DYNAMICS OF CONSUMER DEMAND IN INDIA

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ABSTRACT
A steel demand model consisting of 15 economic sub-
sectors was formulated by the authors [1] to dynamically
estimate the steel demand from GNP per capita. Attempt is
now being made to develop a more general consumer demand model
specific to India, which, among other things, takes into
consideration inflation as caused by increase in money supply.
to finance development plans of the country, remittances from
expatriate workers, foreign loans, and wage increase to
increase in production ratio. Existing model has been further
modified by giving due weightage to the effect of income
distribution among low, middle and high income groups of
population on the dynamics of demand. Attempt has also been
made to study the sensitivity of the economy, and hence the
consumer demand, to changes in the saving to consumption ratio.
The positive effect of increase in saving on capital formation
on the one side, and negative effect of decrease in demand on
the other side, has been discussed.

System Dynamics technique was used by the authors [1]

for long term projection of steel demand in India. An Indian

National economy model consisting of population sector, economy

sector, consumption sector, capital sector, government sector

and steel demand sector was formulated. Steel demand in the

country was generated on dynamic basis by considering the

amount of steel needed, individually, in 15 economic sub

sectors, 9 consumption subsectors and seven government expendi-

ture subsectors. As a first attempt, the model was developed

on the basis of constant prices prevalent in the base year and

steel consumption was related to GNP per capita and agriculture

production. On validation, the model was found to give

reasonably accurate steel demand projections. This encouraged

the authors to consider modifying the model to make it suitable

for projecting consumer demands of different items in India.

Being a planned economy with built in government controls

on means of production and distribution Indian economy follows

a somewhat different dynamics than that of the western economies.

Moreover consumer demand in India is quite sensitive to the

earning levels of low, middle and high income groups of population

Hence the model deserved a separate formulation specific to

India. Other important influence on consumer demand meriting

consideration is inflation.

Again the planning process in India has succeeded in

increasing saving from 6.82% in 1951 to 19.54% in 1980 [2]

with a view to increase the growth rate. The growth rate in

economy has, however, not followed the expected increase

despite increased savings. Increase in savings, while helping

in increase in the availability of funds for capital investment,

depresses the demand as consumption is reduced to make way for

higher quantum of saving. Thus whereas the capital employed

increases, there is a fall in output to capital ratio caused

by depression in demand. In the Indian situation available

studies [3] have shown that top 1% of the total population has

9% share in GNP. 36% of GNP goes to top 10% of population only

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whereas top 20% corner 53% of the GNP. Lowest 50% have only 20% GNP available to them. Thus both saving and consumption & hence demand wise, it is only the high income group consisting of not more than the top 1/3 of population, which is more important.

THE MODEL

As main aim of the present model is to study the effect of income distribution, inflation and saving on the economy and hence demand, population growth is considered through a one level model. The population is divided in rural and urban groups as per the available census records. Economy is modelled with capital investment in Primary, Secondary and Tertiary subsectors as levels. Income generated is distributed in 6population sub-groups representing low, middle and high income groups in rural and urban sectors. Saving generated from these income groups is fedback to the economy subsectors through policy allocation criteria. Inflation index is dynamically calculatedto update the capital employed in various subsectors of economy. Figure 1 shows the causal loop diagram of the model and figure 2 shows the model block diagram.

INCOME DISTRIBUTION

Radha Sinha etal [4] have divided the rural and urban income groups in 3 nearly equal subgroups each called low, middle and high income groups. 33% of the population getting lowest share of GNP forms the LIG in each of the rural and urban population groups. Similarly 34% of the rural and urban populations placed in the higher income range than LIG are
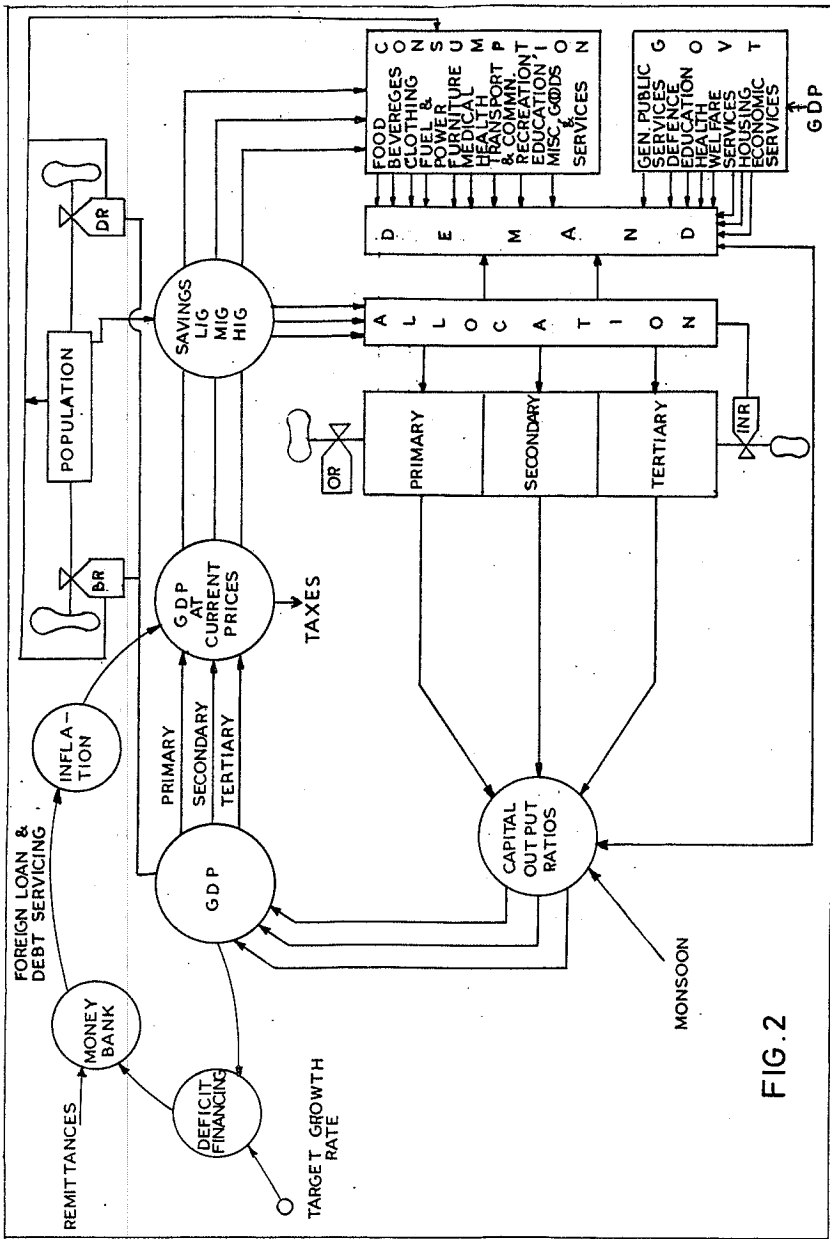
FIG.1
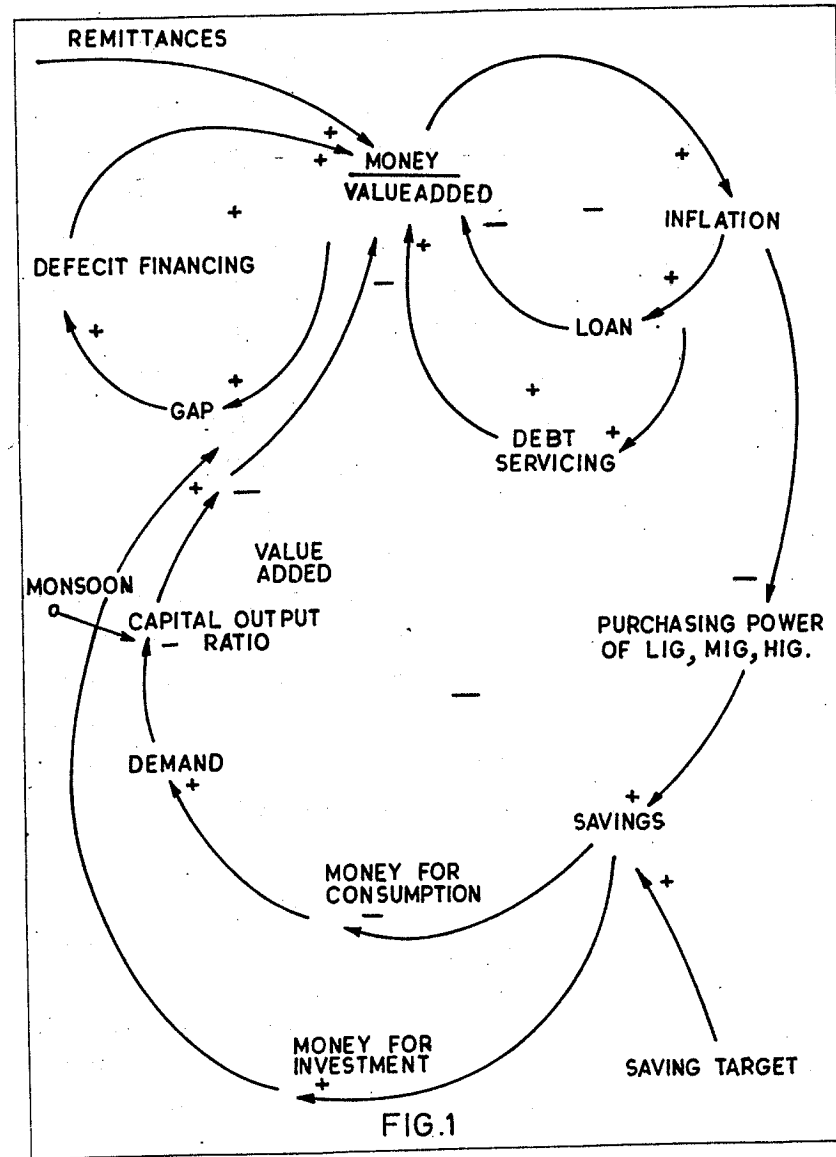
FIG.2

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called rural and urban MIG population groups respectively.
The remaining top 33% form the HIG population groups in rural
and urban sectors.

Based on the estimated distribution of 1967-68, value
added in 16 economic subsectors among the six population sub-
groups [4] percentage distribution of primary, secondary and
tertiary incomes has been derived as shown in Table-I. Assum-
ing these proportions of income distribution as constant over
time, income distribution among the six population subgroups
has been estimated dynamically from the primary, secondary and
tertiary subsectors of the economy model.

TABLE-I

Income Group	Rural Population			Urban Population			Total
	LIG	MIG	HIG	LIG	MIG	HIG	
Primary	10.68	16.77	69.70	0.53	0.61	1.71	100
Secondary	3.67	14.58	14.14	5.36	13.83	48.82	100
Tertiary	7.37	22.79	20.36	5.35	12.33	31.79	100

ECONOMY SECTOR

Economy has been modelled in the subsectors namely
primary, secondary and tertiary each being represented by a
level. The inrate is the capital input fed back from the
savings through a policy input variable. Outrate is the
depreciation considering the life of plant to be 25 years.
To represent the capital at current prices the past value of
the level is multiplied by inflation factor for the current
year as calculated dynamically, before considering the inrates
and ourates. Capital to output ratio for each subsector is
calculated separately. In the primary subsector monsoon plays

a significant role in the capital output ratio variation
in addition to electricity, irrigation and new technology.
Change in consumption to generate required saving is another
factor modifying the capital output ratio through the medium
of demand regulated prices. Likewise energy availability and
consumption level influence the capital output ratio of the
secondary sector. Tertiary sector capital output ratio is also
influenced by consumption.

Gross domestic product is obtained by adding the value
added in the three economy subsectors whereas by using the
ratios indicated in table I, GDP distribution for the six popu-
lation subsectors is obtained. GDP is now taken to the money
bank where the inflation factor is calculated considering the
various inflationary influences.

INFLATION

Deficit financing has been considered to have major
influence on inflation. Deficit financing is resorted to for
filling the resources gap left by inadequate taxation. Deficit
financing is also employed to generate funds where actual growth
rate falls short of the target growth rate as proposed by Ray
[5] and Brahmanand [6] . Remittances home by expatriate workers
is the third inflation generating force. The fourth factor
considered while calculating inflation is the growth of service
(Tertiary) sector vis-a-vis the primary and secondary sectors,
Chandra [7] , Rao [8] . Foreign debt servicing is the next
inflationary force which is of course opposed by foreign loans
which represent the flow of capital goods and raw materials

as proposed by Brahmanand [9] and Rao [10] .

Money bank now consists of value added in the three sub-
sectors of economy, plus the gap in export and import of goods,
plus the deficit financing measured by resources gap and the
shortage of targetted growth in the economy. To this is added
the debt service, subtracting the foreign loans. The ratio of
the net money in the money bank to the actual value added gives
the inflation factor which has been used to modify the capital
in economy sector to update the same for current prices.

SAVINGS

Taking 1961 prices as the base, a per capita income of
Rs.240.00 was considered as the subsistance level by Rao [11]
and Minhas [12] . In the base year yearly average per capita
income of the various population groups in rupees is shown in
table 2.

TABLE-2

Population Subgroup	LIG	MIG	HIG
Rural	98.67	206.86	527.00
Urban	153.00	304.00	1041.00

Per capita incomes in rupees calculated in 1990 at the
base prices are shown in table 3, considering a saving of 25%.
Figures in brackets show the incomes at current prices, using
the calculated price index of 8.15.

TABLE-3

Population Subgroup	LIG	MIG	HIG
Rural	139.75 (1139.00)	309.00 (2524.00)	755.00 (6159.00)
Urban	161.00 (1312.00)	361.00 (2942.00)	1166.00 (9508.00)

Thus it is clear that LIG groups both in rural and urban sector are not able to contribute to savings and their consumption is below subsistance level and can consist of only the bare necessity of food. Again MIG group leaves some surplus for spending in manufactured goods. Even their purchasing capacity for manufactured goods may be eroded if inflation is more pronounced in the bare necessity group.

HIG is the only group capable of generating savings. It is clear that urban HIG is the target for increased saving through tax incentives and other fiscal measures by the government. Thus saving affects the purchasing capacity of this group which may influence the capital output ratios of the economy sector, as higher saving means less consumption by urban HIG group and hence decrease in demand.

CONSUMPTION SECTOR

The incomes of the six population group are now distributed to 9 consumption sectors to estimate the demand of the product in question as done in the steel demand model [14].

RESULTS AND CONCLUSIONS

The computer runs of the resulting model show that increase in savings depresses secondary sector immediately due to long gestation in the manufacturing sector. Economy rises after 3 years. But if the savings are increased considerably say to the extent of 60% there is a permanent decline in the economy. This decline affects the urban lower income group most drastically through decrease in their wages. Rural lower income group is not much affected by this. Consumption and hence demand is most influenced by the income of HIG group only. Inflation is likely to affect most the low income group.

It may be mentioned that more involved further studies are required to make the model useful. The present paper only succeeds in bringing to fore the peculiar problems of demand dynamics in the Indian context. For studying the effect of inflation on demand and also on economic growth sectoral inflation indices will have to be developed rather than a common inflation index calculated in this study. It is felt that failure of the economy to grow proportionately with the increase in savings ratio may also be due to excessive inflation in the capital goods area compared to the consumer goods area.

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