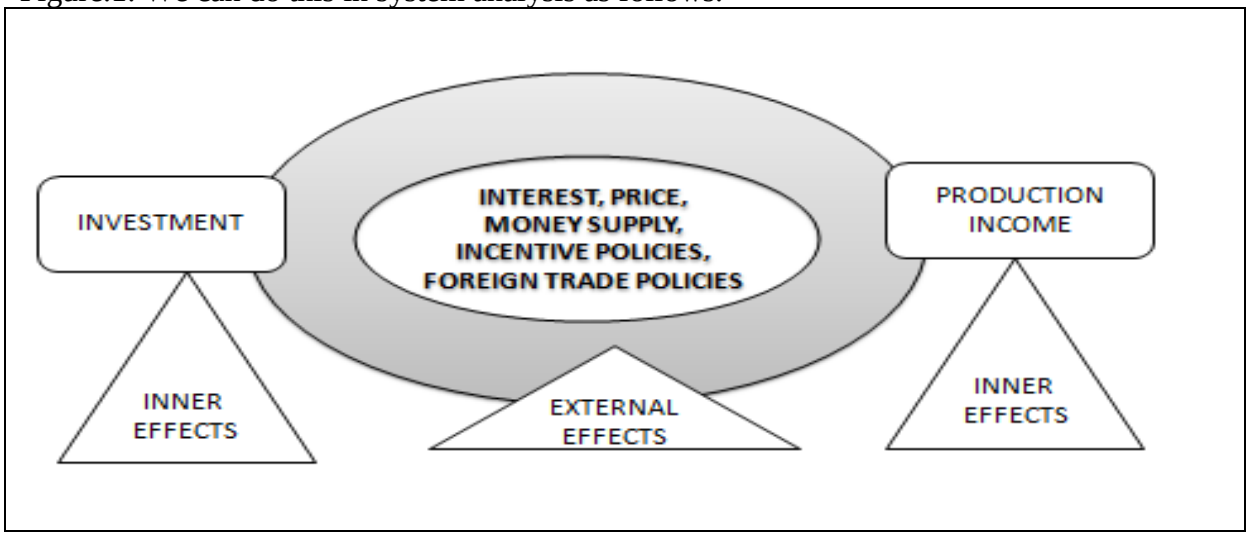
Those interested in the topic of investment in economic literature have tried to explain the investment in economic analysis as well as the explanations that apply to both macro explanations and firm theory. For this, investment continues to be a dynamic concept in the economy.

The general definition of an investment is to add the saved amount to the existing capital goods or to convert it to the capital goods type. Decision makers, firm managers or entrepreneurs of the country's economics approach investment-related models, mathematical definitions and expressions. Accordingly, the future is planned and regulated. Later decisions, such as social, cultural, political and so on, are made again and applied.

Investment in the planning and regulation of the future, in the works to increase the production and income levels, is a dynamic element that comes to mind first. Investment is linked to production and income, since it is a derivative of capital goods. In other words, it affects both the increase of production and income, and it is affected by production and income.

Production and income affects not only investment, but current price policies, interest policies, wages, import-export decisions, exchange rates, incentive policies and consumer preferences also affect production and income. These factors also affect investment. Influenced by them, investment brings an impact on production and income.

Figure.1: We can do this in system analysis as follows.



As seen in Figure 1, the production and income fields and investment fields interact with each other. In addition, they are also widely influenced by external influences. If such an influence is on one, it is transferred to the other. In addition, its internal impacts also affect production and revenue and investment areas. Investment in economic analysis has an important place as this influencing and influencing requires the exploration of mathematical explanations and definitions.

The capital formation in the economy comes from the fact that the amount that is saved is not consumed but turned into capital goods (Ülgener, 1984: 195). From this point of view, the investment is made from the manufactured and imported goods within a period of time to the existing production vehicles (machine-equipment and stocks).

Investments can be divided into three main parts:

1. Fixed capital investments: It is possible to define this as gross and net investments. Gross investment (GS) refers to the part of investments made over a period, and the net

investment is the portion obtained by subtracting the wear and tear (depreciation amount) share from GS investments. Keynes' pure investment definition is "capital and additional investments after deducting the value of the amount to meet the value of the existing capital" (Keynes, 1936: 75). Gross investments have come to the fore from pure investments and from renewal and residence investments. Renewal investments are part of replacing worn-out machinery-equipment that is outdated during a period of time. The investments made to increase the production capacity by using various methods pave the way for completion investments.

2. Financial investments: Negotiable instruments or capital investments that may be an addition to the assets that constitute wealth are financial investments.

3. Independent and stimulated investments: Independent investments are investments regardless of the sales amount (Pakdemirli, 1983: 4). Independent investment is considered suitable for long term investment and is not interested in output amount. The stimulated investment is the type of investment made depending on the consumption and sales opportunities.

In the global economy of a nation, total investments in the private sector and the public sector are created by adding the unused portion of the revenues (or separate sectors) to the capital stocks. In summary, it is the additions to the means of production.

The part of the income that is not consumed brings the "savings" to the market. For this reason, investment is related to savings at macro level. Static sense refers to the next part where the consumption expenditure from the end of a cycle (Ex-Post) drops. In dynamic sense, saving is the amount of money that is not consumed in today's earned income. The dynamic saving recipe is an ongoing (Ex-Ante) view that began in the past.

2. ASSISTANCE RELATED TO THE THEORY WHICH ACCELERATES.

In the economic analysis, it is possible to reach the solid results if the investment model based on the correct source is used with "Accelerator" - "Excited Multiplier" which is one of the most important macro investment models.

The macroeconomic economy is expressed as constant, which is formed by the investment, capital and production relation, and the narrative that is formed by the size of the relationship is fixed as Clark 1917: 220). For the first time, the study of investment behavior within the economic cycle revealed the theoretical assumptions and the measurable acceleration (Junankar, 1972: 30).

In later years Tinbergen further developed his work on the "accelerating principles" in 1938 in Chenery in 1952. The principle of accelerating is investment in general, with proportional representation of sales and production derivative changes. These changes have three main expressions. The first is the rate of change of capital stock, the second is the distribution of the increases in production, the third is the improvement in output level.Assumptions about the accelerator act quite hard. These assumptions are, in short,

1. Capital and input are needed to determine where each output will occur.
2. Similar variables determine the size and proportion of different products.
3. Increasing the means of production is easier and faster than financial instruments.
4. The exact amount of the capital must be established in determining the production level.

5. Companies try to increase their production levels by investing at any time and try to keep their capital stock at the optimum level.
6. Changes in production are relative prices.

If we set the model of these assumptions,

$$\mathbf{I_t = K_t - K_{t-1} = v\,(Q_t - Q_{t-1})}$$

Here, It t denotes net investments over time, Q, t and output at time t-1, K, t and t-1. v is the coefficient. The difference between the capital stocks at times t and t-1, which identifies the investment on the left side of the equation, is expressed as the current increase of the capital.

There is always a draw between the growth of capital stocks or the change of output and the increase of output. The accelerator is conceived as a constant that is dependent on this relationship (Knox, 1952: 272). But all investment behavior is not calculated with this constant. In the meantime, there is a "must-have" investment.

We can show this as follows.

$$\mathbf{I_t = v\,(Q_t - Q_{t-1}) + Au\ I_t}$$

Au here refers to the autonomous investment. If all of the investment includes autonomous investment then it would be possible to invest as a gross investment (Duessenberry, 1958: 32). This kind of approach also facilitates Keynesian theorem. Goodwin's dynamic study also used autonomous investment variants (Goodwin, 1951: 2). Some economists explain the theory of accelerating on the assumption that investment behavior is related to output and capital stock of profits. For this, it is based on the prediction that increasing the future capacity will make profitable output profitable and profitable.

Firms are planning their future, and they put investment programs in order to increase their total income and make production profitable. Investment Programs are structured according to maximizing profits and minimizing costs for each period. Excess profits and low costs may be appropriate under low or discounted interest rates. Expected, planned profits are only due to the expected bid and low interest (Chenery, 1952: 2). Expected costs have an impact on allocations. We can write Chenery's statement as follows.

$$\mathbf{K_t^* = v\,Q_t}$$

$$\mathbf{I_t = K_t - K_{t-1} = \lambda\,(K_t^* - K_{t-1})}$$

Here K_t is the capital stock, Q_t output, I_t is the investment, and v is the accelerator constant for each output unit.
We can formulate this as follows:

$$\mathbf{K_t - K_{t-1} = {}_v\lambda\,Q_t - \lambda K_{t-1}}$$

This is the λ response coefficient. This coefficient is estimated as a positive group.

Decision makers will often cause delays in the response coefficient and the coefficient will be a fraction (Kuh, 1963: 9). Nevertheless, Tinbergen notes that the accelerator will not help a lot of things, especially the investment will not be able to explain the details of the irregular change (Tinbergen, 1938: 176), and reorganizes its equality.

If we equate the capacity factor to this equality,

$$K_t = v\lambda Q_t + (1-\lambda) K_{t-1}$$

Here, (1 - λ) denotes the capacity factor, which is the capacity utilization rate in this model. Estimation of capital stocks ensures that the capital is determined by this coefficient (Lund, 1971: 56). Let's write equally delayed and geometrically weighted.

$$K_t = v [\lambda Q_t + \lambda(1-\lambda) Q_{t-1} + \lambda(1-\lambda) Q_{t-2} + \ldots.]$$

This is the investment-related formula:

$$K_t - K_{t-1} = v [\lambda (Q_t - Q_{t-1}) + \lambda(1-\lambda)(Q_{t-1} - Q_{t-2}) + \lambda(1-\lambda)^2 (Q_{t-2} - Q_{t-3}) + \ldots.]$$

The above equation gives the net investment or the change of the capital stock, equality is the investment-production relation. Here too, gross investment is expressed as the sum of net investments and renewal investments. Renewal investments are depreciation in capital stocks (Boatwright-Eaton, 1972: 406).

$$GI_t = IN_t + IR_t$$

Here, IN_t net investment, IR_t renewal investment, GI_t represents gross investment. Depreciation is calculated as a rate of capital stock and is denoted by D.

$$D_t = \delta K_{t-1} + IR_t$$

And from there,

$$GI_t = (K_t - K_{t-1}) + \delta K_{t-1}$$

Here δ is the depreciation rate. Gross investments described by net investments and renewal investments are expanded as follows**,**

$$GI_t = v\lambda Q_t + (1-\lambda) K_{t-1}$$

If we apply the Koyck transformation to this formula, we will**.**

$$GI_t - (1-\lambda) GI_{t-1} = v\lambda Q_t - (1-\delta) v\lambda Q_{t-1} + (\delta-\lambda) K_{t-1} - (1-\delta)(\delta-\lambda) K_{t-2}$$

Here,

$$GIt - (1-\lambda) GIt\text{-}1 = v\lambda Qt - (1-\delta) v\lambda Qt\text{-}1 + (\delta+\lambda) GIt\text{-}1$$

As the final form, the following equation is obtained**.**

v , λ, δ bu formülden elde edilir. Equation is used as the investment behavior model of the accelerator theory

3. GENERAL ANALYSIS OF THE EFFECT OF PUBLIC INVESTMENTS ON CAPITAL PRODUCTION BY THE ACCELERATING THEORY

3.1. Purpose of the study

Turkey develops and how the effects of a certain period of public investment in particular has been tested what is happening in the manufacturing industry. It is desirable to know how the effect of the stimulated multiplier effect of investments on the level of production depends on the degree of direction and severity of the changes in time and on how future investments in the previous periods will occur.

3.2. Data description

Public investments between 1987 and 2014 were used for analysis by fixing industrial production data with the indices used by the Ministry of Development and the GDP deflator. The model yielded linearly meaningful results. The Industrial Production Index (SU) has been stabilized with 2010 = 100 base years. Public Fixed Capital Investments are not absolute values. The share of public investments in fixed capital (GDP) is used in GDP.

3.3. Findings and Comments

In the model, "KY" is defined as a dependent variable, and Eviews 10.0 version is used for the analyzes that have been made. The model estimates are estimated by the Newey-West algorithm which analyzes the autocorrelation and heteroskedastic problems.

Table 3: Model estimation results.

The independent variables	coefficients	st. error	t statistic	P
C	0.896851	0.271575	3.302403	0.0030*
KY(-1)	0.777248	0.054283	14.31835	0.0000*
SUİ	-0.003968	0.007201	-0.551031	0.5867
SUİ(-1)	0.000634	0.009837	0.064432	0.9492

R^2 =0.821 ; Adjusted R^2 = 0.799; F testi (p)=0.000;
Breusch-Godfrey Serial Correlation LM Test (p)=0.201;
Harvey test (p)= 0.788;
Jarque-Bera test (p)=0.279

Significant variable for 0.05

$$KY_t = \alpha_0 + \alpha_1 KY_{t-1} + \alpha_2 SU_t + \alpha_3 SU_{t-1} + \varepsilon$$

$$KY_t = 0.896851 + 0.777248\ KY_{t-1} - 0.003968\ SU_t + 0.000634\ SU_{t-1}$$

$$KY_t = 0.896851 + 0.777248\ KY_{t-1} - 0.003968\ SU_t + 0.000634\ SU_{t-1}$$

$v\lambda$ = Capital Relation Coefficient * Regulation Coefficient

$v\delta\lambda$ = Capital Relations Coefficient * Depreciation Rate * Regulation Coefficient

$(1-\lambda)$ = 1- Regulation Coefficient

λ = 0,222752 Regulation Coefficient

$\delta = \lambda\delta v / v\lambda = 0.000634 / 0.003968 = 0,16$ Depreciation Rate

v = 8,9 Capital Product coefficient (Capital Relation Coefficient)

The model is solved linearly. The regression coefficient obtained from the theoretical model is 0.222752. When we calculate the capital yield coefficient from this, it is 8.9. In the period of 1963-1967, the capital yield coefficient increased to 6,2 in 1990-1994 compared to 3.8 for the manufacturing industry. In the period 2007-2013, this rate was 9. In the period of 1963-1967, this ratio is 2.7 for total fixed capital investments. The ratio of marginal capital output to the period of 1990-1994 has increased to 7.5 and remained the same in 2007-2013 period. The

calculations made for the periods 2001-2005 and 2007-2013 were based on the 1998 base year GDP series and fixed capital investments.

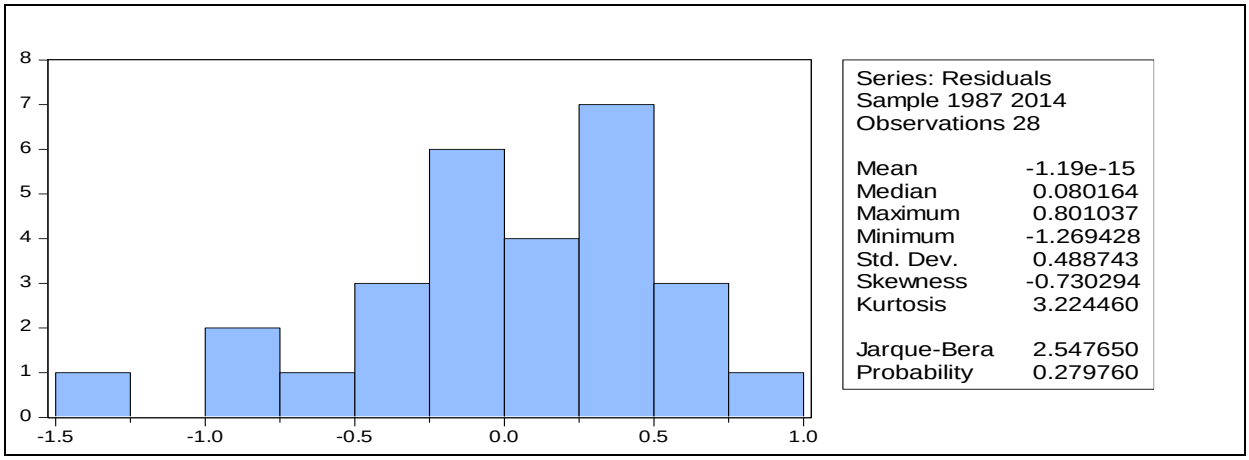
In the calculations related to the previous periods, 1968 base year series were used. The production industry marginal capital yield coefficient for the period 2007-2013 in the Ministry of Development and TURKSTAT has been determined as 8.9, transportation 11.8 and energy 15.9. The capital output coefficient for public fixed capital investments in this study is calculated as 8.9.

The independent variables explained 82% of the dependent variable KY. The H1 hypothesis, which indicates significance when the F test p value <0.05 indicating the significance of the model, was accepted. In the model, the WU does not have a significant effect on the KY and the change in the previous period. On the other hand, KY has a positive effect of 77.7% on current investments for the previous period. Ensure model assumptions, the results are suitable for interpretation.

The significance of the relationship between the independent variables is in the range of Sig 0,06> 0,05. It is possible to express the reliability of the variables only from the t test, which is more meaningful for KY at time t-1. When we look at the whole of the model with the F test, it is possible to express suitability when the coefficients of the variables are observed as a whole.

The JB test was conducted to test the model's accuracy.

As seen in the graph below, it is observed that the residuals are normally distributed. JB = 2.54 Probabilty = 0.28> 0.05.



Autocorrelation Test evaluation showed that there was no autocorrelation by testing whether the error terms were related to error terms in another period.

Breusch-Godfrey Serial Correlation LM Test was performed for autocorrelation.

F-statistic	1.725448	Prob. F(2,22)	0.2013
Obs*R-squared	3.796530	Prob. Chi-Square(2)	0.1498

For Obs * R-squared, the probability is 0.14> 0.05 and it is concluded that there is no autocorrelation.

It has been accepted that an important variable with the identification error test is whether the model is included, whether it is an unnecessary variable, whether it is functionally incorrect,

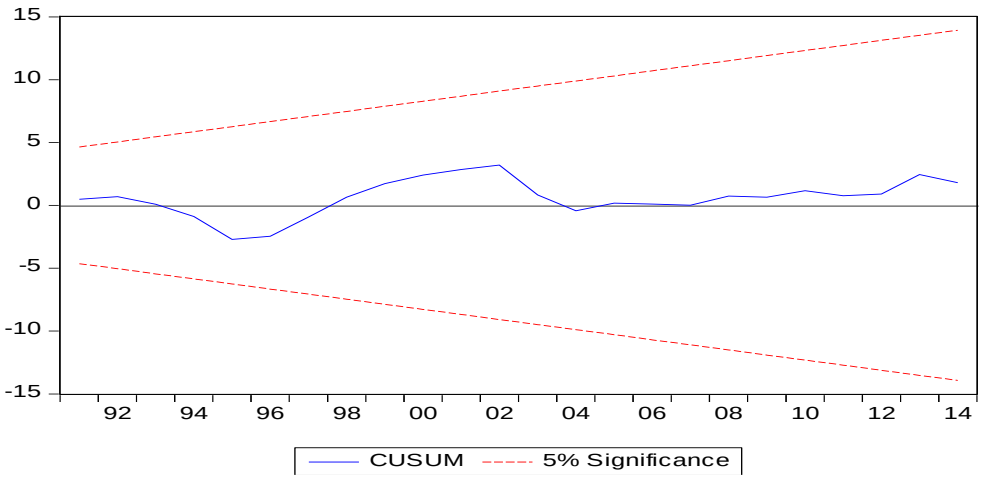
and whether there is a significant improvement in the term and no identification error. In order to show that the model is reliable, the Harvey Test was applied and it was found out that the error term in the study period is not related to the error term in another period.

Heteroskedasticity Test: Harvey

F-statistic	0.351868	Prob. F(3,24)	0.7882
Obs*R-squared	1.179654	Prob. Chi-Square(3)	0.7579
Scaled explained SS	0.695483	Prob. Chi-Square(3)	0.8743

The H0 hypothesis was accepted, indicating that there is no heteroskedality when p> 0.05.

With the structural test application, the cumulative sum of consecutive residues with or without intra-period differences or fragile states formed by an unknown cause was examined by the CUSUM Test. There is no deviation from the 5 percent range shown in the graphic below. Since the values are not in time to change, we have decided that there is no break in our data set. It is also seen from the following CUSUM test chart that there is no structural change. The following table shows the values, the appropriate ones and the error terms. There are parallels between the actual values of the model and the slopes of the appropriate values.



A stable structure has been determined in accordance with trust boundaries. No structural fracture.

4. CONCLUSION

The residual value generated from the production of the fixed capital goods which was made in the previous periods is split to increase the production and the investment resulting from the transformation of the machinery, equipment and building structure either produces a consumption financing or produces consumption goods. The financing of the investment affects the real sources of value in the economy periodically as it is provided by profit, interest, household incomes and loans. Especially the future positions of real resources are more

affected. Particularly, consumption goods or investment goods prices and wage costs that will arise as a result of the investment will result in the calculation of capital income.

I would like to express TMU1 as the total consumption in a period when the price of the consumption goods is TM1 and this as the TMS (the fee for the production of the consumer goods). In the same period, assuming that the price of the investment goods is YM1 and the fee for the production of investment goods is YMS, the return of capital depends on the labor required for production of consumption and investment goods.

The profits earned from the production of investment goods and the payment of the remuneration determine the investment property claim. The compensation for the profits in the consumption goods is the wages in the investment properties. It is therefore necessary for value to emerge in order for the investment to occur. Benefit-cost calculations are made when both individual and social aspects of investments are taken into account. For this reason, public investments become important in order to increase social benefit. Roads, dams, harbors, power plants and airports are sought for social benefits. Public investments are directly influenced by private sector investments and indirectly by industrial production. For this reason, States always keep the Regulations, Supports Supervisors and Interventions on the agenda.

Increasing taxes for the financing of public investments and creating new funds are not the desired outcomes. In this case, interest rates also increase. Declines in capital shares (Alfonso-Aubyn, 2008: 6) begin. For this reason, public investments are more prominent in the development of standards of living and the strengthening of the social fabric. Periodically, an answer was sought in order to determine the contribution of public investments to industrial production, and the extent of direct interaction was tested. As a result of the model analyzes, the existence of a geometric relationship between public investments and total industrial production was determined according to the index values of 1990-2014 period. Even if it is not very strong, it is possible to talk about the existence of the relationship.

The rates of change in the indices t, t-1 and t-2 as compared to the previous year in the Industrial Production index as independent variables and the ratios of the public investments at the time t-1, t-2 to the GDP formation were taken as independent variables. There is a significant relationship between the independent variables. The capital yield coefficient of 10.1 is quite correct in an environment where full capacity utilization is approached. The fact that it is the capital unit to be put in place for one unit of production increase has revealed a very high capital requirement. The fact that the financing of many public investments in the private sector in recent years has increased the capital-to-revenue ratio as a result of the privatization of investments made in the past. Because the financing of public investments by the private sector has increased the costs.

The high rate of depreciation also means that the technology is not renewed. It has been seen that new public investments do not increase industrial production linearly, but geometric and non-constant increases.

Privatization of public investments intended to provide technological changes have not been serious to this day out of the situation if it is to compete on an international scale and in terms of strategic investments in health and social security is important for Turkey. On the other hand, the provision of new and advanced technology capital initiatives will lead to an increase in initial product costs.

The influences from previous times show that investments take place over a long period of time. In this subject, the effect of the investments in the previous periods in the influence of the production comes to the forefront. If low cost production impacts reduce costs, investing can be a contributing factor. The "Regulation Coefficient" can not be established with the establishment of production technologies at high cost and the transition to scale economics.

The production-investment relationship will provide appropriate areas in this model and will provide balanced development and guidance for public institutions. Similar problems (Czerwinsk and others, 1982: 300), which are likely to arise from macro level balanced development, will be eliminated with this model, and new economic policies will guide public investment.

REFERENCES

- Afonso, A. and Aubyn,M.S.(2008). Macroeconomic Rates of Return of Public And Private Investment Crowding-In and Crowding-Out Effects. *European Central Bank Working Paper Series*, No. 864, Page 6.
- Boatwright, B.D. and Eaton,J.R.(1972). The Estimation of Investment Fonction for Manufacturing Industry in the United Kingdom. *Econometrica* Vol.39, Page 406.
- Chenery, H.B.(1951). Overcapacity and Acceleration Principle. *Econometrica*, Vol.20, Page 2-12.
- Clark, J.M.(1917). Business Acceleration and the Law of Demand, A Technical Factor in Economic Cycles. *Journal of Political Economics*, Vol.25, Page 220-230.
- Czerwinski, Z.,and others (1982). Makroeconomics Modelling Based on Models fort the Polish Economy. *Advance in Econometrics*, Cambridge Univ. Press, Page 300.
- Duessenberry, J.S.(1958). Business Cycles and Economic Growth. *Mc Grow Hill Compy*. Newyork, Page 32.
- Eckaus,R.S.(1953). The Acceleration Principle Reconsidered. *Quarterly Journal of Economics*, Vol.67, Page 212.
- Ergin, F.(1986). Prices and Revenues in the First World War and Atatürk Period. *Atatürk Research Center Magazine*, Vol. III, No 7, Page 78.
- Goodwin, R.M.(1951). Non-Linear Accelerator and Business Cycles. *Econometrica*, Vol.19, Page 9.
- Junankar, P.N.(1972). Investment: Teories and Evidence, *MacMillan Publ., Comp*.,Page 30.
- Kasalak, K.(2012). Industrial Encouragement Law and the Impact of Industrialization in Turkey. *Süleyman Demirel Üniversitesi Fen Edebiyat Fakültesi, Sosyal Bilimler Dergisi*, No 27, Page 65.

- Keynes, J.M.(1961). The General Theory of Employment, Intereset and Money. *MacMillan Com*p., London, Page143.
- Knox, A.D.(1952).The Acceleration Principle and the Theory of Investment-A Survey. *Economica*, NS.19, Page 272.
- Koyck, L.M.(*1954). Distributed Lags and Investment Analysis*. North Holland Publishing Comp., *Amsterdam*, *Page 54.*
- Kuh, E.(1963). Capital Stock Growth, A Micro Econometric Approach. *North Hold. Comp.* Amsterdam, Page 9.
- Lund, P.J.(1971).Investment, The Study of an Economic Aggregate. *Oliver and Boyd Comp*., Edinburg, Page 56
- Ökçün, G.(1997). Economy Congress 1923, İzmir Turkey, News- Documents-Comments. *Capital Markets Board, Publication* No 59, 4. Edition, Ankara, Page 209–212
- Pakdemirli, E.(1983). Investment Planning and Feasibility Studies. *Ege University, Engineering Faculty Publishing* No 17, İzmir, Page 4.
- Tinbergen, J.(1938). Statistical Evidence on the Acceleration Principle. *Econometrica,* Vol.5, Page 176.
- Ülgener, F.S.(1984). Milli Gelir, İstihdam ve İktisadi Büyüme. *İstanbul University Economy Faculy Publishing*, No 335, İstanbul, Page 195.