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CAPITAL FORMATION IN PAKISTAN

by

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One of the major aims of economic policy in Pakistan has been to accelerate the pace of capital formation in the Country. According to the estimates prepared by Planning Commission, the rate of gross investments in the public and private sectors rose by 2% during the period of the First Five Year Plan 1955-1960. An analysis of the composition of gross investments during this period shows that while the expenditures in public sector almost doubled during 1954-55 to 58-59, the investment in private sector remained more or less static in monetary terms. Since the prices of Capital goods had a rising tendency during this period, the real investment in private sector appears to have declined. The estimates of the Planning Commission are given below.

Gross Investments in Pakistan

(In million rupees)

Years	Total	Public Sector	Private Sector	National Income	Investment as % of National Income
1951 - 52	970	400	570	18,689	5.2
1952 - 53	1,320	580	740	21,226	6.2
1953 - 54	920	570	350	21,962	4.2
1954 - 55	1,350	740	610	20,719	6.5
1955 - 56	1,140	780	660	21,160	5.4
1956 - 57	1,640	970	670	24.053	6.8
1957 - 58	2.010	1,300	710	25.856	7.8
1958 - 59	2.170	1,500	670	25.013	8.6

Source : Planning Commission , Estimates of Private Investments 1951 - 52 to 1958 - 59, September 1959.

In the above table , Investments in the private sector measure gross fixed capital formation. In the public sector, however, all such expenditures which result either in the creation of fixed assets or in the improvement of knowledge , skill and productivity of the people are included as investments and are called " development expenditures".

The estimates of private investments have been subdivided into two parts : (a) construction and (b) machinery and equipment. The estimates of construction are based on the annual supply of basic construction material like cement and iron and steel which are assumed to constitute 30% of the total construction costs. The annual supply of these materials is arrived at by subtracting their consumption in the public sector from the total annual supply. The estimates of private investment in machinery and equipment are based on the imports of these goods on private account and the availability of domestic production to private sector.

Since the Planning Commission estimates use development expenditures for measuring gross investments in the public sector, these estimates cannot be related to gross fixed capital formation . The concept of fixed capital formation is more restricted than the concept of development expenditures and is concerned with the gross value of goods added to the physical capital stock located within the country plus net changes in stocks. These additions to the capital stock of the country are generally measured through the expenditures incurred on acquiring the fixed assets or through the supply data, that is by measuring the total supply of capital goods to the home market from data about production, exports and imports. The application of any of these methods depends upon the adequacy of the available data.

Estimation of Gross Fixed Capital Formation

In view of the great importance of the estimates of gross fixed capital formation for economic analysis and policy, the present writer has made an estimate of fixed asset formation in Pakistan for the year 1960 - 61 . This period has been selected because Pakistan's Second Five Year Plan was launched during this year. The results and the methodology used in the estimation of capital formation are presented in subsequent paragraphs.

According to our estimates, the value of gross fixed capital formation in Pakistan in 1960-61 was RS. 2866 million or about 9.4 percent of the total national income in current prices. Of this value, capital formation in the public sector amounted to Rs. 1804 million and in the private sector to Rs. 1062 million. These estimates do not include changes inthe stocks and capital formation of non-monetary nature in agricultural sector for which adequate data were not available. The composition of gross domestic capital formation by type of capital goods, by industrial use and by type of purchaseer is given below.

Composition of Gross Domestic Capital Formation

A. By type of capital goods	Million Rupees
Land and Agriculture	85*
Irrigation	298
Buildings	1,031
Roads and Railroads	256
Sewerage	77
Transport equipment	318
Machinery and equipment	801
Gross domestic capital formation	2,866

B. By industrial use	Million Rupees
Gross fixed capital formation in :	
Agriculture	54
Forestry and Fishery	15
Industry	534
Irrigation and Power	520
Civil works and private construction**	918
Communications and Transport	764
Public Administration	25
Service Departments***	36
Gross domestic capital formation	2,866

* Includes agricultural machinery.

** Civil works consist of roads, and such buildings which could not be allocated to other industrial uses.

***Departments of Veterinary, Cooperation, Education and Public Health.

C. By type of Purchaser			Million Rupees
Public Sector	..	..	1,804
a) Machinery and equipment	..	..	576
b) Construction	..	..	1,202
c) Miscellaneous	..	..	26
Private Sector	..	..	1,062
a) Machinery and equipment	..	..	602
b) Construction	..	..	460
Gross domestic capital formation		..	2,866

The important role of the public sector in capital formation is evident from the fact that this sector account for 63 percent of total fixed assets and the private sector only 37 percent. Of course , capital formation in private sector is somewhat understated due to the exclusion of capital formation in agricultural sector which is mostly non-monetary in nature*. Another notable feature of capital formation in Pakistan is the comparatively larger outlays on construction which accounts for 59 percent of total capital formation. Outlays on machinery and equipments constitute 41 percent of the total. Of the total capital expenditures in the public sector, construction accounts for 67 percent and machinery and equipment for 32 percent. In the private sector, construction constitutes 43 percent and machinery and equipments 57 percent of the total expenditures of this sector.

It is interesting to note that the percentage share of the private and public sectors in capital formation is almost the same in our estimates for 1960 - 61 as in the Planning Commission estimates for earlier years. In spite of this similarity in overall percentages, the main components, of private investment have shown significant changes. According to the Planning Commission estimates construction always claimed a major share of capital expenditures in the private sector

* In an attempt to measure capital formation in agricultural sector, we took the number of carpenters, blacksmiths and mechanics, brick-makers and masons working in the villages and assumed that 40 percent of their income is obtained from work which may be regarded to represent capital formation. The total value amounted to about Rs. 100 million but since there was no way to judge the reasonableness of this estimate it was not included in our final estimates.

exept in 1954 - 55* . In 1958 - 59 construction accounted for 66 per-cent of the total expenditures. In 1960-61, the situation changed in favour of machinery and equipment. The major reason for this change was the liberalised import policy adopted during this period.

Maintenance Expenditures

Because of the lack of data, it was not possible to show a break-down of gross expenditures into maintenance and new capital formation for the country as a whole. This information is, however, available for the public sector and is presented in the table below. All mainte-nance expenditures met from revenue account were treated as current expenditure representing routine repairs and maintenance. In all cases where a breakdown of maintenance expenditures was not available in the budget or where different types of maintenance expenditures were lum-ped together, we divided these expenditures proportionately between the different components of the relevant budget head.

Composition of Gross Capital Formation in Public Sector

A. By industrial use (In million Rupees)

	Maintenance	New Capital	Total
Agriculture ..	1	53	54
Forestry and Fishery	-	15	15
Irrigation and Power	70	450	520
Civil works (a)	25	433	458
Industry ..	30	150	180
Communications and Transport	177	339	516
General Administration	10	15	25
Services Departments (b)	-	36	36
Grand Total	313	1,491	1,804

(a) Includes Town development schemes.
(b) Departments of Veterinary, Cooperation Education, and Public Health.
Note:- Maintenance expenditure met from revenue account amounting to Rs. 96 million have been excluded.

* The major components of private investment in the estimates of the Planning Commission are given below: (Million Rupees)

	51-52	52-53	53-54	54-55	55-56	56-57	57-58	58-59
Construction	360	510	200	280	340	450	530	450
Machinery and equipment	210	230	150	330	320	220	180	220
Total	570	740	350	610	660	670	710	670

B. By Capital goods

	Maintenance	New Capital	Total
Machinery and equipment*	143	433	576
Buildings ..	62	509	571
Roads and Railroads	63	193	256
Canals ..	45	253	298
Sewerage ..	—	77	77
Miscellaneous ..	—	26	26
Grand Total	313	1,491	1,804

Note:- Maintenance expenditure met from revenue account amounting to Rs. 96 million was regarded as current expenditure representing routine repairs and maintenance.

Sources of Finance

The fixed asset formation of Rs. 2866 million was financed through internal savings, foreign aid and borrowings from abroad. Approximately one-third of capital formation was financed through external loans and foreign aid and two-third through internal savings. The following table shows the sources of financing the gross domestic capital formation.

The finance of Gross Domestic Capital Formation

	In million Rupees
1. Provision for the consumption of fixed Capital	365
a) Joint Stock Companies	94
b) Other private enterprises ..	125
c) Government enterprises	146
2. Savings	1,501
a) General government and government enterprises	551
b) Social Security funds	31
c) Insurance premia	82
d) New share capital and increase in deposits of cooperative societies ..	70
e) New issues of equity subscribed by the public	143
f) Undistributed profits of joint stock companies	105
g) Other savings	519
3. Foreign aid and borrowings	1,000
Total ..	2,866

* Includes agricultural machinery and equipment.

The capital consumption allowances and undistributed profits of joint stock companies were obtained from the balance sheets and profit and loss accounts of the 87 joint stock companies whose shares were quoted and transacted at Karachi Stock Exchange in 1960-61. New issues of equity which were subscribed by the public were obtained from the records of the Stock Exchanges. The details of gross profits, retained profits and provisions for depreciation for joint stock companies in different industries are given below:

Gross and Retained Profits of Joint Stock Companies

(In thousand rupees)

	Gross Profits	Provision for Depreciation	Provision for Taxes	Transfer to Reserves	Dividend	Change in Stocks
Banks	63.894	2.871	17.825	32.660	10.538	-
Insurance	3.320	54	1.250	1.378	638	-
Engineering and Construction	19.396	6.333	7.815	1.391	3.857	+ 5.060
Fuel and Power	47.525	15.189	12.939	6.045	13.350	+ 280
Cement	20.969	3.649	3.255	6.665	7.400	+ 193
Chemicals	11.211	2.263	3.322	3.862	1.764	+ 3.106
Cotton Textiles	114.105	24.007	31.033	30.259	28.806	+13.364
Jute Textiles	28.747	10.580	6.375	2.609	9.183	- 6.581
Woollen Text.	7.907	1.484	2.625	-	3.798	+ 166
Sugar and allied industries	7.136	3.993	1.575	500	1.068	-
Shipping ect.	8.449	4.451	505	1.800	1.693	+ 171
Miscellaneous	75.455	18.636	20.714	17.558	18.547	..
Total	408.112	93.510	109.233	104.727	100.642	+15.759

The capital consumption allowances in government enterprises consists of accretions to depreciation reserve funds of the Railways and Posts and Telegraph and have been obtained from their respective budgets. Accretions to governments social security funds are taken on a net basis from the budgets of the Central and Provincial governments. Enough data were not available for deriving estimates of provisions for depreciation in private enterprises other than joint stock companies. It was arbitrarily assumed that on the whole provisions for depreciation in these companies were 33% more than in all the joint stock companies taken together. Other Savings available for capital formation are estimated as a residual.

Methods of Estimation

Data of Capital formation in the public sector have been derived from the budgets of the Central and Provincial governments. Budgets of important local bodies were available and made use of in deriving estimates of capital formation. For municipalities whose budgets were not available an estimated figure was included.

The government enterprises like Railways and Posts and Telegraph publish their budgets but the available details are not helpful in allocating expenditures to construction and machinery and equipment. In the case of Railways, open line works other than rolling stock were included in construction while open line works (rolling stock) were included in equipment and machinery. Only the overall figures of expenditures of Pakistan Industrial Development Corporation and Water and Power Development Authoroties were available. In the case of PIDC, 40% of total expenditure was allocated to construction of the total expenditures of WAPDA's, 50% were allocated to machinery and equipment and 30 percent to construction.

Construction

The value of total available cement and structural iron and steel was determined by taking into account the production, imports and exports of these goods. The value of locally produced cement and structural steel was raised by 10 percent to allow for transportation and distribution charges. Similarly the c.i.f. value of imported cement and iron & steel was adjusted for import duty, sales tax and distribution and transport charges to arrive at the value of cement at site.

Value of Cement and Structural Steel

(Million rupees)

	Value	Tax and other charges	Total value at site
Cement and Iron & Steel	312	74	386
Cement	147	29	176
Domestic Production	125	13	138
Imports	22	16	38
Iron & Steel ..	165	45	210
Domestic Production	91	9	100
Imports	74	36	110

The next step was to determine the consumption of cement and iron and steel in the public sector . Since details were available for maintenance expenditure and new construction by type, it was assumed that cement and iron & steel constitute 10 percent of maintenance expenditure, 30 percent of new buildings, and roads. 40 percent of sewerage and 14 percent of outlays on irrigation . The following table shows the consumption of iron and steel and cement in the public sector.

Consumption of Iron, Steel and Cement in Public Sector

(Million rupees)

	Construction Expenditures			Value of Materials
	New Construction	Maintenance	Total	
Buildings ..	509	62	571	159
Roads & Railroads	193	63	256	64
Canals ..	253	45	298	40
Sewerage ..	77	-	77	31
Total	1,032	170	1,202	294

The consumption of these materials in the private sector was obtained as a residual . On the assumption that the value of cement and structural steel accounts for 20 percent of the total value of construction in private sector, the value of construction in this sector amounted to Rs. 460 million.

Machinery and Equipment

Investments in machinery and equipment consists of purchase and installation of imported and home produced machinery and transport equipment. The figures of imported machinery are published by the Central Statistical Office and the Census of Manufacturing Industries gives details of domestic production of industrial machinery and engineering products for 1959-60. The value of imported machinery and equipment was adjusted for import duties, sales tax;handling charges, distribution transportation and installation costs. Of the total imports of cars, 50% were assumed to be imported for non-business use. The follwing table shows the estimates of market value of industrial machinery and transport equipment.

Value of Machinery and Equipment

(In Million Rupees)

	Value	Taxes and other charges	Total
Total	848	330	1.178
Imported Industrial machinery	392	73	565
Imported agricultural machinery	.43	12	55
Othe Imported machinery	79	31	110
Domestic production of machinery	113	17	130
Imported transport equipment	137	79	216
Domestic production of transport equipment	84	18	102

The total value of machinery and equipment used in the public sector was estimated from the budgets of the various governments. This amounted to Rs. 576 million. The residual value of machinery and equipment amounting to Rs. 602 million was thus allocated to the private sector.

The estimates of capital formation in the public and private sectors suffer from some obvious limitations. Because of the paucity of data, a number of assumptions had to be made which are likely to introduce a margin of error in the estimated value of construction and its allocation in various component items like buildings, canals, roads etc. The overall estimates of expenditures on plant and machinery are based on reliable data but their distribution between the public and private sectors suffer from some limitations as the distribution of construction expenditures between these two sectors. In spite of these limitations, the overall estimates undoubtedly indicate the rising rate of capital formation in Pakistan.