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THE REQUIREMENTS OF FOREIGN BORROWING AND TWO-GAP THEORY: A CASE OF TURKEY

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Abstract:

This study has examined empirically the need of foreign borrowing, and foreign debt burden of Turkey from 1963 to 1995. The two-gap analysis was used to assess the requirements of foreign resources as additional to domestic resources in order to achieve a reasonable target growth rate of national income. This study has shown that, in the light of two-gap analysis, foreign aid will still continue to play a crucial role during the Seventh Five Year Plan period (1996-2000) by helping to overcome foreign exchange constraints, although it has put Turkey under a large foreign indebtedness. However, as long as the economy keeps its ability to repay foreign debt, it is beneficial for the economic development of Turkey.

Özet:

Dış Borçlanma Gereksinimi ve İki Açık Teorisi: Türkiye Örneği

Bu çalışma ampirik olarak, Türkiye'nin dış borç problemi ve dış borçlanma ihtiyacını, 1963-95 yılları arasındaki verileri kullanarak incelemektedir. İki açık teorisi analizi, Türkiye ekonomisinde, milli

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gelirin makul ölçüde bir büyüme hızına ulaşabilmesi için yurt içi kaynaklara ek olarak nekadar dış kaynaklara gereksinimi olduğunu ölçmek için kullanılmıştır. Bu çalışma sonucunda iki açık teorisi analizine göre dış yardımlar ve krediler, 7. Beş Yıllık Kalkınma Planı dönemi boyunca, Türkiye'nin önemli miktarda dış borç stoku ile karşıkarşıya kalmasına rağmen, döviz darboğazı kısıtlamalarının çözümüne yardımcı olmak suretiyle önemli rol oynamaya devam etmektedir. Ekonomi dış borç ödeme kabiliyetini koruduğu sürece, dış yardımlar ve diğer kaynaklar Türkiye'nin ekonomik kalkınmasına faydalı olmaktadır.

I: Introduction:

It is clear that foreign aid and other components of foreign aid capital have a positive impact, directly or indirectly, on economic development of the Turkish economy and have improved the productive capacity of the Turkish economy (Eroğlu, 1994). However, on the other hand, after the mid 1950s Turkey's industrialization strategy and rapid economic growth, which relied heavily on foreign capital inflows to finance its intermediate and capital goods imports, had put Turkey into a large foreign indebtedness.

Balance of payment crises and foreign indebtedness, associated with this strategy, is one of the major features of the Turkish economy, often leading to exogenously imposed stabilization measures. Such stabilization measures were negotiated with the IMF in 1958, 1970, 1978-79 and finally in 1980 (Kıray, 1990). Of these, the 1980 programme stands out as the most radical in terms of the extent of structural change it sought to achieve. The implementation of the 1980 programme which liberalized and opened the Turkish economy to world markets has been accompanied by unprecedented levels of foreign capital inflows, which has increased steadily the debt burden of the economy.

In this paper, we first concentrate on Turkey's foreign debt and then explore the theory of dual-gap analysis to examine the requirements of foreign borrowing and finally determine the borrowing need for foreign resources by using two-gap analysis.

II: A Profile of Turkish Foreign Debt:

One of the major economic problems of the 1980s and 1990s is the external debt of developing countries. This debt problem has reached an unprecedented level which is menacing the international economic and financial systems. The debt burden of debt servicing is growing rapidly. It was estimated that the total stock of external debt of LDCs had climbed to about $1478 billion by the end of 1991, from $86.6 billion in 1970, $446 billion in 1980 and $1095 billion in 1985 (OECD, 1992, p.54; Ersoy, 1989). This growing amount of the external debt burden of the developing countries constitutes a potential and major world crisis for the present international economic order. The development of the foreign debt of developing countries can be seen from Table I.

The recent overall trend in long term-debt has been relatively flat, $1129 billion in 1991, just 4.5 percent above its 1989 level. In comparison, the recent expansion trend of short-term debt is more noticeably increasing by 25 percent in the same period to reach $318 billion in 1991. It is also estimated that aggregate debt service declined by over $8 billion to $151 billion in 1991, which is the lowest level since 1987.

After casting a glance at the external debt burden of the developing countries, we now turn to Turkey's foreign debt problem. Turkey's outstanding foreign debt and debt service for the period of 1963-91 is shown in Table II. Foreign indebtedness has continued to be a problem for Turkey throughout its existence. Turkey's foreign debt is as old as the Turkish Republic. Before the Republic of Turkey, the Ottoman Empire had simultaneously accumulated a huge debt in the 1854-1914 period[1] and Turkey was obliged to repay a fraction of the Ottoman debt amounting to 129 million Turkish Liras under the treaty of Lausanne (Krueger, 1974, pp. 4-5). Thus, the new republic of Turkey found itself saddled with massive debt servicing obligations but with little control over its ability to

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[1] Between 1854 and 1875, 15 loans totalling £220 million were issued, primarily to finance budget deficits, and pay back old loans, then the burden of the debt increased rapidly, and the annual service charges rose from 10 percent of total government revenues in the early 1860s to 33 percent in the late 1860s and to 67 percent in 1874. See, Kıray, E., (1990).

service them. The final payment on the Ottoman debt of the 1854-1914 period was made by Turkey in 1954, exactly a century after the first loan (Kıray, 1990).

Table I:

Total Disbursed Debt of Developing Countries at Year-ends of 1983-91 by Source and Terms of Lending

($ Billion)

	1983	1984	1985	1986	1987	1988	1989	1990	1991
Long-Term Debt									
I. OECD Countries	524	551	602	646	705	714	696	700	718
-A. ODA	60	60	74	90	112	114	117	130	135
-B. Tot. Export crd.	128	139	162	181	205	201	188	214	225
Official export crd.	53	62	73	81	96	91	97	101	
Quar. Supplier crd.	34	32	35	37	36	50	26	39	
Quarant. Bank crd.	42	45	54	64	73	59	64	75	
-C.Financial Markets	324	339	353	361	374	383	374	337	340
Banks	297	311	315	317	325	332	317	277	
Bonds	26	29	39	44	48	51	57	61	
-D. Other Private	12	12	13	13	15	16	17	18	18
II. Multilateral	111	118	146	178	214	209	216	240	253
Of Which Concessional	34	37	42	49	57	61	66	75	
Non-concessional	77	81	104	129	157	149	150	165	
Memo: Total IMF	32	34	38	40	41	34	32	32	33
III. Non-OECD C.	119	107	116	128	153	161	167	165	158
Sub-Total: Long-Term Debt	**754**	**776**	**865**	**951**	**1072**	**1084**	**1080**	**1105**	**1129**
Of Which Concessional	167	161	185	211	256	267	279	299	
Non-concessional	587	615	680	740	816	817	801	806	
Short-Term Debt									
Banks	168	156	177	184	197	200	202	244	252
Export Credits	25	25	31	38	45	47	51	62	66
Sub-total: Short-Term Debt	**193**	**181**	**208**	**222**	**242**	**247**	**252**	**305**	**318**
Other identified liabi.	20	20	22	21	27	30	27	32	31
.Total External Debt	**968**	**977**	**1095**	**1195**	**1341**	**1360**	**1359**	**1442**	**1478**

Source: OECD, (1992), Table V.1, p.54.

Table II:
Turkey's External Debt and Debt Service for 1963-91

($ Million)

Years	Total Foreign Debt	Foreign Debt Repayment Principal	Interest	Total
1963	659	114	31	145
1964	856	110	34	144
1965	1 434	184	32	216
1966	1 597	146	31	177
1967	1 710	128	34	162
1968	1 883	72	34	106
1969	2 052	108	44	152
1970	2 297	158	47	205
1971	2 467	91	47	138
1972	2 567	235	62	297
1973	2 914	72	59	131
1974	3 150	126	102	228
1975	3 250	118	124	242
1976	4 037	119	217	336
1977	4 609	214	320	534
1978	6 291	301	489	790
1979	14 234	747	546	1 293
1980	16 227	648	668	1 316
1981	16 841	689	1 193	1 882
1982	17 619	953	1 465	2 418
1983	18 385	1 081	1 442	2 523
1984	20 659	1 907	1 607	3 514
1985	25 476	2 208	1 753	3 961
1986	32 101	2 145	2 134	4 307
1987	40 228	2 687	2 387	5 074
1988	40 722	3 927	2 799	6 726
1989	41 751	4 023	2 907	6 930
1990	49 035	3 938	3 264	7 202
1991	50 489	4 070	3 440	7 510
1992	55 592	4 871	3 439	8 310
1993	67 356	4 412	3 574	7 986
1994	65 601	5 448	3 923	9 371
1995	73 278	5 667	4 303	9 970

Sources: Central Bank of Turkey and Under-Secretariat of the Treasury and Foreign Trade.

Turkey had an export surplus during the Second World War which resulted in accumulation of gold and foreign exchange reserves. However, since then the balance of current account situation has been characterized by chronic foreign exchange shortage, except for the years, 1973, 1988 and 1989. The deficit on current account averaged about $120 million per year in the 1950s and $180 million in the 1960s. This chronic current account deficit increased sharply after the first oil shock and reached its peak level of $3409 million in 1980 (SPO, 1995). The chronic deficits on current account have implied a continuous need to borrow from abroad. The excessive borro-wing to meet the deficit and to service external debt from commercial sources in the 1950s led to a liquidity crisis and an unmanageable debt structure in 1958, which required remedial debt relief in the late 1950s and 1960s.

By the end of 1957, Turkey's external deficit had reached crisis proportions and foreign resources were obtained in critical periods from supplier credits, commercial bank loans to the Central Bank and withdrawals from the IMF. The total foreign debt had reached $1011 million which is about three times the export earnings in 1957, while foreign debt repayment was running at over $80 million per year. Then, the stabilization program of 1958 was imposed on Turkey. The stabilization program had several parts, which are (1) alterations in the exchange-rate system, which (2) enabled an immediate inflow of imports, (3) removal of the source of inflationary pressure, and (4) restructuring and consolidation of Turkish foreign indebtedness. In support of the devaluation and stabilization program of 1958, a package of external assistance was arranged under a multilateral debt conference organized by the OECD. The liquidity crisis was solved by consolidating the commercial arrears and debts and converting them into long-term loans. The consolidated amount was $443 million, which included the outstanding arrears amortization and interest payments due till January 1964. This debt rescheduling resulted in reducing debt payments to $43 million in 1959 and $18 million in 1960, which would have been otherwise due by $280 million in 1959 (World Bank, 1975, p.130).

Net transfers (gross disbursements minus amortization and interest) were very small in the period 1960-64 because of high repayments falling due on the 1958-59 debt-relief exercise. However, later by improving debt management and a subsequent debt-relief exercise, net transfers

represented 44 percent of gross disbursement in 1972. The debt structure has improved considerably due to successive debt rescheduling and refinancing, and the increasing official external assistance at concessional terms.

Although the immediate liquidity problems of Turkey were solved by 1958 debt rescheduling, Turkey still needed long term development financing and received official external assistance during the 1960s from the OECD Consortium, consisting of fourteen members. However, the inflows of official foreign aid at concessionary terms was dwarfed by short term movements of private capital during the 1970s (Hale 1981, p.241). At the end of 1970, Turkey's external debt outstanding was $1900 million, compared to $732 million at the end of 1960. Nevertheless, Turkey's debt position was not at this stage considered particularly serious, and still largely consisted of long-term loans made at concessionary interest rates. The foreign debt burden reached $14.1 billion in 1978, more than half of it was short-term credit which was only $15 million in 1970, as the widening foreign trade deficit was increasingly covered by short-term commercial credits, for which a high price was paid.

Meanwhile, the interest rate on public sector foreign borrowing rose markedly, while the average maturity of the credits fell. In fact, Turkey was quite unable to service her massive debt burden. Turkey's growing indebtedness was part of a world-wide trend, as the international banking system recycled the massive surplus of OPEC states after 1974. Debt servicing and oil imports together in 1979 were equivalent to over three-quarters of her export earnings and workers' remittances.

Faced with this huge debt overhang, Turkey heavily borrowed on a short-term basis to cover the expected trade deficit and to sustain an average annual rate of growth of 7.7 during 1973-76 in the face of a severe international recession. The heavy reliance on short-term borrowing proved costly, as the sharp increase in the external debt burden led to a loss in credit-worthiness and finally, to a full scale payment crisis in 1977. It was only then that Turkey felt it necessary to adjust to the new set of conditions. In March 1978, the government signed a letter of intent to the IMF providing for drawing rights worth $45 million over two years, although these Special Drawing Rights (SDRs) were not expected to cover more than a small proportion of the debt. However, The IMF

became dissatisfied by the government's failure to adopt what the Fund regarded as sufficiently stringent devaluation, monetary and fiscal measures, so that second and third part of this credit was unreleased. In July 1979, a second letter of intent was signed, providing $300 million in SDRs over one year. Nevertheless, the IMF had again broken down, and the Fund waited to release the second to fourth parts of credit covered by the 1979 agreement until January 1980, when the new government had announced a 48 percent devaluation of the Turkish Lira and further measures to curb the public sector deficit (Hale 1981, p.243).

The series of stabilization programs and two corresponding IMF standby arrangements, one in early 1978 and the other in 1979, proved unsuccessful. Until January 1980, the various adjustment measures undertaken by the authorities are described as "too little, too late" (Celasun, Rodrik 1989). However, the comprehensive package of policy measures introduced in January 1980 was unexpectedly bold in terms of its anti-inflationary measures as well as its quantitative aspects.

The causes of this debt crisis of 1977 were the sharp and continuous deterioration of the current account balance after 1973. It is customary to blame this outcome at least partly on the oil shock of 1973-4 and its consequences. After this external shock of 1973, the current account surpluses of Turkey were rapidly transformed into deficits which kept on growing. A growing public sector deficit lay behind these deficits. The rise in net external borrowing of 9.1 percent as a share of GNP between 1973 and 1977 are accounted for by the deterioration of the public sector balance and by the decrease in private net savings (Rodrik 1988).

The causes of the debt crisis of the 1970s are also associated with the economic policy of the 1970s that the government has to play an important role in solving the economic problems encountered, and take an active part in increasing rate of economic growth (Ersoy 1989). As a result of this approach, the role of government has increased in directing economic activities and limiting the function of the market. The government has played a dominant role in the economy and the function of the private sector was limited, and the share of state enterprises in production and investment rose steadily throughout the 1960s and 1970s. During this period, Turkey, like the majority of LDCs, implemented an inward-looking import-substitution economic policy.

Towards the end of the 1970s, a liberal economic strategy was drawn up by some international institutes and academic circles, in order to find solutions for the problems encountered including inflation, over-valued exchange rates, excessive internal and external governmental controls over economic activities, weak monetary policies and large unbalanced budgets, balance of payments deficits and external debt problems. The international institutes, like the IMF and the World Bank, accepted the liberal economic strategy for LDCs as a way out of these problems and they asked LDCs, which wanted loans from them or from other international financial institutes, to implement this policy as a precondition for obtaining foreign loans.

Turkey, like many countries of Asia and Latin America, started to implement the liberal economic strategy in order to borrow from the IMF, the World Bank or from other financial institutes. Turkey put into force an outward-looking liberal economic strategy on 24 January 1980 to solve its economic problems. The basic targets and the main philosophy of this economic stability program were to release a genuine market economy and reduce state intervention in the economy, and attach a greater importance to the price and market-mechanisms in the distribution of resources.

After the implementation of the economic stabilisation and adjustment programme, Turkey started to obtain successful results in economic growth, which increased gradually from -1.1 percent in 1980 to 4.1 in 1981 and 8.0 in 1986, and a better balance of payments performance enhancing external credit-worthiness. Consequently, Turkey's external debt problem has grown reaching $25476 million in 1985 and $41382 million in 1990. The growing of Turkey's external debt burden is shown in Table III.

Table III:
Turkey's External Debt and Related Ratios. (Million $)

	1980	1986	1987	1990	1993	1994	1995
Total Debt	16222	32101	40228	49035	67356	65601	73278
Medium and long-term debt	13722	25752	32605	39535	48823	54291	57577
Total Multilateral	3242	7839	9802	9564	8674	9183	9081
of Which:							
-IMF	1054	1085	770	0	0	344	573
-World Bank. IDA. IFC	1438	4917	6550	6435	5440	5380	5191
-Europ. Investment Bank	447	571	675	604	250	264	86
-Europ. Resettlement Fund	253	1216	1757	2439	2952	3065	3114
-Islamic Develop. Bank	35	12	15	68	15	117	108
-Opec Fund	15	30	25	10	2	0	0
-International Fund For Agricultural Development	-	8	10	8	15	13	9
Total Bilateral	6026	9646	11680	12984	18153	20678	21558
-OECD	5253	8049	10086	11652	16607	19001	19552
-OPEC	392	1013	1066	564	317	236	247
-Other Countries	381	584	528	768	1229	1441	1759
Commercial banks and bonds.	3436	4968	6391	10720	15706	16113	16532
Private Lenders	1018	2709	4732	6267	6290	8317	10406
Short Term Debt	2500	6349	7623	9500	18533	11310	15701
RATIOs							
Total Debt/ GNP	27.8	55.6	59.3	44.6	37.04	50.12	42.63
Med. and long-term debt/ GNP	23.5	44.6	48.1	36.0	26.85	41.47	33.50
Short term debt/ GNP	4.3	11.0	11.2	8.6	10.19	8.65	9.13
Debt Service /GNP	-	8.2	8.8	6.4	4.4	7.2	5.8

Sources: Central Bank of Turkey and Under-Secretariat of the Treasury and Foreign Trade and World Bank Debt Tables, 1991-92.

As shown in Table III., Turkey's external debt burden has increased over four times during the period 1980-1995. In the same period, the medium and long-term debt grew by 320 percent, and bilateral credits increased by 258 percent. The highest increase took place in the short term debt during the period 1980-87 and worsened the external debt problem of Turkey because of the shorter term maturity and the high interest rates, but after 1987, mainly as a consequence of high short-term debt repayment of the Central Bank of Turkey (OECD 1991, p.42), the growth of foreign debt slowed down substantially and this type of debt has kept its level around $6.5 billion. But after 1990, short term debt started to increase and reached its peak level of 18,533 million dollars in 1993.

The total debt/GNP increased from 27.8 percent to 42.6 percent during the period of 1980-95, reached its peak level of 59.3 percent in 1987. While the medium and long-term debt/GNP rose from 23.5 percent to 36.0 percent, the short-term debt/GNP increased from 4.3 percent to 9.1 percent since the liberal economic strategy increased the credit-worthiness of Turkey in the international financial market. This led to a greater willingness on the part of official international bodies to offer further assistance, and hence improved Turkey's overall standing on the international financial market, but has not solved the basic problem of foreign indebtedness, particularly in view of the continuing deficits on current account. The heavy trade and current account deficits with the deduction of workers' remittances from abroad compelled Turkey to resort to mainly short-term and high interest borrowing in order to avoid imminent insolvency in the early 1980s.

The direct result was a heavy pressure of annuities (repayments of principal and interest). Interest payments alone surged from $546 million in 1979 and $668 million in 1980 to $1193 million in 1981 and $4303 million in 1995. Due to the short-term character of part of the foreign capital inflows, total annuities increased to $9970 million in 1995. By looking at these increasing annuities, it is possible to say that Turkey would face periods of negative net foreign transfers, in contrast to the past period of receiving positive transfers from abroad.

The Seventh Five Year Plan (1996-2000) contains several important targets that bear upon debt aspects. The plan envisages an average economic growth of 7.1 percent per annum. Inflation rate is expected to fall to 8.1 percent by 2000. The current account is expected to be -3.9 billion dolar at the end of plan period. The debt to GNP ratio is expected to decline to 27.1 percent by 2000. Three debt management objectives in the plan are to increase the share of medium and long-term debt in total debt, to reduce the share of short-term debt, and to increase the share of the private sector in foreign financing.

III: The Two-Gap Theory as an Explanation of Foreign Borrowing:

In this section, the role of foreign borrowing in the development process will be considered in terms of dual-gap analysis. It has been

accepted by most international and development economists that foreign capital flows can move savings from areas of low to high productivity, and transfer foreign exchange to areas experiencing a temporary shortage (Lessard, Williamson 1985, p.2).

The beneficial aspects of foreign capital inflows are embodied in the classic two-gap model, which is a framework that emphasizes the importance of foreign capital inflows for both augmenting domestic savings and providing the foreign exchange needed for capital goods imports as a vehicle for capital accumulation and increased growth. Traditionally, the role of foreign borrowing was seen by countries as a supplement to domestic savings to bridge a savings-investment-gap for the achievement of faster growth (Thirlwall 1989, p.294). However, the dual-gap analysis pioneered by Hollis Chenery and his collaborators shows that foreign borrowing may also be viewed as a supplement to foreign exchange to achieve a faster rate of growth, and foreign borrowing must fill the larger of the two gaps if the target growth rate is to be achieved because growth at any time is limited by the bigger of the two-gaps: ie, investment-savings gap or import-export gap. This implies that the needed foreign aid or capital is determined by the larger of the two-gaps (Thirlwall, El-Shibly 1981, Fei, Ranis 1968).

A more well known two-gap model was presented by Chenery and Strout (1966) in a paper as part of an exercise in forecasting aid requirement. In this model, there are seen to be three constraints on growth. The first constraint is the supply of skills and organizational ability. Chenery and Strout (1966) formalised the need for technical assistance by limiting the capacity to invest. This constraint is assumed to be binding at low income levels. The second constraint is the supply of domestic savings which is called the savings gap. Finally, the third constraint is the supply of imported goods and services. This is called the foreign exchange gap or trade gap, which emerges when the exogenously determined rate of growth is insufficient to keep pace with the growing demand for imports. Whilst ex-post the two gaps, the savings and trade gaps, must be identical[2], there is no reason to believe that this will be the

[2] This identity follows from national accounting conventions; see, for example, Ghatak, S., (1986) Chapter 6.

case ex-ante: foreign capital inflows must be sufficient to fill whichever is the larger, if the target rate of growth is to be achieved. Notice that the two gaps cannot be added together.

The algebraic representation of the dual-gap analysis could be described by following the analysis of Chenery and Strout (1966) and Maizels and Nissanke (1984). Underlying the two-gap model is the well-known national income identities or accounting relationships. In national income accounting, an excess of investment over domestic savings is equivalent to a surplus of imports over exports. The national income equation can be written from the expenditure side as:

$Y = C + I + X - M$, National income equation;

$M + Y = C + I + X$, Equality of supply and demand of total resources;

$Y = C + S$, Disposition of income between consumption savings;

and

$M = X + F$, Sources of import financing (Trade Gap);

$I = S + F$, Sources of investment financing (Saving Gap);

where;

Y = Gross National Product

C = Gross Consumption

I = Gross Investment

S = Gross Domestic Savings

X = Exports of Goods and Services

M = Imports of Goods and Services

F = Net Inflows of Foreign Resources

Since savings is equal to income minus consumption, we have:

$S = I + X - M$ or

$I - S = M - X$

A surplus of imports over exports financed by foreign borrowing allows a country to spend more than it produces or to invest more than it saves. The identity between the two gaps, the investment-savings (I-S) gap and the import-export gap, follows from the nature of the accounting procedures. When planned investment is greater than planned savings, the savings gap exists; when planned imports are greater than planned exports, a trade gap exists. However, there is no reason in principle why the two gaps should be equal in a planned sense (ex-ante). Usually, one of the gaps would be greater than the other. This is the starting point of dual-gap analysis.

The two gap extension of the Harrod-Domar growth model, which links economic growth to capital formation, shows what happens when some portion of the country's capital goods are imported. Growth requires investment goods, which may either be provided domestically by savings or be purchased from abroad by foreign exchange. In the Harrod-Domar growth model, the relation between growth and savings is given by the incremental capital-output ratio (v), i.e. $g=s/v$ or $g=sp$, where g is the growth rate, s the saving ratio and p the productivity of capital. Likewise, growth rate can be, expressed as the product of the incremental output-import ratio m' and the import ratio to income, i.e. $g=im'$ (Thirlwall 1989, p.296).

If we now suppose an economy with limited flexibility, in other words if there is no substitutability between domestic and foreign resources, the growth rate will be constrained by one of two factors, domestic saving-investment or foreign exchange, of whatever factor is the most limiting. If the growth rate permitted by domestic savings-investment is less than the growth rate permitted by the availability of foreign exchange, the trade gap does not become the limiting factor, and growth would be savings or investment-limited. In this case, the self-sustaining growth can be attained by using foreign aid or foreign resources to fill the temporary gap between savings and investment. If this constraint is not lifted by foreign resources, a proportion of foreign exchange available cannot be absorbed (at least for the purposes of growth). Thus, the unabsorbed portion of foreign exchange must be used to augment domestic savings and/or to raise the productivity of domestic resources by, for example, relaxing a skill constraint.

Contrarily, if the growth rate permitted by domestic savings-investment is higher than the growth rate permitted by the availability of foreign exchange, the trade gap becomes the limiting factor and growth would be trade limited. If this foreign exchange constraint is not lifted by foreign aid, a proportion of domestic savings would not be absorbed. In this case, some ways must be found of using unused domestic resources to earn more foreign exchange and/or to raise the productivity of imports. It is now clear that there will be resource waste as long as one resource constraint is dominant.

From simple growth equations [(g=s/v) or (g=sp)], the required saving ratio (s*) to achieve a target rate of growth (r) is s*=r/p or s*=rv, and the required import ratio (i*) is i*=r/m'. After this formulation, we can say that if domestic savings is calculated to be less than the required level to achieve the target rate of growth, an investment-savings gap exists and it is equal at time t to:

$$I_t - S_t = s^*Y_t = (r/p)\ Y_t - sY_t$$

In the same way, if minimum import requirement to achieve the target growth rate is greater than the maximum level of export earnings available for investment purposes, an import-export gap or trade gap exists and it is equal at time t to:

$$M_t - X_t = i^*Y_t - iY_t = (r/m')\ Y_t - iY_t$$

If, in a country, the target rate of growth is to be achieved, then foreign capital inflows must fill the largest of the two gaps since two gaps are not additive. In the case of when the import-export gap is larger, the foreign borrowing to fill it will also fill the investment-saving gap. If the investment-saving gap is the larger, foreign borrowing to fill it will obviously cover the smaller foreign exchange gap.

III.1: Investment-limited growth:

We assume to start with that the investment-saving gap is the larger of the two gaps and the balance of payments does not become the limiting factor, so that foreign aid or foreign borrowing must be sufficient to meet the temporary shortfall between investment ability and savings ability for the sake of achieving the target rate of growth. In the Chenery and Strout

(1966) model, the technical constraint on investment is stated as:

$$I_t = (1+ß)\ I_{t-1}$$

where ß is the rate of growth of technical capability which reflects the skill formation required of managers, skilled labour and civil servants in order to increase productive investment. This equation is introduced to reflect the fact that the absorptive capacity for additional investment in any period is limited by the supply of complementary inputs, which can only be increased as a result of the development process. Technical constraint is binding, as long as the level of investment that is technically possible is less than what is required to achieve the target rate of growth.

When the technical constraint is no longer binding, the level of investment is given by the target rate of growth, as follows:

$$I_t = vrY_t$$

It is clear that only one of the above investment equations, [$I_t = (1+ß)\ I_{t-1}$ or $I_t = vrY_1$], will apply at any one time. During the period in which investment is determined by equation $I_t = (1+ß)\ I_{t-1}$ the growth constraint is the ability to invest, whereas when the $I_t = vrY_t$ equation applies, this constraint is the growth target. In the latter case, the Harrod-Domar model is written so as to determine the required investment, given the target rate of growth.

In the Chenery and Strout (1966) model, the savings constraint is designed to include not only the marginal propensity to save but the government's ability to increase total savings by changes in tax structure and by other policies. For this reason, the savings function is expressed as a function of total GNP as follows:

$$S_t = S_o + s'(Y_t - Y_o) = s_a Y_o + s'(Y_t - Y_o) = (s_a - s')Y_o + s'Y_t$$

where S_o is savings in the base period, s' is the marginal propensity to save, s_a the average savings ratio.

For any target rate of growth (r), required foreign resources in the base year (F_o) and in the t period (F_t) is as follows:

$$F_o = I_o - S_o = vrY_o - s_a Y_o = (vr - s_a)Y_o \text{ ;in the base year;}$$

$F_t = vrY_t - [(s_a - s')Y_o + s'Y_t]$ or

$F_t = (vr-s')Y_t + (s'-s_a)Y_o$; in the t year.

The difference between borrowing requirement in the base year and in time t is the difference between equation F_o and F_t ,which is as follows:

$vr(Y_t - Y_o) - s'(Y_t - Y_o)$ or

$F_t - F_o = DI - DS$

The investment-savings identity in time t is:

$S_t = I_t - F_t^s$ or

$F_t^s = I_t - S_t$

where the s superscript indicates that the foreign capital inflows is determined by the savings gap. This savings-investment identity is the same as before. According to the above equations, if foreign capital inflows are to decline ($F_t < F_o$), DS must be greater than DI. In this case, the investment-savings gap will disappear, and the phase of investment-limited growth comes to an end, when domestic savings reach a level adequate to sustain the target rate of growth.

The target rate of growth (r) can be achieved with exogenously given foreign capital inflows. In order to reduce the rate of foreign capital inflows or external borrowing requirements for a country, the marginal saving rate must exceed the required investment rate for the growth target ($s'>vr$). Thus, s' and v are highly sensitive for reducing the external borrowing. The target rate of growth can be derived from the equation ($F_t = (vr-s')Y_t + (s'-s_a)Y_o$) and can be expressed as:

$r = 1/v\ [(s_a-s')Y_o/Y_t + s' + F_t/Y_t]$

According to Chenery and Strout (1966), marginal saving rate (s') reflects the total effect of government policies on saving, and hence there is no reason to assume that it will remain constant throughout the period of transition.

III.2: Trade Limited Growth:

A second constraint on the growth rate of developing countries arises from the limited availability of foreign exchange to pay for required imports of capital and intermediate goods. Even if a developing country has sufficient domestic resources to generate required savings, which is necessary, it is not sufficient for self-sustained growth. The bottle-neck, which could limit the possibility of accelerated growth initiated and will be maintained in the phase of investment limited growth with the help of foreign capital inflows, is the inability of the economy to change its productive structure in response to changing patterns of internal and external demand.

According to Chenery and Strout (1966), the process of growth with foreign capital inflows requires an adjustment in exports and imports to make the trade gap equal to the desired investment-saving gap that is achieved through the market mechanism or through government controls. However, as empirical analysis of Chenery and Strout (1966) shows, many developing countries have been unable to achieve this required adjustment in their productive structure. For the development process, a large increase is required in the supply of equipment, machinery and other complementary inputs that are normally imported by a developing country. In the case of an acute shortage of these goods due to the absence of foreign exchange, the economy will be unable to transform its potential savings into investment because of an insufficient supply of investment goods. Thus, the level of investment in a developing country will depend heavily on the availability of imported capital goods.

Models of foreign exchange or trade limited growth are called structuralist (Hunt 1989, pp.143-144) in the sense that a trade gap can only be reduced over time, without reducing the rate of growth by redirection of investment and other resources. It is argued that underdeveloped countries are confronted by the combined problems of limited export demand and an inflexible productive structure. Therefore, the central problem in trade limited growth is two-fold. On the one hand, heavy import requirements are imposed by relatively inelastic demand for manufactured goods. On the other hand, export growth requires the development of new export products, which is limited by productive capacity as well as organizational and institutional factors.

Foreign exchange constraint can be distinguished from foreign exchange shortage. According to Lal (1972) foreign exchange shortage is associated with an over-valued exchange rate and reflects a disequilibrium in the foreign exchange market, while foreign exchange constraint exists when the possibilities of increasing export have been exhausted and the import content of the production is unalterable.

In the presence of such structural rigidity and inflexible adjustment mechanisms, the inflow of foreign capital becomes necessary to achieve the target rate of growth. To demonstrate the magnitude of foreign capital required for the target rate of growth in the case of a foreign exchange or trade gap, the trade limit can be incorporated into the preceding analysis in a similar form as to the savings investment-limit. The import function has a similar form as to the savings function, as shown below:

$$M_t = M_o + m'(Y_t - Y_o) = m_a Y_o + m'(Y_t - Y_o)$$

where M_t is imports in year t, M_o imports in the base period, m' marginal import ratio, and m_a is the average import ratio. This import equation represents the minimum level of imports required to sustain the planned target rate of growth. This import requirement results from the relatively inelastic demand for intermediate goods and investment goods which are imported due to the lack of a domestic supply.

At any time, the existing economic structure of a developing country may also limit the growth of export earnings. Exports in year t is given by:

$$X_t = X_o (1+x)^t \text{ or}$$

$$X_t = X_o e^{xt}$$

where X are exports and x is the exogenous rate of export growth. The level of foreign capital inflows or foreign borrowing requirements in time t to fill the foreign exchange gap and achieve the target rate of growth is given by :

$$M_t = X_t + F_t^e \text{ or}$$

$$F_t^e = M_t - X_t$$

where the e superscript indicates that the level of foreign capital inflows is determined by the excess requirement of foreign exchange for imports over what is available from export proceeds. This expresses the requirement that the foreign capital inflows must be large enough to cover the minimum gap between import requirement and export earnings. By substituting the M_t and X_t equations into the F_t^e equation, we can find the level of required foreign capital inflows as follows:

$$F_t^e = m_a Y_o + m'(Y_t - Y_o) - X_o e^{xt}$$

For the possibility of a country's becoming independent from foreign capital inflows in the future, x must be greater than m'. The trade gap will only disappear, and trade-limited growth will come to an end, when exports rise to a level sufficient to meet the import requirements of the target rate of growth.

The actual level of capital inflows required to sustain the growth rate will be determined by whichever gap is larger, i.e. which of the savings or trade gaps is binding. Thus actual foreign capital inflows are given by :

$$F_t = \max (F_t^s , F_t^e)$$

As ex-post, it must be the case that:

$$F_t = I_t - S_t = M_t - X_t$$

As ex-ante, however, there is nothing about the way in which investment, savings, imports and exports are determined, to ensure that this equality will hold.

IV: Two-Gap Estimation for Turkey:

Foreign aid or foreign capital inflows as an instrument of economic development for developing countries was justified theoretically in the previous section by the two-gap analysis, in which there exists two fundamental constraints which frustrate any effort to take economic growth off the ground. Once the growth process has been initiated, this will enable the economy to generate enough domestic savings and earn sufficient foreign exchange through increased exports for all the required

investment and imports which are needed to sustain a target rate of growth. In the process of transformation of developing countries, this implies that the need for foreign capital is only a temporary phenomenon, which will be removed once these countries are firmly set on the path of self-sustaining growth.

In the 1960s, Chenery and his collaborators had used the two-gap analysis for Israel, Greece, Pakistan and Latin America to investigate the dominant resource constraint limiting growth, and to estimate future foreign resource requirements to achieve the target rate of growth. Thirlwall and El-Shibly (1981) have also attempted to evaluate quantitatively the savings-investment and import-export gap for Sudan which was based on two alternative growth rate assumptions. In this section, we follow their methodology to make quantitative estimates of investment requirements in relation to domestic savings forecast for the saving-investment gap, and import requirements in relation to expected export earnings for the trade gap.

To estimate the savings-investment gap, investment requirements are calculated from the simple Horrad-Domar growth model ($g=s/v$). For the projected amount of domestic savings, a simple Keynesian savings function has been used. Given a target rate of growth (r) and incremental capital-output ratio (v), the savings-investment gap is estimated as the difference between the investment required and the projection of savings at the target level of income.

The trade gap is estimated in two alternative ways: First, a similar growth identity incorporating a fixed relationship between growth and import requirements ($g=im'$) is used. Given the target rate of growth (r) and an estimate of incremental output-import ratio (m'), the required import as a proportion of output to achieve a target rate of growth can be calculated as $(r/m')Y_t$. Secondly, the alternative approach to the estimation of imports requirements is based on an import function derived from the growth equation. This approach disaggregates imports into the investment goods and consumption goods, and has an advantage by allowing for a change in m' when moved to a higher growth path. m' may rise or fall depending on the relation between the change in the growth rate and change in import requirements as investment ratio rises. For import function, the growth equation can be written as:

$g = (iI + iC)m$

Where iI is the ratio of investment goods imports to income and iC is the ratio of consumption goods imports to income. Then, growth equation can be written as:

$$\frac{\dot{Y}}{Y} = \left(\frac{M_i}{I} x \frac{I}{Y} + \frac{Mc}{C} x \frac{C}{Y}\right) \frac{\dot{Y}}{M}$$

where M_i is investment goods imports, Mc is consumption goods imports, I investment, C consumption, M_i/I and Mc/C are the import coefficients of investment and consumption, respectively.

Multiplying both sides by Y and M and dividing by $\dot{Y}$, we have:

$M = (M_i/I)\ I + (Mc/C)\ C$

Exports were assumed to be exogenously determined and estimated with a simple trend growth of exports. Then, the trade gap was calculated as a difference between projected imports and exports at target rate of growth.

We now turn to the case of Turkey. We need a savings function, import function, export function and a value of incremental capital-output ratio for the estimation of two-gaps over the seventh five year development plan period 1996-2000. Two target rates of growth will be taken: one is 7.1 percent annual growth rate which is the target rate of growth of the plan, and the other is 5.5 percent which is the historical average growth rate between 1963-95. All the functions are estimated with 33 observations for the period 1963-95 at constant prices of 1994.

IV.1: Investment Requirements:

IV.1.1: The incremental capital-output ratio:

The calculation of investment requirements to sustain the target rate of growth requires an estimation of the incremental capital-output ratio. Thirlwall and El-Shiply stated that incremental capital-output ratio based on historical time series was unreliable and required act of faith. Therefore, they used the incremental capital-output ratio assumed by the

development plan. They also calculated it from the growth equation (g=s/v) so that v=s/g. The average investment ratio (comprising both domestic and foreign savings) and the average of growth rate give an estimate for the incremental capital-output ratio (v).

The assumed incremental capital-output ratio of Turkey is 3.15 (Herschlag 1988, p.114). It is also calculated by applying the growth formula v=s/g. The average investment ratio (comprising domestic and foreign savings) in the case of Turkey over the period 1963-95 is 0.19 , and the average rate of growth of output is 0.055 which gives a value of 3.43 for the incremental capital-output ratio (v). However, the assumed incremental capital-output ratio is probably more realistic than the estimated one. Then, investment requirements in period t can be estimated from the equation:

$I_t = vrY_t$

$I_t = (3.15)\ (0.071)Y_t$, for the 7% target rate of growth.

$I_t = (3.15)\ (0.055)Y_t$, for the 5.5% target rate of growth.

IV.1.2: Savings function:

The simple Keynesian savings function has been used to estimate the level of domestic savings by Thirlwall and El-Shibly, where domestic savings are regressed on gross domestic product. The level of savings in developing countries is likely to be a function of many other variables such as the rate of growth of income, the distribution of income between rich and poor, the rate of interest, foreign capital inflows and exports, all affecting the ability and willingness to save. Although the importance of these factors in estimating savings cannot be denied, we restrict ourselves to the type of simple Keynesian savings function, since the time-series and cross-section evidence for a wide sample of countries gives the strongest support of all to the Keynesian hypothesis that the level of savings is primarily a function of the level of income. By applying this simple Keynesian savings function, we regressed the level of domestic savings on the level of national income and obtained the following results:

$$S_t = -12.836 + (0.250)Y_t; \quad R^2 = 0.97$$
$$(31.51)$$

Where the units of measurement are in billions of Turkish Liras at the constant prices of 1994. Here, and in the following R^2 is the coefficient of total determination, and the figures in brackets under the regression coefficients are the t-test results.

Then, the investment-savings gap can be estimated for each year of the seventh five year development plan: 1996-2000, Y_t (t=1 to 5), by applying the target rate of growth to the base year level of income (Y_o).

IV.1.3: Import function:

As we have discussed earlier, there are two alternative ways for the calculation of import requirements to sustain the target rate of growth. The first way for projection of imports is to estimate the incremental output-import ratio m' which can be calculated by using the growth formula g=im' in a similar way as the estimation of the incremental capital-output ratio, where i is the historical ratio of imports to income (M/Y). The average import ratio over the period 1963-95 is 0.14, and the average growth rate of output is 0.055. The historical incremental output-import ratio (m') is taken as 0.39 since m'=g/i =0.055 / 0.14. Therefore, import requirements in years t can be estimated as:

$M_t = (r / m')Y_t = (0.071 / 0.39)Y_t$; assuming a 7.1 percent growth rate of GNP,

$M_t = (r / m')Y_t = (0.055 / 0.39)Y_t$; assuming a 5.5 percent growth rate of GNP.

An alternative approach for the projection of imports is to disaggregate imports into investment goods and consumption goods in the form of;

$$M= a_0 + a_1C + a_2I$$

where C is the level of consumption and I the level of investment. Using the above formula and regressing imports on consumption and investment, the import coefficients, a_1 and a_2, on C and I can be used for forecasting imports requirements in year t. With Turkish data over the period 1963-95, the following result was obtained:

$$M = -6.387 + 0.248I + 0.127C; \quad R^2 = 0.93$$
$$(3.635) \quad (0.637)$$

again in the same units of measurement.

The results of the imports equation shows that coefficients of investment expenditure and consumption expenditure on imports are different. This reflects the fact that Turkish imports depend mostly on investment goods. However, the low t ratio of the consumption coefficient renders the consumption coefficient insignificant.

Hence, we also tried to estimate the import requirements by using the GNP as an explanatory variable in the import function so that the level of imports is a function of GNP. The rationale underlying GNP as an explanatory variable is that it is approximately an aggregate of consumption and investment. We regressed the level of imports on the level of national income and obtained the following results:

$$M_t = -10.267 + (0.168)Y_t; \quad R^2 = 92$$
$$(18.495)$$

IV.1.4: Exports function:

In most of the studies related to two-gap analysis such as Chenery and Eckstein (1970), Weisskopf (1972a, 1972b), Voivodas(1973), Thirlwall and El-Shibly (1981), exports are treated as exogenously determined and its growth rate is assumed to depend on the growth rate of foreign output, since the demand for the exports of a developing country is determined mainly by quota restriction and tariff policies of developed countries and supply conditions. The exports of Turkey are mainly agricultural or processed agricultural products and primary products. Even if about 70 percent of Turkish exports are classified under industrial products, most of those are agricultural based products like processed agricultural products, textiles and clothing (OECD 1993, p.100). Thus, the level of Turkish exports depend on supply conditions and the demand conditions of world markets. Therefore, treating Turkish exports as exogenous, an exponential trend rate of growth of exports was estimated as follows:

$$X_t = X_o e^{0.089t} \qquad R^2 = 0.97$$

Therefore, an export growth rate of 8.9 percent is assumed, and will be used in estimating the export-import gap.

IV.2: Dominant Constraint:

All the necessary equations and parameters of estimation in the previous section are used to calculate the ex-ante savings-investment gap and import-export gap for each year of the Seventh Five Year Development Plan. First, by assuming a target growth rate of 5.5 percent which is the average of the past 33 years, we estimated the savings-investment gap and trade gap, to determine the dominant constraint and the need of foreign aid required to achieve a target rate of growth.

For the years of the Seventh Five Year Development Plan, the estimates of the savings-investment and import-export gap associated with a target growth rate of 5.5 percent are shown in Table IV. As can be seen from Table IV., there are two saving-investment gaps: one based on the use of assumed incremental capital-output ratio of 3.15; the other based on the use of an estimated incremental capital-output ratio of 3.43. There are also three estimates of the import-export gap based on the use of the incremental output-import ratio, the estimated import coefficients of investment and consumption, and the estimated import coefficient of GNP respectively

By setting a target growth rate of 5.5 percent, it is clear that savings exceed investment and an investment-savings gap does not exist (which turns out to be a savings surplus) for both the assumed and estimated incremental capital-output ratio. Using the import coefficient of GNP higher estimates of the import requirement were obtained in comparison to the estimates based on the incremental output-import ratio and the import coefficients of investment and consumption. Export earnings exceeds import requirements based on the incremental output-import ratio while other import-export gaps turn out to be export surplus later. When we looked at the investment-savings gap and import-export gap, it is easy to say that the dominant constraint is the import-export gap which by far exceeds the investment-savings gap.

Table IV:

The Estimates of Investment-Savings Gap and Export-Import Gap Assuming a 5.5 percent growth of GNP.

At 1994 prices, in Billion T.L.

	1996	1997	1998	1999	2000
GNP	4,262,727	4,497,177	4,744,522	5,005,471	5,280,772
Savings	1,052,845	1,111,458	1,173,294	1,238,531	1,307,357
Investment (1)	738,517	779,136	821,988	867,198	914,894
I-S Gap (1)	314,328	332,322	351,306	371,333	392,463
Investment (2)	808,852	853,339	900,273	949,788	1,002,026
I-S Gap (2)	243,993	258,119	273,021	288,743	305,331
Export	647,817	705,472	768,259	836,634	911,095
Import (3)	601,154	634,217	669,099	705,899	744,724
M-X Gap (3)	+46,663	+71,255	+99,160	+130,735	+166,371
Import (4)	665,679	710,354	758,080	809,191	863,480
M-X Gap (4)	17,862	4,882	+10,179	+27,443	+47,615
Import (5)	716,128	755,516	797,069	840,909	887,160
M-X Gap (5)	68,311	50,044	28,810	4,215	+23,935

(1) Estimates of investment and I-S based on assumed incremental capital-output ratio (v=3.15).

(2) Estimates of investment and I-S based on estimated incremental capital-output ratio (v=s/g=3.43).

(3) Estimates of imports and M-X based on incremental output-import ratio (m').

(4)Estimates of imports and M-X based on coefficients of investment and consumption on imports.

(5) Estimates of imports and M-X based on coefficient of GNP on imports.

It is also evident from Table IV. that the investment-saving gaps, which are surplus, increase while import-export gaps decrease and turn out to be export surplus later. This indicates that given the parameter values, the needs of foreign aid for Turkey decrease, and Turkey will not be dependent on the inflows of foreign capital to sustain a target growth rate of 5.5 percent.

Table V:
The Estimates of Investment-Savings Gap and Export-Import Gap Assuming a 7.1 percent growth of GNP.

At 1994 prices, in Billion T.L.

	1996	1997	1998	1999	2000
GNP	4,327,376	4,634,619	4,963,677	5,316,098	5,693,541
Savings	1,069,008	1,145,818	1,228,083	1,316,188	1,410,549
Investment (1)	967,818	1,036,533	1,110,126	1,188,945	1,273,360
I-S Gap (1)	101,190	109,285	117,957	127,243	137,189
Investment (2)	1,059,990	1,135,250	1,215,853	1,302,178	1,394,633
I-S Gap (2)	9,018	10,568	12,230	14,010	15,916
Export	647,817	705,472	768,259	836,634	911,095
Import (3)	787,804	843,738	903,644	967,802	1,036,516
M-X Gap (3)	139,987	138,266	135,385	131,168	125,421
Import (4)	675,265	731,097	792,088	858,770	931,722
M-X Gap (4)	27,448	25,625	23,829	22,136	20,627
Import (5)	726,989	778,606	833,888	893,094	956,505
M-X Gap (5)	79,172	73,134	65,629	56,460	45,410

(1) Estimates of investment and I-S based on assumed incremental capital-output ratio (v=3.15).

(2) Estimates of investment and I-S based on estimated incremental capital-output ratio (v=s/g=3.43).

(3) Estimates of imports and M-X based on incremental output-import ratio (m').

(4) Estimates of imports and M-X based on coefficients of investment and consumption on imports.

(5) Estimates of imports and M-X based on coefficient of GNP on imports.

Table V. shows the estimates of the savings-investment and import-export gaps, for the years of the Seventh Five Year Development Plan, associated with a target growth rate of 7.1 percent assumed by the Seventh Five Year Development Plan. As shown in Table V., there are two saving-investment gaps: one based on the use of an assumed incremental capital-output ratio of 3.15; the other based on the use of an estimated incremental capital-output ratio of 3.43. There are also three estimates of the import-export gap based on the use of the incremental

output-import ratio, the estimated import coefficients of investment and consumption, and the estimated import coefficient of GNP respectively.

By setting a target growth rate of 7.1 percent, domestic savings exceed investment and an investment-savings gap does not exist (which turns out to be a savings surplus) for both the assumed and estimated incremental capital-output ratios. Using the estimates based on the incremental output-import ratio we obtain higher estimates of the import requirement than the other estimates. All three import-export gaps decrease over time in absolute terms. When we looked at the investment-savings gap and import-export gap, it is easy to say that the dominant constraint is the import-export gap which by far exceeds the investment-savings gap.

It is evident from Table V. that the magnitude of both gaps for the year of the development plan has increased at a higher growth rate. It is also evident from Table V. that the investment-saving gaps, which are surplus, increase while import-export gaps decrease over time in absolute terms. This indicates that given the parameter values, the needs of foreign aid for Turkey decrease year by year and Turkey will need less foreign capital inflows to sustain a target growth rate of 7.1 percent.

IV.3: A Comparison With the Seventh Five Year Development Plan Projection:

When we compare the results above with the projection of the Seventh Five Year Development Plan which assumes a target growth rate of 7.1 percent, both the projection of savings surplus and import-export gap in the plan are larger than our estimation (SPO 1995, p.206). Despite our estimate of domestic savings, being almost the same as the plan estimate, excessive investment requirement in the plan is much larger than our estimate due to an overestimate of investment requirement in the plan. Also, investment requirement exceeds domestic savings and an investment savings gap does exist in plan period. When we compare the both gaps in the plan, the trade gap is much larger than the investment savings gap. Thus, it is easy to say that the dominant constraint is the import-export gap which exceeds the investment-savings gap in the plan. This result is the same as our estimation.

The growth rate of export earnings are assumed to be at 15.2 percent at 1994 constant prices in the plan. This is much higher than our estimate of 8.9 percent growth. The assumed import growth rate of 18.1 percent in the plan is also much higher than our estimate of 8.0 percent (SPO 1995, p.206).

V: Conclusion:

The positive role of foreign aid on economic development of a developing country was explained by Chenery and Strout (1966) in the spirit of the Harrod-Domar model or in terms of the two-gap model where these inflows facilitated and accelerated growth by removing domestic savings gap and/or foreign exchange gap. Thus, after using simultaneous equations model to assess the impact of foreign aid on Turkish economy (Eroğlu 1994, Ch.6) we used the two-gap analysis to see how these successful effects operate and how much aid is needed for self-sustaining economic growth.

In this paper, we investigated the nature of foreign capital requirements to sustain the growth rate of economic development. It is found that Turkey is past the two early stages of capacity limited and investment limited growth, and is now at the stage of trade limited growth. This also shows that foreign capital was successful in promoting the economic development of Turkey, and it will be useful to overcome foreign exchange constraints in the near future although it has put Turkey into the largest foreign indebtedness ever seen before. However, as long as the economy keeps its ability to repay foreign debt, it is beneficial for the economic development of Turkey.

The increased savings rate by using foreign resources helped Turkey to overcome savings constraint in economic growth as shown by two-gap analysis. In other words, Turkey has past the two early stages of capacity limited and investment limited growth by the help of foreign aid, and now needs some more foreign aid to overcome foreign exchange constraints in the near future.

Here, we have to state that if a country wishes to achieve rapid economic growth, it should make maximum efforts directed towards raising domestic savings, while the country continues to be obliged to

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accept foreign capital in those areas where domestic resources do not provide an adequate substitute. This domestic effort is necessary even if this involves difficult choices and unpleasant policies, because there is no escape for the implication that reliance on foreign capital only does not achieve a high and rapid growth forever.

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