CAPITAL FORMATION IN TURKEY (*)

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In this paper, I am trying to cover the following subjects: A short history of work on capital formation in Turkey; a presentation of the various main estimates available at present; a discussion of the problems around these estimates.

A — HISTORY

Investment calculations started in Turkey in 1954, that is three years after the formation of the National Income Group in 1951. The first task of the Group, which was to compile as good as possible estimations of National Income based on industrial origin for the years 1939, 1948 to 1952, was terminated by the end of 1953.

At the end of 1953, Milton Gilbert who was then Head of National Income Statistics Division, U. S. Department of Commerce, paid a visit to Ankara at the invitation of the then Director General of Statistics, Sefik Bilkur, He was asked to review the work done so far by the National Income Group and to write a a report about it to the then Prime Minister. He recommended work towards the establishment of a National Accounts system, composed of 4 accounts: The National Product and Expenditure Account, a consolidated public account, a rest of the world account and a savings - investment account.

So far, it has not proved possible to complete the National system recommended by Mr. Gilbert. A beginning was made with the establishment of a consolidated public account and some estimates of investment in fixed assets were made.

(*) Paper read at Murrie, Pakistan in April 1962 at the Cento Conference on Income and Wealth.

Mr. Fotozoğlu, a member of the National Income Study Group and then Advisor to the Statistical Bureau and the present writer were given the duty, early in 1954, of preparing an investment calculation. During this work, they received the extremely welcome help of Hollis Chenery who had come to Turkey in 1954 to write a report on Investment and Economic Development for the American AID Mission. To write about investment, one had to know how large it was and so it came that he joined us in the Statistical Office and helped us out of some of our unresolved theoretical and practical problems. The investment calculation had to be done in a hurry, there was no time for new inquiries or sampling surveys or the like. There was at the disposal of the Group, fairly detailed and reliable import series, the Census of 1950 on industrial production and the annual inquiry of Central Statistical Office about production in large scale industry, meaning establishments employing more than 10 workers and or 5 HP.

These, together with information about investment expenditures by the public sector, by some large state economic enterprises and by large industry were the main data which were available. Obviously, the data would not permit of a calculation of investment from the expenditure side. Only some segments of the expenditure side were known but they served usefully to check in a very rough manner the main calculation which was made from the production side and here again the help of Chenery was most effective.

The calculation of the percentage of imports that went into investment was one of the first tasks. There were, of course, a number of goods with more than one use and here we had to make some rough and arbitrary assumptions as to the percentage of imports that went into investment, into current production, as raw materials or spare parts, and finally into consumption. Imports were classified into four categories: consumption materials, equipment and machines, raw materials and consumption goods.

Home production of investment goods was estimated by taking the results of annual surveys of large industry and by supplementing them with the data of 1950 Census covering all industrial establishments. In this way, knowledge was obtained about construction materials produced at home and other invest-

ment goods such as equipment and machines. Here again some rough percentage about final use had to be applied.

In this way, the two main bases for the two components of investment in fixed assets namely construction and machines and equipment were obtained. All that remained to be done was to get at the final values (as paid by the final user) of construction, on one side, and of machinery and equipment on the other.

For construction, percentages of the value of materials in final value, as compared with wages, profits and other components which optained in Italy, o country supposed to have the same technical relations as Turkey, were used to obtain the final value of construction in Turkey. Additions were made to account for rural constructions and self-made buildings. For machinery and equipment, customs and other taxes were added to CIF values. To these estimated profit margins and installations cost margins were also added.

Very briefly, this was the way in which the first estimates of investment were carried out in Turkey. They were incorporated in the study of Chenery (Turkish Investment and Economic Developments - mimeographed - FAO Mission, Ankara - 1954).

The main methods and percentages of the first study continued to be applied later by the Central Statistical Office in their annual estimates of investment. To finish historical survey we have to point out that the National Income Study Group ceased to function some time in 1955, due to the Government's growing sensitivity about statistics which did not reflect the growth supposed to be taking place in economic activities. Thereafter the investment series were prepared by the services of the Central Statistical Office but were never officially published in the Statistical bulletins although they were forwarded to OECC.

B — PRESENT INVESTMENT ESTIMATES

The main changes which were later made by the Central Statistical Office in the methods and percentages established by the National Income Group in 1954 were the following :

1. The value of construction was calculated on the basis of expenditures after the system of collecting building advocated by

Milton Gilbert had been put into application and the first results had been collected by 1955.

Thereafter, construction expenditures were calculated in two main categories :

a) Construction of buildings

b) Other construction

a) Construction of Buildings

This category is sub-divided into three categories:

1) Private housing construction
2) Public construction
3) Commercial and industrial buildings

1) Private Housing Construction

Figures are obtained from two sources; from building permits and from Ministry of Finance statistics for buildings for a yearly taxable value below 25 T.L. Building permits give the declared yearly value of housing permits in 500 municipalities in Turkey. Housing not covered by these building permits mainly concerns houses in villages and the (Gece-Kondu) types of houses in the towns. The value of such constructions are obtained from the Ministry of Finance statistics.

2) Public Construction of Buildings

Expenditures are taken from the central and annex budgets and local authorities account.

3) Expenditure on Commercial and Industrial Buildings

These are taken from the building permits statistics.

b) Other Construction

These consist of such things as roads, bridges, dams, harbors railways, canals, etc. This construction is mainly carried out by public authorities and by state economic enterprises. (Railways and coal mining are among the most important

breakdown of construction expenditures along three categories in four different years :

TABLE : I

Construction Expenditures (*) (Million T.L.)

(Current Prices)

A. BUILDINGS	*1950*	*1955*	*1956*	*1959*
1) Private construction	291.8	590.3	1,145.3	2,406.8
2) Public construction	85.4	155.4	156.2	473.0
3) Industrial and Commercial Construction	90.5	214.2	379.0	582.0
TOTAL	*467.7*	*959.9*	*1,680.5*	*3,461.8*
B. OTHER CONSTRUCTION	182.8	434.4	843.5	1,834,9
TOTAL	*650.5*	*1,394.3*	*2,524.0*	*5,296.7*

(*) CSO estimates

The second main component of investment is machinery and equipment. The method of calculation of this component has remained basically as before, but the profit margins used in determining final values have been fixed at the same level as those in the decree of 1955 (k. 944) fixing profits margins for import, wholesale and retail trade in Turkey. The following tables shows the breakdown of investment in machinery and equipment according to imports and internal production in 1957:

TABLE II

Investment in Machinery and Equipment in 1957

(Million T.L.)

	CIF value or factory cost including tax	*Customs and Taxes*	*Trade margins & Transport.*	*Install*	*Total*
Imports by state sector ...	108.4	32.2	14.1	018	155.5
Internal production	290.5	—	32.8	—	323.3
Imports by private sector	142.0	41.3	87.4	3.4	274.1
TOTAL					*752.9*

In order to obtain an idea of the share of machinery and equipment and of construction in the total of investment, we give the following table, which has information on the absolute as well as the relative amounts of these two components in certain selected years :

TABLE III

Investment by Main Components (Million T.L.)

(Current Prices)

	1950	%	*1953*	%	*1956*	%	*1958*	%	*1959*	%
Construction	650.5	67	1394.3	67	2524.0	75	3980.0	78	5296.7	68
Machinery and Equipment	325.0	33	704.2	33	843.5	25	1178.0	22	2459.4	32
TOTAL	*975.5*		*2098.0*		*3367.5*		*5158.0*		*7756.1*	

The drop which ocurs in the share of machinery and equipment after 1953 is attributable to two main factors :

1) The valuation of all imports at the official rate of T.L. 2.80 to the dollar until August 1958, although the external value of the Turkish currency was in fact dropping all the time after 1953.

2) The change in the composition of investment after 1953, caused mainly by the continuing foreign exchange crisis.

This is all that need be said about the estimates of the Central Statistical Office and the methods used in their construction. A few words should be added about the classfication of capital formation provided by the Central Statistical Office. The Central Statistical Office only gives the breakdown of investment into construction and machinery and equipment. There is no breakdown according to the main spending sectors (private, public, state economic enterprise) and none as between branches of economic activity.

It should be added that stock movements are not specifically calculated and introduced in the statistics. There is no calculation of capitall formation at constant prices.

In order to complete this survey of available investment estimates, we should mention, in turn, the work if a single scholar, Dr. K. Gurtan from the Istanbul University Faculty of Economics and secondly the provisional estimates of the Planning Bureau.

Dr. Gurtan's study on investments in Turkey was published in book form in 1959 (*). It contains a very through and detailed examination of the procedures used for estimating investment by the Chenery Group and by the Central Statistical Office. Dr. Kenan Gurtan has also made his own estimates of investment for the period 1948 - 1955 and in this, he has followed the main lines of the previous calculations although with some changes in methods, particularly as regards the questions of evaluating the use of imports, the value of construction and profit margins applied. However, the comparison of the Central Statistical Office estimates of gross investment with the estimates of Dr. Gurtan shows that only very slight differences exist between the two sets of estimates. The differences in the years 1950 and 1951 are respectively of the order of +3% for Gurtan and —3% for Gurtan. After 1952, these differences become almost negligible except for 1955 when Gurtan's estimate is 1% lower than the Central Statistical Office's estimate.

The two main original contributions of Gurtan are in the attempted classification of investment according to branches of activity and in the attempt at calculating investment at fixed prices. Since such attempts have so far not been made by the Central Statistical Office, it seems worthwhile to review briefly the main results.

For establishing a classification of investment according to branches of activity, Gurtan has tried to establih the uses of imports and domestic production machinery and equipment. This was the most difficult part of the job. There existed some information on the breakdown of construction eqpenditures along main using branches. The following table gives us the value of investment and percentages of total in each sector in certain selected years :

(*) cf. Kenan Gurtan, Türkiye'de Yatırımlar, İktisat Fakültesi Yayınlari No. 110-1959- İstanbul,

TABLE IV

Investments According to Branches of Activity (*)

Current Prices (Million T.L.)

	1948	*%*	*1951*	*%*	*1954*	*%*	*1955*	*%*
Agriculture	82.8	9.7	195.1	16.0	211.4	8.5	247.6	8.4
Manufacturing	75.1	8.7	133.8	11.0	238.0	13.1	388.6	13.2
Construction	6.2	0.7	14.1	1.2	32.7	1.2	34.4	1.2
Mining-Power	45.0	5.3	63.1	5.2	136.7	7.4	219.3	7.4
Commerce	35.5	4.2	73.6	6.0	162.5	10.0	240.4	8.2
Transport	225.5	26.6	335.1	27.5	592.5	22.2	616.9	20.9
Housing	256.4	30.3	298.9	24.5	526.8	30.6	980.8	33.3
Services	121.6	14.5	104.6	8.6	184.8	7.0	218.8	7.4
TOTAL	*847.5*		*1218.3*		*2479.2*		*2946.8*	

(*) Sources: K. Gurtan op.cit. pages 147 and 148.

This table shows the main changes in the composition of investments between 1951 and 1955. First, there was a drop in the share of agriculture, from 16% in 1951 to around 8% in 1955. Secondly the share of manufacturing has been slowly increasing from approximately 9% in 1948 to 13% in 1955. Thirdly, the share of transport which was high in the early fifties (27%) showed a decrease throughout the period down to 21% of total investments. Finally housing investments showed a marked rise between 1951 and 1955 from 24.5% to 33.3%. The Gurtan estimates on the classification investments according to branches of activity, unfortunately, end in 1955 and we do not, at present, possess data on the period 1955 - 1961.

The second important contribution of Gurtan was the calculation of investment expenditures at constant prices. Gurtan has prepared three price indexes one for imported machines and equipment, the second for domestic production of capital goods and the third for construction and has deflated the various components of the investment total according to the three indexes order to obtain estimates of investments at 1948 prices. In Table V, we are giving the results of his investigation:

TABLE V

Investments at Current and at Constant Prices

(Constant Prices basis=1948 (Million T.L.)

	Current Prices		Constant Prices	
	Amounts	Index Number	Amounts	Index Number
1948	847.5	100	847.5	100
1949	944.3	111	964.3	114
1950	1004.1	118	1324.0	156
1951	1218.3	144	1490.2	176
1952	1800.5	212	1776.3	210
1953	2095.4	247	2204.4	260
1954	2479.2	293	1854.5	219
1955	2946.8	348	2017.9	238

The figures show that investments valued at constant prices remained above (except for 1952) investments valued at current prices until 1953. After that year, investment at constant prices dropped below investments at current prices.

The last of the available estimates of investment in Turkey emanate from the Planning Bureau which was set up in Autumn 1960 to prepare a long-term plan for the Turkish economy.

For various reasons, the Planning Bureau found the estimates of the Statistical Bureau unsatisfactory. So, they decided to make independent calculations in respect of certain sub-totals or make new calculations by correcting some of the valuation methods or the percentages used by the Central Statistical Office. I shall deal in more detail with the changes introduced by the Planning Bureau in the following section since they relate to some of the general problems raised by investment estimates. The following table gives the estimates of the Planning Bureau for investment in fixed assets as compared with the estimates of the Central

TABLE VI

Capital Formation: Planning Bureau Estimates and the Central Statistical Office Estimates (Million T.L.)

Current Prices

	Planning Bureau Estimates	Central Statistical Office Estimates
1956	3260	3304
1957	4017	4033
1958	5042	5158
1959	6989	7546
1960	7613	8728
1961	7024	n.a

It will seem from this table that the estimates do not differ very greatly up to 1958 (included), the Central Statistical Office estimate of investment being slightly larger than the Planning Bureau estimate. The largest divergence in this period occurs in 1958 when the difference is 116 million T.L., or of the order of 2%.

However, for the subsequent years, the divergences become very serious indeed. In 1959, the Central Statistical Office estimate is 557 million T.L. higher than the Planning estimate, a difference of the order of 8% of the lower figure. In 1960 the Central Statistical Office estimate is actually 1115 millon T.L. higher than the Planning estimate, a difference of the order of 14% of the lower estimate. For 1961, the Central Office estimate is not yet available.

Before finishing this review of present available investment estimates, we should cover the classification of investment by main spending sectors, since this classification exists for the Planning estimates for the years 1959 - 1961. The following table gives this distribution for 1959 - 1961 :

ABLE VII

Distribution of Investment According to Sectors

(Million T.L.)

	Private	%	Government (*)	%	State Economic	%	Total
1959	3574	51	2639	37	776	12	6989
1960	3981	52	2810	36	822	12	7613
1961	2714	38	3260	46	1050	16	7024

(*) Including local authorities.

The fall in the share of the private sector in 1961 is attributable to the fall in the value of private investments other than housing, caused by the drastic application of stabilization measures and by political uncertainties. The absolute amounts and relative shares of the public sector (both government and state economic enterprises) were raised in 1961 to compensate for the fall in total demand and to mitigate the stagnation tendencies in the economy.

C — PROBLEMS :

The first problem we will take up is concerned with the availability of two different and sometimes widely divergent estimates of investment. The other problems are connected with issues relating to measurement.

The fact that there now exists two different estimates of investment, one by the Central Statistical Office, the other by the Planning Bureau is of course a regrettable thing, but this was perhaps unavoidable in view of the necessity in which the Planning Bureau found itself to have at its disposal a more realistic figure for investment. Although it is not possible at present to pass a judgement on the reliability of the two different estimates, it does seem that the Statistical Office estimate is rather on the high side. It should be noted here that the national income estimates of the Statistical Office have also been critized and revised downwards by the Planning Bureau, beginning with the estimates for 1957. So the same situation of two different estimates exists also for national income figures.

Coming back to investment figures, the reason why the Central Statistical Office estimates appear too high to me is that the percentage of investment in gross national product (Central Statistical Office estimate) jumps up steeply from around 13% in (1956 - 1958) to 16% in 1959 and to 16.7% in 1960. On the other hand, using both the investment and the GNP estimates of the Planning Bureau, we find that investment constituted 13% of GNP in 1956 - 1957, then rose up 14% in 1958, to 15.7% in 1959 and to 15.8% in 1960. The general tendency of the second set of figures to me nearer to reality, since I have some difficulty in explaining a big jump of 3% in the relative share of investment to GNP between 1958 and 1959.

However, this judgement should only be accepted as a very general impression. A study group has now been formed under the leadership of Dr. Kenan Gurtan from Istanbul with the mission of going over thoroughly into investment calculations and of producing one set of estimates which will henceforward be accepted by all concerned as the only valid set of investment estimates.

I come now to some of the particular problems raised by the estimation of investment in Turkey. It was clear from our description of the present estimates that the method used at present is a mixture of the production flow and of the expenditure approach, production flow being used for the machinery and equipment component, while the expenditure flow is used for the construction component. There is, however, also very rough estimate of construction from the production side which is used as a check on the expenditure estimate. It would, of course be a great improvement if investment totals could be calculated independently, both from the production and from the expenditure side. This would increase considerably the reliability of the estimates. The difficulty lies in obtaining the expenditures on investment of the private sector, especially in small industry, in agriculture, trade, transport and services. Future censes of agriculture, industry and services may be of great help in this matter, especially if supplemented by sampling surveys. However, it will be some time before we can set up a completely independent two-fold approach to the measurement of investment in Turkey in the meanwhile we will have to think of ways to improve the reliability of the present estimates.

Taking the construction estimates and machinery and equipment estimates in turn, I shall try to point out the problems some of which were brought out by the Planning Bureau revisions.

In the construction total, the sub-total for private construction of housing and industrial and commercial building are taken from building permit figures without any correction. Since we do not know how much of the permits are actually carried out and the average time it takes to finish the various categories or building, the estimates contain probably an overstatement for each year and the apportioning between the years may also be somewhat mistaken. Sampling surveys to be carried out in the main municipalities have been proposed as remedies for the above types of errors. Another point in the construction total concerns buildings with a yearly taxable lower than 25 TL. per year (mostly village houses and gecekondus). The only information available about such houses is a 1952 Ministry of Finance census. The figures were then extrapolated by Central Statistical Office according to a weighted index combining changes in population with changes in current agricultural income. This procedure was corrected by the Planning, which revised the weights, giving a large weight to population changes and using changes in agricultural income at constant prices instead of current prices.

A similar question has arisen about the construction of agricultural buildings other than houses. Here again, the Central Statistical Office had information for 1952 and then extrapolated on the basis of changes in current agricultural income. The Planning Bureau has preferred to use agricultural income at constant prices. A sampling survey was carried out in 500 villages by the CSO in 1961 in order to obtain information about village houses and agricultural buildings. The results have not yet been incorporated in any estimates.

There is no change in the Planning Bureau estimates of investment for the items in the construction total other than those mentioned above.

We turn now to the problems involved in the estimation of the second main component of investment, namely machinery and equipment.

The first point concern the classification of imported goods into investment goods, intermediate goods and consumption goods. The basis of this classification which was established hurriedly and without any detailed inquiries in 1954, at the time of H. Chenery's visit, has not been changed since. There is need for a thorough revision of this classification. I understand this is being done by the group working on investment under K. Gurtan's leadership, but the application of the new basis will be made only for the 1961 imports. This means that the new series of machinery and construction will not be strictly comparable with the series before 1961.

Some of the changes made during the Planning Bureau revisions are as follows :

Certain taxes such as premiums or production tax collected from imports which were not added to CIF value of imports in the Centrall Statistical Office estimates have been added to CIF values in the Planning estimates.

The profit margins used in the Central Statistical Office calculations were raised by between 5 and 10% according to cases, during the 1955 - 1958 period in the Planning calculations. The reason for this is that the above period was one of extreme stringency of foreign exchange necessitating some administrative allocation of imports in addition to import controls. Black markets were also in operation at the time. After 1958, foreign exchange stringency eased up, allocation schemes were dropped and therefore the Planning Bureau returned to earlier margins for the 1959 and subsequent evaluations.

Another point raised by the Planning Bureau in relation to the valuation of imports concerns the fall in the external value of the Turkish currency after 1955. The Planning Bureau estimates that imports of machinery and equipment should be valued not at the official rate of exchange but at a rate of exchange reflecting the real value of currency. Because this has not been done, the Planning Bureau thinks that the value of machinery and equipment in investment has been undervalued in 1955 - 1958. The Planning Bureau themselves did not carry out this adjustment because of the alleged difficulties involved in estimating the

I am, however, doubtful whether this adjustment is required. A very large percentage of the imports of investment goods were purchased by their users at the official rate. A small percentage was obtained through bilateral deals at higher rates but the effect of these are reflected in the CIF values declared to the customs and expressed in Turkish liras. Insofar as the imported is not the final buyer and takes advantage of the sellers market, then allowance for the higher mark-up should be made in profit margins.

One point which is not mentioned in the Planning paper on isvetments is the question of currency evasion which happened through imports during the period mentioned. We know that large scale capital evasion occurred and one of the forms it took was overstating CIF costs of the imported goods. This, insofar as it applied to imports of investment goods must be a factor making for over valuation of investment in real terms.

Since, however, wer are not concerned in the preparation of investment estimates, with the real economic costs of the investments undertaken, but rather with total expenditures of money made in connection with investment, I would not attempt to make adjustments in the CIF values of imports of investment goods on the basis of the considerations just mentioned.

The estimation of profit margins should be taken up in detail and followed carefully. I also understand that this point will be considered by the group presently engaged in making new investment estimations.

Another problem is related to the question of changes in stocks. As I have noted previously, the figures in Turkey do not provide for any independent estimate of changes in stocks of raw materials or of finished goods. A year ago, work was begun on this point by Mr. Feridun Kurtkan, then at the Central Statistical Office. It is to be hoped that this work will be continued.

Turning finally to the domestic production of machinery and equipment it should be noted that both absolutely and relatively, large increases have occurred under this heading since 1951. In 1951, domestic production of investment goods constituted

only 9% of the total value of machinery and equipment. This proportion rose to 37% in 1957. It fell again to 25% in 1959, since the imports of capital goods were valued at the rate of 9 T.L. to the dollar in that year. However, the increase in the above proportion suggests that a considerable amount of import substitutions in machinery and equipment must have been taking place between 1951 and 1959.