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THE URBAN CONSUMER SURVEY AND INCOME ELASTICITIES IN IRAN

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INTRODUCTION

ANY investment programme is intended to raise the real income of individuals which in turn would increase the demand for different commodities. To determine the direction and magnitude of this demand a knowledge of income elasticity is required.

The measurement of income and price elasticities of demand, however, has been subjected to the criticism that the available data seldom meet the rigorous assumptions of these concepts. While much progress has been made by research workers in trying to solve the conceptual and methodological problems, the measurement of price elasticity still presents a number of difficulties. Fortunately, measurement of income elasticity under certain assumptions has proved to be easier than that of price elasticity and the data that are made available through consumer surveys in recent years have proved to be an excellent source for the measurement of income elasticity.

Such a survey has been conducted in Iran and an attempt has been made to measure the income elasticity of various goods and services in urban communities in Iran. This paper is designed to present the result of this study.

Description of the survey

For the purpose of revising the cost of living index, the Central Bank (Bank Melli) in 1338 (1959) conducted an urban consumer survey in Iran. The essential features of this survey are as follows.

Since no information existed on income structure of the city dwellers in Iran, a block listing survey was conducted in thirty-two cities. According to the 1956 census there were 186 cities above 5,000 in Iran which constituted one-third of the total population. For the purpose of this study the ten largest cities of Iran (100,000 or above), which had about three-fifths of the

[1] This study is one of the many basic studies made in the Plan Organization for the Third Development Plan of Iran. The author is grateful for all the help he has received in calculation of the needed parameters from the rest of the members of the Statistical Section of the Economic Division.

city population, were chosen. The remaining 40 per cent of the urban population were located in other cities of which a sample of twenty-two cities was selected. Essentially, the block listing survey consisted of drawing an area probability sample of blocks within each of these thirty-two cities. Approximately 2,000 sample areas were selected from these thirty-two cities. Trained enumerators were sent to each of these 2,000 blocks and their activities were recorded in all the necessary detail. All the living quarters were stratified by tenure, number of rooms in dwellings and geographical locations; from this stratification some 3,600 dwelling places were selected to be included in this survey. The questionnaires were completed by trained enumerators and comprehensive information about family income and expenditure became available through this study.

Methodology

To utilize this data fully, a cross-sectional study was attempted. A close scrutiny of the data permitted such an attempt. A basic assumption amounting to the homogeneity of the pattern of expenditure of the city dwellers in Iran was made. By recording expenditures of different families with different incomes, at a given time, parameters can be estimated whose predictive value would depend on the validity of the assumption that two households would have similar consumption patterns when their incomes become the same in future. Expressing it differently, if a set of relationships exists between income and expenditure for a particular item, the expected expenditure due to the change in income can be calculated provided the basic relationship of this distribution remains unchanged. The problem can be formulated as follows:

$$X = f(Z)$$

where X is the expenditure for a particular item and Z the income of the consumers. To arrive at the income elasticity, a formula which is based on constant elasticity was adopted.[1]

$$X = AZn$$

or

$$\log X = \log A + B \log Z$$

[1] Similar studies have been attempted in the Indian Planning Commission based on the results of National Sample Surveys. In particular see papers Nos. PD. EAU. WP/31 (146), PD. EAU. WP/25 (133) and Working Paper No. 8/RU 6.2 in their 'Studies Relating to Planning for National Development' series.

where B is the income elasticity of a specific item. The function was estimated through the method of least squares and the corresponding elasticities were calculated. No attempt was made to get the corresponding coefficient of correlation. However, by casual observation, it became obvious that some of these elasticities were not significant at any acceptable level. The elasticities so obtained can be seen in Tables I and II.

Time Series Analysis

To verify the results obtained from the analysis of cross-section data, an attempt was made to calculate income elasticities from time series data. Unfortunately, the paucity of data did not permit the use of a multi-variate analysis which would have been

TABLE I

The Income Elasticity of Food Items in Thirty-two Cities of Iran – 1338 (1959)

Section code	Commodity	Elasticity
10–33	Food at home, total	0·51
10	Dairy products, excluding cheese	0·55
11	Cheese	0·66
12	Eggs	0·67
13	Flour and reshteh	0·33
14	Rice	0·51
15	Bread	0·27
16	Mutton	0·61
17–19	Beef and veal and pork	0·53
17	Beef	0·11
18	Beef and veal	0·13
19	Poultry	1·54
20	Fish	0·62
21	Fats and oils	0·67
22	Sugar and sweets	0·35
23	Fresh fruits	0·66
24	Fresh vegetables	0·63
25–26	Canned fruits and vegetables	0·75
25	Canned fruits	0·17
26	Canned vegetables	0·32
27	Dried fruits and nuts	0·57
28	Pulses	0·49
30	Tea (coffee, cocoa)	0·49
31	Non-alcoholic beverages	1·64
32	Alcoholic beverages	1·53
29–33	Spices and other foods	0·50
29	Other foods	0·50
33	Spices	0·50

Considering these advantages and the abovementioned difficulties, the only logical way was to begin with estimating national income as part of the desired integrated system and to try to build up the other accounts of the system. Unfortunately the lack of experience and the necessity of adopting a universally accepted system did not allow us to develop a clear scheme of a completely integrated system for Iran.

I want to take this opportunity to suggest that the U.N. Statistical Office should adopt and recommend a universal and common system of integrated accounts, similar to what has been done in the field of national income.

Iran's experience in estimating national income has been very recent.[1] The first estimate was made in 1959 by Mr. Robert Paige, a Point-Four economist. Subsequent estimates were made by Mr. Ernest Luther, another Point-Four economist, in 1959; by Mr. Pierre Simonet, a U.N. advisor, in 1960; by Mr. Abas Ghezelbash, Senior Economist of the Plan Organization, in 1961; and by the Bank Markazi Iran, in 1962. A brief description of the estimates prepared by the bank is given below.

BANK MARKAZI'S ESTIMATE

Income estimation work in the Bank Markazi started with a study of the existing statistical information. This study showed that the production statistics were either missing (e.g. services) or unreliable (agriculture, industry, etc.); income information was non-existent or inadequate. Therefore the only feasible way at that time was to follow the expenditure approach. Fortunately the sample survey of family expenditure in urban areas which was conducted in 1959 for the purpose of revising the price index and the Government budget provided a reliable source for estimating a large part of national expenditure. Since it was found that a large part of investment was tied up with imported materials, the foreign trade statistics were of great help in the estimation of capital formation.

Moreover, two other reasons favoured this approach: first, the expenditure approach showing the ratio of capital formation and consumption to total expenditures was a necessary tool for estimating the growth of the economy; second, each component

[1] It is interesting to note that in 1888 a very rough estimate of the income of Iranians was made by a private commercial firm in assessing the market for the sale of tobacco. Eteole Lorini, *Persia Economic Contemporanea e la Sua Questione Monetaria*, 1890.

of the expenditure account could be used separately for different purposes.

The standard tables recommended by the U.N. Statistical Office and the relevant concepts were adapted as a basis for the estimation but some divisions were considered necessary:

1. the classification of personal consumption expenditure by large and small urban places and rural areas, which was possible from existing statistical information;
2. the classification of expenditure by social status such as profession, ownership of land, etc.;
3. separation of educational expenditure by individuals form other types of expenditures as well as the extraction of this item from total Government expenditure, in order to have a better conception of the increase in productive capacity of the country.

The bank began the work of national income estimation two years ago. Though it was realized that a good and reliable estimate could not be achieved in the early stages, it was believed that this experimental work would provide the best means for identifying the available statistics and the existing gaps and would provide a stimulus to filling in the gaps. Furthermore, it was believed that this would provide on-the-job training for staff and would make it easier to send members of the staff abroad later for further training.

The summary results of the provisional estimates compiled by the bank are shown in the table below, followed by a description of the procedure used in the estimation of national income.

Personal Consumption Expenditure in Urban Areas

For the estimation of personal consumption expenditures in urban areas in 1338 the sample survey of family expenditures conducted by the bank was used. The total estimated personal consumption expenditure for the ten big cities (having more than 100,000 population) covering a population of 3,440,000 amounted to 44·5 billion rials.

Adjustments were made in the survey results to exclude the purchase of house and land, additions to existing housing, transfer payments such as taxes, gifts and contributions. Also excluded were the owner costs of house mortgage interest, insurance, taxes and charges in connection with purchase and sale of

TABLE I

Iran's Gross National Product and National Income for 1338 (1959)

	Billions of rials	%
Personal consumption expenditure	204·2	74
Government purchase of goods and services	30·0	11
Gross domestic capital formation	49·9	18
Net exports of goods and services	11·7	4
Gross domestic product	295·8	
Plus: Net factor income payments from the rest of the world	− 20·1	− 7
Gross national product	275·7	100
Less: Provision for fixed capital consumption	13·8	
Net national product	261·9	
Less: Indirect taxes and surplus of Government monopolies	17·1	
National income	244·8	
Population in 1338 (1959) (in millions)	20·4	
Per capita income	12,000 rials ($158)[1]	

[1] Converted at parity rate 75·75 rials = $1. In 1338 (1959), the market price of the U.S. dollar was approximately 78 rials.

owner-occupied houses, because such expenditures were represented in the rental value of owner-occupied houses.

The following imputations were made in this evaluation:

1. The rental value of owner-occupied houses and houses occupied free of rent.
2. The value of food received free or in lieu of wages.
3. The value of medical care received free.
4. The value of home-grown food consumed.
5. The value of fuel gathered by family members.

The purchase of seed and fertilizer for home-grown food production was not deducted from expenditures as it ought to have been.

A preliminary estimate of educational expenditure by families shows it to be in the amount of 1·1 billion rials for all urban areas.

As yet we have not solved the conceptual problems involved in treating educational expenditures in other than the traditional way. Nor have we been able to develop the data for broad occupational groups as we eventually desire to do. However, some idea of the substantial differences between broad occupational groups stems from the survey which presents average

family expenditure for urban families in different work status classes.

Personal Consumption Expenditure in Rural Areas

Whereas there were reliable bases for personal consumption expenditures in urban areas, no such information existed for rural areas. Owing to the inadequacy of production data, the commodity flow method could not be applied and the only alternative was to conduct a sample survey of family budgets in the rural areas. Accordingly, a rural survey was planned to be conducted in 1963. The complete results of this survey are expected to be published in 1965. A pilot survey has been conducted recently.

Pending the completion of the abovementioned rural survey a tentative estimate has been made. In this tentative estimate it is assumed that the ratio of the consumption of tobacco to the total expenditure for rural families is the same as the relevant ratio in five small towns, with rural characteristics, which have been surveyed in the urban family budget survey of 1959. The total consumption of tobacco in rural areas could be derived by deducting urban consumption from total production plus net imports. Through this procedure a rough estimate of personal consumption expenditures in rural areas amounted to 89·8 billion rials for the year under consideration. The application of this procedure through other commodities like sugar, tea, rice, etc., was not satisfactory because of the poor quality of production data for these items. Information gathered through the abovementioned pilot survey of family expenditure in rural areas (covering 300 families in fifty-nine villages) gave a preliminary estimate of rural consumption expenditures, which amounted to 123,844 million rials for the year 1340. Considering the increase in the retail price index in twenty-two small cities from 100 in 1338 (1959) to 111·5 in 1340 and the economic growth during the relevant years, the amount of 89·8 billion estimated through tobacco consumption does not seem to be very far from reality.

Government Expenditures

Although Government accounts are summarized for most public bodies, there are great difficulties in reclassifying them and adjusting them to fit the needs of national income estimation.

For public bodies, like most municipalities, which do not tabulate their accounts, the problem of obtaining information is more serious.

Government expenditures cover all administrative expenses of a current nature of general government agencies such as Ministries of Education, Defence, Health, etc., Plan Organization and municipalities. Public corporations and Government enterprises are excluded from general government. The Iranian Government accounts must be reclassified before they can be used for estimating the income originating in this sector. The Government's records are divided into (1) wages and salaries, (2) allowances, (3) administrative expenditures, and (4) non-current expenditures. The accounts for (1) and (2) also include pensions (including pensions to survivors) which are transfer payments. Similarly, administrative expenditures covering the purchases of goods include payments for grants and subsidies, as well as secret and special funds for which no details are given. The non-recurring expenditure account includes in addition to investment expenditure purchases of land and existing housing, interest on Government debt and repayments of debt. To reclassify the Government expenditures according to our requirements, a sample survey of the Government vouchers may have to be made.

For a small number of public agencies, the accounts were so mixed that their total expenditures were broken down by the patterns observed for similar agencies. Although their revenue receipts were adequately reported, sufficient information on expenditures of municipalities was not available. Estimates of expenditures were made by applying to the municipality receipts the legal proportions of income required (by the Municipalities Act 13) to be allocated to various outlays.

The general government expenditures in 1338 for goods and services were as follows:

	Billions of rials
General government (from Table I)	28·4
Plan organization	0·4
Municipalities	1·2
	30·0

General government expenditures in 1339 were practically unchanged from 1338 (1959) and amounted to 28·5 billion rials.

Of this total, expenditures on education amounted to 7·1 billion rials in 1338 (1959), about one-fourth of total expenditures. This total does not include in-service training programmes in the various government agencies.

Gross Domestic Capital Formation

Investment in capital goods represents the value of durable goods which has been added to the national stock, such as machinery, plant and other producing equipment.

As most capital equipment is imported, customs returns are the best source of information presently available. To arrive at the costs to enterprises we added the relevant import duties and estimates of trade mark-up, transportation and installation charges to the c.i.f. value of these capital goods. On an average, these additions raised the c.i.f. value by about 30 per cent.

The importers of capital goods are (1) private enterprises, subject to all duties, and (2) general government, some public corporations and the oil consortium, which are exempt from duties and taxes on imported capital goods. Originally imputations were made for customs duties as well as for trade mark-up to arrive at the market price for these 'exempt' importers. Subsequently and in the present estimates these imputations were excluded. We are particularly interested in knowing whether other countries have valued these duty-free imports at actual cost, or followed the imputation procedure.

Although it is believed that declared values to the Customs are somewhat unreliable, there is no basis for correcting them. Again, there are a number of areas where it is difficult to distinguish between capital goods and consumer goods. We need to improve the criteria for distinguishing them. For instance, in the case of passenger cars, it has been assumed that imported cars would be used for consumption and production purposes in the same proportion as cars presently in use in the country (based on type of registration). In the case of sewing machines we have made the distinction on the basis of portable and non-portable machines.

Because of the great variety of goods, determination of traders' mark-ups is difficult. After interviewing some large merchants, it has been estimated that traders' mark-up averages about 10 per cent of their cost; similar arbitrary estimates have

been made for the installation of industrial machinery and equipment.

The estimate for domestically produced capital goods was based on the quantities of goods produced by mechanized industries in Iran as reported by the Ministry of Industries and Mines. These quantities were valued by the use of 1338 wholesale prices. A correction was made for poor coverage which amounted to 20 per cent of the total reported (see Table II).

The value of domestically produced capital goods amounted to 0·7 billion rials in 1337, 1·1 billion rials in 1338 and 1·5 billion rials in 1339. The value of imported capital goods amounted to 18·6 billion rials in 1337, 20·4 billion rials in 1338 and 24·1 billion rials in 1339.

TABLE II

Investment in Capial Goods in Iran, 1338 (1959)

Item	Millions of rials
Imports:	
Industrial machinery and plant equipment	8·5
Other non-installed equipment and materials	5·1
Automobiles, trucks, railway and other vehicles	5·7
Office equipment	0·2
Agricultural machinery	0·9
Total imports	20·4
Domestically produced capital goods	1·1
Total capital goods	21·5

Construction

Investment in construction includes the value of new private and public buildings and other construction works, such as roads, tunnels, dams, bridges and urban development.

To estimate the value of private new buildings in the Tehran area, a sample survey of building-permits issued by the municipality was conducted.

Building-permits show the area to be built up in the proposed construction. Some permits never result in construction. Municipality officials estimated that approximately 20 per cent of construction was done without permits. After this adjustment, the aggregate number of square meters of building for various areas of the city was obtained. For each area of the city an estimated

value of building per square meter was applied to obtain the estimated total value of new construction. In the Tehran area the value of new construction amounted to 5·9 billion rials. To this was added another 1 billion rials representing loans granted by the Government's mortgage bank for alterations, additions and repairs. The total estimated value of construction thus came to 6·9 billion rials.

The methods adopted to estimate the value of new buildings in Tehran are now being extended to cover thirty-one other cities. Pending the completion of this work, the present provisional estimates are based on the assumption that the total private investment in new buildings outside Tehran was 5·1 billion rials. The total private investment in buildings thus amounted to 12 billion rials.

The value of construction activity in Tehran area amounted to 1·6 billion rials in 1336, 3 billion in 1337, 6·9 billion in 1338, 6·3 billion in 1339 and 5·1 billion in 1340.

Public investment in all types of construction was estimated on the basis of Government expenditure accounts, appropriations made by the Plan Organization and expenditures incurred by the municipalities. The general government spent 2·3 billion rials, Plan Organization spent 11·8 billion rials and municipalities 1·2 billion rials giving a total of 15·3 billion rials. The table below shows a break-down of the gross domestic capital formation in Iran.

TABLE III

Gross Domestic Capital Formation in 1338 (1959)

	Billions of rials
Capital goods	21·5
Private investment in construction	12·0
Public investment in construction	15·3
Loans to farmers for rural non-residential construction and land improvement	1·1
Changes in inventories	—
Total	49·9

Changes in Inventories

Some unpublished information is available on changes in Government stocks of grains, tea, sugar, tobacco and perhaps

some other items largely handled by Government enterprises. No attempt as yet has been made to collect these data. The oil consortium has excellent information on stocks held by them. Aside from these, we have no information on changes in the number of livestock and poultry or other farm stocks and none on the change in stocks for the rest of the private sector. The present provisional estimates assume no change in inventories.

Net Foreign Investment

This account represents the net imports of goods and services and the net factor income payments from the rest of the world. It is taken directly from the International Balance of Payments Account compiled by Bank Markazi in accordance with the concepts and procedures of I.M.F.

Depreciation

With a few exceptions, the practice of making provisions for the consumption of capital goods is non-existent in Iran. Therefore, the procedures adopted to estimate this magnitude could not reflect the prevailing practices. There is some reason to suspect that capital consumption is higher in Iran than in developed countries because of the lack of facilities and services for properly maintaining the equipment. On the other hand, it appears that the useful life of an automobile in Iran is longer than say in the U.S. – simply because we see some pretty old cars and buses still in operation.

Our present estimate is based upon the observed ratios of depreciation allowance to total G.N.P. in countries thought to be similar to Iran, namely Turkey, Korea, Cuba, Brazil and Chile. These rates average around 5 per cent. If the capital resources to G.N.P. ratio of Iran is 2·1 this would imply a 2·5 per cent capital consumption loss, or an average useful life of forty years.

CONCLUSIONS

We believe that attempts at estimating the national income of a country play an important part in the development of a statistical system. First of all the attempt creates a demand for information and secondly it provides a systematic catalogue of the gaps in the available information.

We now have information on consumer expenditures in urban areas of Iran and shortly we will have similar information for the

rural areas. A sample census of agriculture is now in the process of tabulation. It will assist us in our work of estimating national income on the basis of the production approach which we have just started. Furthermore, the General Department of Public Statistics is planning to conduct a Census of Industry in 1342. The Central Bank is taking on the responsibility of compiling an Index of Industrial Production and an Index of Construction Activity.

Although our objective is the establishment of an integrated set of accounts – national income, flow-of-funds, and input-output accounts – it will be many years before they are established. Nevertheless, in beginning this work and in improving our statistical reporting system this objective will assist us in obtaining the data which are consistent in concept and coverage.