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Volume Author/Editor: Anne O. Krueger

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Chapter Author: Anne O. Krueger

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CHAPTER IX

Macroeconomic Effects of the Trade Regime

During the 1950–1970 period, Turkey's growth rate was well above the average for all LDCs. Despite year-to-year fluctuations and changes in the growth rate between various subperiods, the average annual rate of growth was a healthy 5.7 per cent. Even so, Turkey's per capita income in 1970 was the lowest in Europe. All Turkish governments since 1950 have made a rapid increase in per capita income a major goal.

Not only was Turkey's per capita income low relative to that of her European neighbors, but as experience with planning progressed in the 1960's, bottlenecks to growth appeared: foreign exchange shortage and inadequate savings and capital formation were the most prominent.[1] In addition, discussion about the conflict between employment creation and growth began toward the end of the 1960's.[2]

Despite Turkey's relatively favorable growth rate, a natural question is how much more rapid growth might have been. In terms of this study, the question can be formulated in terms of a consideration of Turkish growth under the quantitative-restriction, import-substitution regime compared with the growth that could have been achieved under alternative policies.

Estimates are made in this chapter of the losses in the manufacturing sector incurred in the 1960's by overemphasis upon import-substitution. It is shown that alternative strategies could have resulted in significant increases in the rate of growth of manufacturing output and value-added at both Turkish and international prices, reduced import requirements for both new investment and for intermediate goods, a reduced incremental capital-output ratio, and greatly increased employment opportunities for the same level of investment. Section I describes the method of analysis and Section II provides the results.

Mention should first be made of the experience of the 1950's. The fact that the focus is upon the 1960's does not imply that the trade regime did not incur sizeable costs in the 1950's. On the contrary, they were probably greater.

Data for the 1950's are inadequate to attempt to estimate the growth-rate costs of the regime in a manner comparable to that undertaken here for the

1. SFYP, *op. cit.* (Note 21, Chap. I), pp. 46-7.
2. See the papers in Miller (ed.), *op. cit.* (Note 12, Chap. VIII).

Table IX-1
Five-year averages, real GNP and investment, and ICORs, 1951 to 1971

	Average in Annual Growth in GNP (percentage)	Average Annual Investments as Percent of GNP	Average Annual ICOR
1951–1955	6.1	13.0	2.13
1952–1956	4.7	13.5	2.87
1953–1957	4.2	13.5	3.21
1954–1958	3.1	13.8	4.45
1955–1959	5.7	14.1	2.47
1956–1960	5.1	14.4	2.82
1957–1961	3.4	14.8	4.35
1958–1962	3.4	14.8	4.35
1959–1963	3.8	15.2	4.00
1960–1964	4.1	15.2	3.71
1961–1965	4.2	15.4	3.67
1962–1966	6.5	16.0	2.46
1963–1967	6.5	16.8	2.58
1964–1968	6.3	17.0	2.72
1965–1969	6.5	17.8	2.82
1966–1970	6.7	18.6	2.90
1967–1971	6.5	18.8	2.94

Source: For 1951–1968: Fry, *op. cit.* (Note 30, Chap. II), p. 30. For 1968–1971: Fry, "Reply," *Economic Journal,* June 1972.

1960's. Fortunately Fry has already derived some important empirical relationships at an aggregate level, and his results are significant in the present context.

Using five-year moving averages of investment and GNP Fry calculated investment as a fraction of GNP, the fractions of public and private investment in total investment, and the incremental capital-output ratio (ICOR). He then tested two hypotheses: (1) changes in the rate of growth of GNP (at 1961 prices) are explicable in terms of changes in the investment-GNP ratio and its composition between public and private investment; and (2) there was a significant difference in the growth rate between the 1950's and the 1960's.

Fry's data are reproduced in Table IX-1. The ICOR rose steadily until 1954–1958, fell sharply in 1955–1959 and 1956–1960, reattained its peak in 1957–1961 and 1958–1962, and thereafter declined until 1962–1966, rising gradually again in the late 1960's. By contrast, investment as a fraction of GNP rose fairly steadily throughout the two-decade period.

Fry concluded that:

> No significant changes occured in the trends in total, public and private investment as proportions of GNP...There was a highly significant change in the trend in GNP itself measured at 1961 prices...[3]

Thus changes in the ratio of investment to GNP do not explain the changes in the growth rate over the period. Using the Chow test, Fry found that there was a highly significant difference between the 1950's and the 1960's. He dates the point of the changes as 1957–1961 and concludes that the change

> ...would seem to have been a result of a change in the incremental capital-output ratio (and not in the trend in the proportion of investment to GNP).[4]

Fry attributes the significant change in the growth rate to a reduction in the ICOR. Since 1961 was the year of the altered structural relationships, Fry concluded that the change can be attributed to the onset of planning. Two questions arise with respect to that diagnosis: (1) planning did not take effect until 1963 and there were undoubtedly lags before it could affect the growth rate; and (2) the ICORs are moving averages, reflecting events of earlier as well as terminal years. Since the change in the real exchange rate and the reduction of inflation preceded the start of planning, it seems reasonable to attribute some part of the change to those events. It is difficult to isolate the effects of the trade regime in the 1950's from those of inflation. Even so it can be argued that the resource misallocational and growth effects of inflation were felt primarily through their effects on Turkish trade and payments. Certainly a very high fraction of the effects of policies in the 1950's was attributable to the trade regime and its consequences, as Turkey was heavily dependent upon trade and the effects of the deterioration in her payments position were severe.

Although Fry's finding of significant structural change at the point 1957–1961 is highly suggestive, it is by no means conclusive. Alternative efforts to measure the effects of trade policies on growth in the 1950's are thwarted by lack of data. We then turn to the 1960's.

I. Estimating alternative growth patterns

It is always difficult to provide quantitative estimates of the changes that would have occurred under different alternatives, and more so when discussing alternative growth patterns. One means of doing so would be to provide a

3. Fry, *op. cit.* (Note 30, Chap. II), pp. 29-30.
4. *Ibid.*, p. 31.

fully specified model of the structural relations in the Turkish economy.[5] However, not only are the data lacking to accomplish such a task, but the sorts of policy alternatives we wish to consider – a more liberal trade regime, equalized incentives for export promotion and import-substitution, and an export-oriented growth strategy – are so far outside the range of observations on the Turkish economy that one would have little confidence in the resulting estimates even if data were available.

A significant change in incentives would obviously have a large number of effects. As seen in Chapter VIII, many high-DRC firms would either increase their efficiency or would contract, so that some excess costs of production would be eliminated for all firms. As a consequence the capital and labor coefficients for individual sectors would alter. Greater competition might lead to yet further changes. And the mix of products within industries would undoubtedly alter, with the relative importance of various sectors also shifting.

Not all of these effects can be estimated, and yet they may be very important. Here we content ourselves with a simpler approach which can provide insights into possible orders of magnitude on inter-industry shifts, although there is no basis for estimating changes in coefficients for individual industries that might occur. To limit the analysis still further, we focus only on manufacturing and shifts within it that might have arisen under alternative policies.

Before providing details of the method of estimation, it will help the reader to have an overview. The procedure essentially amounts to comparing planned manufacturing investment and growth with what would have happened under alternative allocations of the same total investment in manufacturing. The alternative allocations are hypothetical and designed to approximate what might have happened had growth been oriented somewhat less toward import-substitution and if approximately equal incentives had been given for the development of manufactured exports and import-substitution.

The analysis is restricted to manufacturing industries for several reasons. Under any conceivable growth strategy, manufacturing would be the leading growth sector. Given this fact, a strategy entailing less emphasis upon import-substitution would necessarily imply development of manufactured exports. Rapid growth of manufacturing appears to have been a goal of economic policy, so that it would make little sense to examine a strategy that placed

5. There are several dynamic planning models for Turkey but they are not suitable for analysis of the kinds of questions posed here. See Charles Blitzer, Hikmet Çetin and Alan Manne, "A Dynamic Five Sector Model for Turkey, 1967–82," *American Economic Review,* May 1970; and Charles Blitzer, *A Perspective Planning Model for Turkey: 1969–1984,* Stanford University Research Center in Economic Growth, mimeograph, August 1971.

less emphasis upon manufacturing growth. An alternative growth strategy would undoubtedly have resulted in considerable expansion of non-manufactured minor and traditional exports, such as lumber and livestock. Analysis of the potential of these factors would require detailed study of each sector in Turkey, as well as of export markets. Markets have been shown to exist for Turkish manufacturing and data are available, and Turkey's manufactured exports generally constitute negligible fractions of their world markets. Finally, inspection of the manufacturing sector alone provides very conservative estimates of what could have been achieved under alternative growth patterns, especially since parameters for individual industries are assumed unchanged.

The assumption that manufacturing investment would have been the same with no change in investments in other sectors implies that the use of infrastructure – electricity, transport, and so on – would have been the same under each pattern of manufacturing growth. To the extent that import-substituting industries actually had higher (or lower) infrastructural requirements than other manufacturing industries, the estimates of the adverse growth-rate effects of the import-substituting pattern will be understated (or overstated).

Identification of investment patterns under alternative growth strategies

The important question in the absence of a structural model is the identification of investment allocations that would have corresponded to different growth strategies. We seek to estimate what would have happened had growth been less import-substitution oriented and had incentives to manufacture for export been equal.

The main question is, what would have been "reasonable" allocation patterns in contrast to that which actually prevailed? Attempting to identify potential export sectors and quantifying the amount by which they might have grown would be the best way of reaching an answer to this question, if there were a sound scientific means of identification and quantification.[6] Most such means, however, contain a large arbitrary and subjective element. Two significant facts provide a way out of the impasse. First, import-substitution sectors were generally allocated a much higher share of new investment than their share of existing capital, value-added, and output. Although every manufacturing sector clearly has both potential export- and import-competing sectors, a strategy oriented less toward import-substitution would surely have

6. Consideration was given to estimating sectoral DRCs and maximizing international value-added from new manufacturing output subject to the volume of investment actually undertaken and the availability of foreign exchange for capital goods and for intermediate-goods imports. Neither foreign exchange constraint was binding and thus all investment was allocated to one sector, a clearly unsatisfactory solution.

allocated more new investment to the established sectors and less to the newer industries. Second, the import-substitution sectors generally had higher ICORs than the established industries.

These two considerations enable identification of plausible alternative investment patterns: (1) a strategy oriented less toward import-substitution would have been one where each sector was allocated new investment in proportion to its share of the initial manufacturing capital stock; and (2) each sector would be allocated new investment in proportion to its initial share of domestic manufacturing value-added. By using a base year (1963) when considerable import-substitution had already occurred, the allocation of new investment according to share in capital stock corresponds to a growth strategy less heavily oriented toward import-substitution than the actual, although considerable further import-substitution would still have occurred. That pattern will be described as "moderate import-substitution" (MIS). Allocation of new investment in accordance with value-added shares would have resulted in some import-substitution growth but less than MIS. It thus approximates what might have happened had incentives been equalized for export promotion and import substitution. This will be called "balanced export promotion and import substitution" (BEPIM).

The two growth alternatives represent identifiable allocation patterns. They both give heavier weight than the Plans did to those industries where Turkey apparently has the greater comparative advantage. Both patterns imply at least as rapid a growth of the overall manufacturing sector as was envisaged by the policy makers. Thus if the hypothetical alternatives had enabled more rapid growth of manufacturing, income, and employment, those alternatives would presumably have been preferred to the actual pattern, oriented toward import-substitution. Several questions are relevant: Taking the amount of investment in manufacturing as given, how did the rate of growth of manufacturing value-added compare with that which would have occurred under MIS or BEPIM with the same total investment, when value-added is evaluated at Turkish prices? Further, how does the actual growth rate compare with that which would have been experienced under the two alternatives evaluated at world prices? Then, what would have been the import content of investment and how does that compare with the actual import content? What would intermediate goods imports have been, compared to what they actually were? What would the ICOR in manufacturing have been, compared to what it actually was? And what would employment in manufacturing have been?

Method of estimation

The basic observed variables, considered as equal under the planned growth pattern and the two alternatives, are as follows:

e_j employment per million TL of value added in the jth sector
k_j the ICOR of the jth sector in value-added terms
m_j imports of intermediate goods per unit of output of j
n_j imports of capital goods per unit of investment in j
q_j ratio of Turkish value-added price to world value-added price of j
v_j ratio of value-added to output at Turkish prices in j

The variables for which estimates were derived, under each of the three growth alternatives, are:

E_j^i employment in j under the ith allocation strategy
I_j^i investment in j under the ith allocation strategy
IVA_j^i value added in the jth sector at world prices
K^i ICOR in value-added terms for all manufacturing
M_j^i intermediate goods imports in the jth sector under the ith strategy
N_j^i capital goods imports for investment in j under the ith strategy
P_j^i output in the jth sector at Turkish prices
V_j^i value-added in j at Turkish prices under the ith strategy

where i superscript refers to alternative allocations. These are denoted by

a the allocation in the plan
b BEPIM
m MIS

Under any allocation pattern, by definition:

$$E_j = e_j V_j \tag{1}$$

$$V_j = I_j / k_j \tag{2}$$

$$P_j = V_j / v_j \tag{3}$$

$$IVA_j = q_j V_j \tag{4}$$

$$M_j = m_j P_j \tag{5}$$

$$N_j = n_j P_j \tag{6}$$

and totals for all manufacturing sectors can be obtained by summing the both sides of each equation over j.

Letting the period for which output patterns are observed be denoted by a superscript 0,

$$I_j^{\mathrm{b}} = \sum_k I_k^{\mathrm{a}} \left[V_j^0 / \sum_k V_k^0 \right] \tag{7}$$

$$I_j^{\mathrm{m}} = \sum_k I_k^{\mathrm{a}} \left[k_j V_j^0 / \sum_k V_k^0 k_k \right] . \tag{8}$$

Once solutions are found for (7) and (8), eq. (1) through (6) can be solved for the outcome under planned investment and the two hypothetical alternatives. But first, the sources of data and their reliability must be examined.

The data

It was decided to estimate the effects of alternative investment allocations for two separate time periods: the 1963-to-1967 period, corresponding to the FFYP; and the 1967-to-1972 period, corresponding to the SFYP. The basic data for each period were taken, insofar as possible, from the respective Plans, and the partitioning of manufacturing into subsectors followed that in each of the Plans.

A key problem was that of obtaining internally consistent estimates of the various parameters. At first it was thought that the ICORs implied in the Plans could be combined with actual investment and output data. But prices had changed, and the data were noncomparable in several other regards. It was therefore decided to utilize all data implicit in the FFYP and SFYP, treating the projected outputs in the Plans as the actual outputs. Thus all three patterns could be estimated, using the same parameters as actually used by the planners. The implied ICORs were derived by taking Plan estimates of investment and value-added changes between the base and terminal year. By using a five-year period as the basis of observation it was hoped that the effects of differences in timing of investments upon the observed changes in value-added would be minimized. These same ICORs were used for estimation of the attained rate of growth (really the planned rate of growth) and for the two alternative allocations. The ratios of value-added to output at Turkish prices were also implicit in the Plan documents and these were used in all sets of estimates. To the extent that the planners underestimated the costs of import-substitution, that bias is also contained in the results below.

Four needed parameters were not available from the Plans. These were employment per unit of output, import coefficients per unit of investment, import coefficients per unit of output, and the ratio of domestic value-added to international value-added.

Two sources were used to obtain import coefficients: (1) data on sectoral intermediate goods imports per unit of output were taken from the 1967 input-output table; and (2) data on import requirements per unit of investment in each sector were derived from the 1964 *Census of Manufacturing Industries.*[7] These data were the only ones available in both cases, and were

7. The *Census of Manufacturing Industries* provided data on gross additions to fixed assets during 1963, and the value of imported goods in machinery and equipment acquisitions. The ratio of imported machinery to total investment in buildings and plant and equipment was used.

assumed constant between the FFYP and SFYP. Employment coefficients were also obtained from the *Census of Manufactures*.

The most difficult estimates to obtain were coefficients linking Turkish value-added per unit of output to international value-added per unit of output. The procedure finally adopted was to use data from Özfırat's study[8] for those sectors for which they were available, and to estimate an unweighted average of available estimates for those sectors for which Özfırat did not provide data. As seen in Chapter VIII, Özfırat's data probably underestimated the differences in the ratio of international to domestic value-added between the export and import-substituting sectors. As such, there is probably a downward bias in the estimate of the difference in international value-added that would have resulted under alternative strategies.

In general, estimates of the differences in growth rates between the alternative allocations are likely to be biased downward. Not only are they sectoral aggregates, thereby obscuring the differences within sectors between export-oriented and import-substituting activities, but the coefficients of each sector are assumed constant over the period of estimation. Any effects of the trade regime in altering capital intensities or in increasing capital and labor coefficients are obscured by the method of estimation.

Table IX-2 gives the coefficients used in the analysis. The first two columns give the ratio of imports to investment and to production in each sector. These coefficients were used for analysis of both Plan periods, although the data on imports of capital goods for investment relate to 1963 and the intermediate-goods import coefficients are for 1967. The absence on any alternative basis for estimating the coefficients for the periods separately dictated this decision.

The third column of Table IX-2 gives the ratio of international value-added to Turkish value-added in each sector. Again, these ratios were used for analysis of both periods. It should be remembered that these coefficients, like the import coefficients, obscure a great deal of intrasectoral variation. As such, the resulting estimates of the growth rate effects of import-substitution are undoubtedly underestimated, as the intrasectoral allocations tended toward the high-cost, high-import-content subsectors.

The next two columns give the implied ICORs (increase in value-added at Turkish prices per TL of investment in each sector) in the FFYP and SFYP. As can be seen, there was considerable fluctuation between the two periods and some coefficients are open to considerable question. Perhaps the most suspect sectors are wood products and rubber products, where the change between the two Plans is very great, and petroleum in the SFYP, where the low capital-intensity of the sector appears completely implausible. The trans-

8. Özfırat, *op. cit.* (Table VIII-1).

Table IX-2
Coefficients of the model

Sector	Import Coeff.		Ratio IVA/	ICOR		Employment
	n_j	m_j	DVA	FFYP	SFYP	e_j
Food products	0.112	0.009	0.884		1.582	51.68
Beverages	0.168	0.019	0.364	1.149	2.132	16.85
Tobacco	0.143	0.004	0.750		0.905	16.78
Textiles	0.452	0.070	0.704	1.083	1.200	46.78
Footwear, wearing apparel	0.051	0.070	0.704			
Wood and cork products	0.133	0.021	0.862	3.704	1.572	76.98
Furniture and fixtures	0.055	0.021	0.862			
Paper and products	0.581	0.269	0.581	11.364	10.309	39.96
Printing and publishing	0.403	0.269	0.581		1.333	41.41
Fur and kaliber products	0.353	0.123	0.881	n.a.	5.000	47.53
Rubber products	0.531	0.441	0.564	0.891	2.415	56.33
Chemicals	0.611	0.307	0.625	5.495	2.659	28.74
Petroleum	0.847	0.151	0.721	n.a.	0.975	3.27
Non-metallic products	0.173	0.072	0.813	1.381	1.116	45.08
Basic metals	0.210	0.064	0.555	3.831	4.032	20.70
Metal products	0.080	0.158	0.637	1.087	1.420	36.57
Machinery	0.309	0.309	0.412	1.279	1.297	19.44
Electrical machinery	0.277	0.224	0.615	1.225	1.125	23.02
Transport equipment	0.076	0.252	0.324	0.629	0.568	51.71
Miscellaneous manufacturing	0.421	n.a.	n.a.	0.289	n.a.	n.a.

Sources: n_j's from 1964 *Census of Manufacturing Industries,* computed as the ratio of imported goods to total investment in each sector.

m_j's from 1967 input-output table, kindly supplied by SPO. They are exclusive of taxes paid on imports. IVA/DVA: all are from Özfirat, *op. cit.* (Table VIII-1), except fur and leather products, petroleum, metal products, machinery, and transport equipment. The latter, except petroleum, are based on data from the sources listed in Table VIII-1. The petroleum estimate was kindly provided by industry sources in interviews.

ICOR's: calculated by taking the ratio of increment in value-added to five-year investment in each Plan. FFYP, *op. cit.* (Note 20, Chap. 1), tables 84–86, pp. 185–6. SFYP, *op. cit.* (Note 21, Chap. 1), tables 197, 199, pp. 405, 407.

e_j's: ratios of employment to value-added for firms with ten or more employees, from *Census of Manufactures.*

Notes: The footwear and wearing apparel, furniture and fixtures, and printing and publishing sectors were included in the textile, wood products and paper sectors respectively in the 1967 input-output table and by Özfirat. Import coefficients for intermediate goods and the ratio of IVA to DVA are therefore the same for each pair of sectors.

In the SFYP, several sectors were disaggregated, and the subsector estimates were used in the computations. The sectors, subsectors, and ICORs were:

Non-metallic products	Ceramics	0.889
	Glass	1.116
	Cement	0.400
Metal products	Non-ferrous-metal	1.605
Machinery	Agricultural machinery	0.769
Electrical machinery	Electronics	0.937

The last three subsectors were calculated separately for the SFYP, with IVA/DVA ratios of 0.623, 0.430, and 0.615, respectively.

port equipment ICOR also appears implausibly low, but the sector is dominated by repair activities, which may explain it.

Despite the probable margins of error in the ICORs it was decided to use all figures as given in the Plans, on the grounds that they were the data actually used in deciding upon an import-substitution strategy and are at least internally consistent. Selection of any alternative technique for estimation involved the difficulty that constant-price estimates of actual investment and output, by sectors, are simply unavailable. The bias that would be introduced by use of current-price data or choice of sectoral deflators was judged to be greater than any errors in the SPO data. It should be noted that the FFYP data were in 1961 prices whereas the SFYP data were in 1965 prices. Insofar as domestic prices of some sectoral outputs rose more rapidly than average, or as the price of manufactured goods changed relative to the price of the investment goods, the ICORs are noncomparable. Another factor, which in the author's judgment is probably not important, is that the implicit ICORs could have been influenced by the planned timing of investments within each period.

Thus the data are at best indicative of orders of magnitude. While they are undoubtedly subject to error there is little basis for believing that those errors are systematic, except that intrasectoral differences are obscured. We turn to consideration of alternative allocational patterns.

II. Growth under alternative allocations

Table IX-3 gives the actual investment allocation set forth in each Plan, and the two hypothetical allocations. As is evident from the table, the degree of disaggregation in the FFYP was considerably less than in the SFYP. Since in each period the hypothetical allocational procedures allotted investments in proportion to the sector's share of total manufacturing value-added or capital stock, the SFYP allocation was influenced by the outcome of the FFYP. The first and fourth columns of Table IX-3 give the actual planned investments in each sector. The second and fifth columns give the amount of the investment in each sector that would have resulted under the MIS allocation.

The third and sixth columns give the investment allocation that would have resulted had each sector been allocated a share of total investment (in manufacturing) in proportion with its initial-year share of manufacturing value-added – i.e., the export-oriented strategy implied by the BEPIM allocation. The sectors with below-average capital intensity receive a smaller allocation under the MIS allocation than under BEPIM. Thus food products and textiles, both of which have capital intensities well below the average, would

Table IX-3
Alternative investment allocations, FFYP and SFYP (millions of TL at 1961 and 1965 prices)

	FFYP			SFYP		
	Actual	MIS	BEPIM	Actual	MIS	BEPIM
Food	1034	2288	3452	1850	3710	4047
Beverages				320	679	550
Tobacco				190	1009	1923
Textiles and clothing	910	2017	3168	2400	3527	5071
Wood products	100	44	20	440	683	750
Paper	553	741	111	1850	1343	225
Printing				200	232	300
Hides and leather	–	–	–	150	435	150
Rubber	254	69	131	700	944	675
Plastic				235	151	200
Chemicals	2735	1759	545	4250	2002	1299
Petroleum	–	–	-	1150	1143	2023
Ceramics	304	294	363	40	52	100
Glass				240	258	400
Cement				950	586	500
Cement and baked clay products				60	104	450
Iron and steel	2133	2090	928	4200	3502	1499
Nonferrous metals	238	465	726	1500	1703	550
Metal products				1150	1110	1349
Machinery	1068	174	232	1550	789	1049
Agricultural machinery				150	100	225
Electric machinery	244	65	91	450	244	375
Electronics				150	81	150
Road vehicles	422	52	141	350	271	825
Railway vehicles				110	239	225
Shipbuilding				350	88	75
Other	94	31	181	–	–	–
Total	10089	10089	10089	24985	24985	24985

Source: Coefficients from Table IX-2. Actual investment allocations from FFYP and SFYP, *op. cit.* (Notes 20, 21, Chap. I). Alternative allocations computed according to eqs. (7) and (8).

have received a considerably larger investment allocation under BEPIM than under MIS. Sectors such as chemicals, which are heavily capital-intensive, would have received a considerably larger allocation under MIS than under BEPIM.

Under either hypothetical allocation, investment in the "traditional" sec-

Table IX-4
First Five Year Plan: Increase in value-added at Turkish and international prices under alternative allocations of investment (increase from 1962 in millions of 1961 TL)

Sector	Value-added at Turkish Prices			Value-added at International Prices		
	FFYP	MIS	BEPIM	FFYP	MIS	BEPIM
Food, beverages, and tobacco	917	2027	3060	811	1792	2705
Textiles and clothing	840	1861	2924	591	1310	2058
Wood and cork	27	12	5	23	10	4
Paper	49	65	10	28	38	6
Rubber	285	77	147	161	43	83
Chemicals	499	320	99	312	200	62
Nonmetallic products	220	213	263	179	173	214
Basic metals	557	545	242	309	302	134
Metal products	219	427	668	139	272	425
Machinery	832	136	181	343	56	75
Electrical machinery	199	53	74	122	33	46
Transport equipment	671	83	224	217	27	73
Other	325	107	626	162	53	313
Total	5641	5926	8523	3397	4309	6198

Source: Tables IX-2 and IX-3.

tors would have been considerably greater than under the actual investment pattern. The MIS allocation represents something of a halfway house: import-substitution could have proceeded fairly rapidly, although some additional exports would have been available from the traditional sectors.

Several features of individual sectors should be noted. Perhaps most important, the implied ICOR for the petroleum sector in the second Plan was improbably low. Given that the oil sector's share in manufacturing value-added was already 8 per cent in 1967, investment in petroleum under BEPIM would have exceeded planned investment, if the figures for the latter (column 4 of Table IX-3) are taken as valid. At the opposite side of the spectrum, tobacco products are a large manufacturing sector in Turkey, and the hypothetical allocations would imply unrealistically high growth rates for that sector, given the probable difficulties of developing an export market on such a scale.

We first consider the planned growth of manufacturing value-added, and contrast it with the growth that would have occurred under the alternative strategies, at Turkish and international prices. Table IX-4 gives the data for the FFYP and Table IX-5 gives the data for the SFYP. The first three col-

Table IX-5
Second Five Year Plan: Increase in value-added, by sectors, at Turkish and international prices, under alternative allocations of investment (increase from 1967 in millions of 1965 TL)

Sector	Value-added at Turkish Prices			Value-added at International Prices		
	SFYP	MIS	BEPIM	SFYP	MIS	BEPIM
Food	1170	2345	2558	1034	2073	2661
Beverages	150	318	558	55	116	94
Tobacco	210	1115	2121	158	836	1590
Textiles and clothing	2000	2938	4225	1408	2068	2947
Wood products	280	434	477	241	374	411
Paper	180	130	22	105	76	13
Printing and publishing	150	174	225	87	101	131
Hides and leather	30	87	30	26	77	26
Rubber	290	391	279	164	221	157
Plastic	180	116	153	102	65	86
Chemicals	1600	753	489	1000	471	306
Petroleum	1180	1173	2076	850	846	1496
Ceramics	45	59	112	37	48	91
Glass	215	231	358	178	188	291
Cement	470	289	249	305	188	162
Cement and clay products	150	260	1124	126	218	944
Iron and steel	1040	868	372	577	482	206
Nonferrous metals	280	318	103	174	198	64
Metal products	810	781	950	516	497	605
Machinery	1195	608	809	492	250	333
Agricultural machinery	195	130	292	84	56	126
Electrical machinery	400	217	333	246	133	205
Electronics	160	86	160	98	53	98
Road vehicles	616	477	1451	200	155	470
Railway vehicles	60	130	123	26	56	53
Shipbuilding	170	43	36	55	14	12
Total	13226	14471	19685	8340	9860	13578

Source: Tables IX-2 and IX-3.

umns in each table give the increase over the Plan period in domestic value-added at domestic prices in manufacturing under the actual and two hypothetical investment patterns. The last three columns give the increase in value-added in manufacturing at international prices under each pattern.

Turning to Table IX-4 first, it is evident that under the MIS pattern the increase over the five years in domestic value-added at domestic prices would

have been 5.1 per cent greater than was planned with the FFYP allocation for the same total investment. At international prices the differential increase in value-added would have been considerably larger: 26.8 per cent. The differences in the implied average annual rates of growth of manufacturing were relatively small at domestic 1961 prices, but much greater at international prices. Thus the FFYP planned for an average annual manufacturing growth rate of 13 per cent, valued at domestic prices, while the MIS investment strategy would have resulted in an average annual rate of 13.8 per cent at those prices. Measured at international prices, however, the planned growth rate would come to 10.5 per cent per annum, whereas the MIS allocation would have yielded 12.5 per cent per annum.

The differences between the planned growth and the hypothetical results from the BEPIM strategy are much greater, both at domestic and at international prices. Figured at domestic 1961 prices the increase in manufacturing value-added over the five years would have been 56 per cent more under the BEPIM pattern than that indicated by the FFYP allocation for the same level of total investment in manufacturing. This would have implied an average annual growth rate of 16.9 per cent under the BEPIM pattern, contrasted with the planned rate of 13 per cent. The difference would have been greater yet at international prices; value-added according to the BEPIM allocation would have grown at an average annual rate of 17 per cent, contrasted with the planned 10.5 per cent rate, as the increment over the five years would have risen to 82 per cent more under the BEPIM allocation.

Before evaluating the behavior of individual sectors, it is worthwhile to examine the results of similar computations for the SFYP, given in Table IX-5. The results are much the same: an MIS pattern of investment over the period would have resulted in a 9 per cent greater increase in output at domestic prices and an 18 per cent greater increase in output at international prices. Far bigger gains would have accrued to the BEPIM investment strategy, as value-added could have grown by 46.5 per cent more at domestic prices and by 63.1 per cent more at international prices than under the planned allocation.

The implied average annual rates of growth of manufacturing value-added in the SFYP under the three alternatives are:

	SFYP	MIS	BEPIM
At domestic prices	11.1	11.8	15.2
At international prices	10.3	12.0	16.5

As in the FFYP, the BEPIM investment pattern would have resulted in considerably faster growth of manufacturing value-added than the MIS strategy, which in turn would have resulted in a higher rate of growth than the planned rate.

The alternative strategies would therefore have resulted in considerably lower ICORs for the manufacturing sector.[9] The implied ICORs in the two Plans under each strategy are:

	Plan	MIS	BEPIM
FFYP	1.85	1.70	1.18
SFYP	1.89	1.73	1.28

The potential gains from alternative strategies appear slightly greater in the FFYP than in the SFYP period. The reason for this is that the base-year weights in the SFYP already reflected the past import-substitution efforts. Even the BEPIM strategy in the SFYP period would have resulted in a heavier weight to import-substitution sectors than in the FFYP. Neither hypothetical alternative of course is an optimizing one, and bigger gains would be reflected in an optimizing model than in either alternative evaluated here. Nonetheless, the differences in manufacturing growth rates are considerable, and imply that the costs of import-substitution may have been a loss on the order of 5 or 6 per cent per annum in the rate of growth of manufacturing value-added. Given the downward bias in the estimates, the results are sufficient to indicate that Turkish manufacturing could have grown considerably faster under an alternative allocation strategy than in fact occurred.

Inspection of the behavior of individual sectors in Tables IX-3 to IX-5 suggests that a few sectors account for the major part of the differences. Investment in chemicals as an import-substitution sector was heavily emphasized in both Plans. Chemicals are highly capital-intensive, and their ratio of value-added at international prices to value-added at domestic prices is low. A shift from chemicals to less capital-intensive sectors would have increased manufacturing value-added even at Turkish prices, and still more at international prices. Other sectors heavily emphasized in the Plans were paper and steel. Their characteristics are similar to chemicals, with high capital intensities and low ratios of value-added at international prices to value-added at domestic prices. Most of the gains in output reflected in the computations could have been obtained by shifts out of those sectors.

Textiles, food products and metal products all appear to have reasonably low ICORs and relatively high ratios of value-added at international prices to value-added at domestic prices. Increased investment allocations to those sectors would have implied a faster growth rate.

Despite the very large size of the potential gains, the results may be questioned on the grounds that Turkey could not have absorbed or marketed

9. Note that the ICORs are well below those given in Table IX-1. The main reason is that the estimates here are for manufacturing only and do not include infrastructure investments.

abroad such large increases in output of food, textiles, and tobacco. For tobacco, the contention is undoubtedly valid. For food and textiles, there probably would have been ample export markets with reasonable pricing policies and a realistic exchange rate. For the implied growth of output in food and textiles is less than 20 per cent per annum even under BEPIM, and with Turkey's negligible share of world markets, rapid increases in exports should have been feasible. For the five years of the SFYP, the increment in value-added at international prices in food and textiles between the Plan investments and the BEPIM patterns was TL 1,627 and TL 1,566 million, respectively, or $181 million and $174 million. Although the growth rate of these exports would have been very high, their absolute values would not have been. Achievement of even these modest targets would have required access to markets. But Turkey's ties with the European Common Market and her proximity to the Middle Eastern countries put her in an excellent position in this regard.

It is of interest to test the sensitivity of the results to the role of textiles, food, and tobacco. To do this, the author posited a constraint on tobacco investment to its actual level in the SFYP, and constrained investment in textiles and food to only 10 per cent above Plan levels. The author then visually picked off an investment strategy, based upon ICORs, which would entail the same level of investment.[10] The result was an increase of TL 17,486 million in value-added at domestic prices and of TL 12,157 million in value-added at international prices, which is much closer to the BEPIM results than to the MIS. The interested reader can verify that elimination of TL 2,500 million investment in iron and steel and its reallocation would substantially increase the gains.

Import requirements under alternative allocations

It is evident that an investment strategy aimed at BEPIM could have resulted in a considerably higher rate of growth of manufacturing output. Given appropriate marketing efforts and incentives, the increment in international value-added could have resulted in a sizeable increase in manufactured exports, which in itself would have alleviated Turkey's foreign exchange difficulties by expanding Turkey's manufactured-export earnings. Such a strategy would have implied that the export sector would have become a leading-growth sector.

The import-substitution strategy also raised requirements of imports, both

10. The investment levels used, in the same order of sectors as given in Table IX-5 were (TL million): 2035, 320, 190, 2640, 1400, 300, 200, 750, 850, 200, 500, 1150, 600, 1430, 700, 700, 2500, 100, 4500, 1800, 400, 500, 200, 55, 53, and 12.

on capital goods account and for intermediate goods, above the levels that would have been required by either alternative strategy. Turkish planners regarded the economy's capacity to invest as limited by foreign exchange. As stated in the *SFYP*,

> ...one of the main structural impediments to economic growth in the past was the fact that the foreign trade sector...could not keep up with the general economic development...When development and industrialization accelerate, the ability to increase the import capacity will be a very important factor in determining the growth rate... [11]

Chapter VI demonstrated how import demand for raw materials and intermediate goods generally exceeded the Plan estimates, with the result that capital goods imports were generally held to levels below those anticipated in the Plans. To the extent that foreign exchange did constitute a binding constraint upon the rate of investment it is of interest to calculate the imports that would have been required under an alternative investment strategy.

To do this, the import coefficients given in Table IX-2 were utilized to estimate what the incremental import requirements, both for capital goods and for intermediate goods, would have been under planned and hypothetical strategies. The results are given in Table IX-6.

For intermediate goods imports, MIS would have required 36 per cent less imports of intermediate goods, at 1963 coefficients, in the FFYP and 22 per cent less imports in the SFYP than the actual allocation. A BEPIM strategy would have required 26 per cent less intermediate goods imports in the FFYP and 6 per cent fewer imports in the SFYP than the planned strategy, although more imports would have been required than under MIS. When it is recalled

11. SFYP, *op. cit.* (Note 21, Chap. I), pp. 47–8.

Table IX-6
Import requirements under alternative growth strategies (millions of TL)

	Capital Goods	Intermediate Goods
FFYP (1961 prices)		
Plan	3656	1911
MIS	3332	1214
BEPIM	2788	1423
SFYP (1965 prices)		
Plan	8966	4321
MIS	7909	3383
BEPIM	7888	4070

Source: Text and Tables IX-2 to IX-5.

that manufacturing output and value-added grow much faster under BEPIM than under MIS, it is clear why import requirements are greater under the first than under the second. What is surprising is that increments of 82 per cent and 63 per cent, respectively, in value-added over the planned levels in the two Plans could have been sustained with a reduction in total intermediate goods imports.

For capital goods the picture is similar. A BEPIM pattern would have utilized 24 per cent fewer imports than the actual investment pattern during the FFYP, and 12 per cent fewer during the SFYP. This result is the more striking because of the relatively high import content of investment in textiles (see Table IX-2).

If foreign exchange availability was the binding constraint on the level of investment, these results would imply that investment could have been increased by about 50 per cent during the FFYP, with no change in the level of imports when both intermediate goods and capital goods import requirements are taken into account. In the SFYP, investment could have increased by about 30 per cent with no change in imports.

Thus the import-substitution strategy actually pursued was import-intensive, at least over the period of the FFYP and SFYP. In every sense therefore BEPIM strategy would have dominated: with the same level of investment, manufacturing growth could have proceeded at an average annual rate about 6 per cent above that planned, valued at international prices. If in addition investment in manufacturing had been increased by 25 per cent with an export-oriented strategy, the rate of growth of manufacturing value-added could have been doubled, with no change in total import requirements above the levels foreseen in the Plans. With additional output from export-oriented sectors, moreover, foreign exchange earnings could have increased substantially, permitting larger imports.

Employment effects of alternative strategies

Table IX-7 gives estimates of new jobs created under each investment allocation for the two Plans. MIS would have resulted in about 37,000 more jobs in the FFYP and 93,000 more jobs in the SFYP than the actual investment pattern. BEPIM would have created 70 per cent more new jobs, or 138 thousand more than the actual strategy in the FFYP and 50 per cent more (or over 200,000) than that of the SFYP.

Viewed against a non-agricultural labor force of about 3.7 million and implied urban unemployment of 462,000 in 1965,[12] the additional employment potential of the BEPIM strategy is impressive.

12. *Ibid.*, p. 149; and *Census of Population*, 1965.

Table IX-7
New jobs created by alternative investment patterns (thousands of jobs)

Sector	FFYP			SFYP		
	Plan	MIS	BEPIM	Plan	MIS	BEPIM
Food	38.5	85.1	128.5	60.4	121.2	132.2
Beverages				2.5	5.3	4.3
Tobacco				3.5	18.7	35.6
Textiles and clothing	39.3	87.1	136.8	93.6	137.4	197.6
Wood products	2.1	0.9	0.4	21.6	33.4	36.7
Paper	1.9	2.6	0.4	7.2	5.2	0.9
Printing and publishing				6.2	7.2	9.3
Hides and leather				1.4	4.1	1.4
Rubber	16.1	4.3	8.3	16.3	22.0	15.7
Chemicals	14.3	9.2	2.8	46.0	21.6	14.1
Petroleum				3.8	3.8	6.8
Ceramics	9.9	9.6	11.9	2.0	2.6	4.9
Glass				9.7	10.4	16.1
Cement				24.8	15.3	13.2
Cement and clay prod's.				6.8	11.8	51.1
Iron and steel	11.5	11.3	5.0	21.5	18.0	7.7
Nonferrous metals	8.0	15.6	24.4	9.6	10.9	3.5
Metal products				29.6	28.6	34.7
Machinery	16.2	2.6	3.5	23.2	11.8	15.7
Agricultural machinery				5.3	3.6	8.0
Electrical machinery	4.6	1.2	1.7	9.2	5.0	7.7
Electronics				3.6	2.0	3.6
Road vehicles	34.7	4.3	11.6	5.2	11.3	10.7
Railway vehicles				3.1	6.7	6.4
Shipbuilding				11.9	3.0	2.5
Total	197.1	233.8	335.3	428.0	520.9	640.4

Source: Data from Tables IX-2 to IX-4.

Since investment is assumed to be the same under each strategy, the labor-capital ratio would have increased in the same proportion as the increase in the number of new jobs.

All computations thus indicate that Turkey's trade regime and the associated import-substitution strategy had considerable growth-rate costs over the period of the two Five Year Plans. To the extent that foreign exchange was a binding constraint, the import-substitution strategy made it more so, and if investment was limited by foreign-exchange availability, investment could have been substantially increased by a different strategy. Even within

the planned investment level the rate of growth of manufacturing value-added could have been increased by about one-third and employment opportunities could have grown even more.

The data are of course indicative only of orders of magnitude, and the alternatives considered are not optimizing ones. There were undoubtedly sub-sectors within each sector which would have been included in an optimal strategy. Given the downward biases inherent in the data, there can be little doubt that the growth-rate cost of the strategy was high. The alternative export-oriented strategy would have required a considerable change in Turkey's economic orientation, but that change would have been in line with Turkey's stated intent to enter the Common Market as well as with its objective of a more dynamic and progressive industrial sector. An export-oriented strategy would not have been confined to textiles, metal products and food products but could have permeated each industrial sector. There is thus every reason to believe that the static losses associated with import-substitution discussed in Chapter VIII were fully reflected in Turkey's growth rate during the 1960's.