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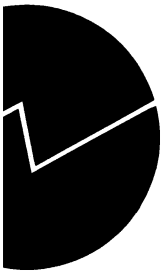

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Documents

Technical Assistance on the Jordanian Consumer Price Index

Preface

This report contains the results of investigations and tuition which were carried out at the Department of Statistics of the Hashemite Kingdom of Jordan in Amman, from September 24 to October 14 1996.

The mission was directed at assessing the Consumer Price Index, and to give advise on the subject of constructing a Capacity Utilization Index. To a shorter extent the Household Income and Expenditure Survey from 1992 should be reviewed.

Suggestions as to improve or change the statistics in accordance to the findings were also to be made.

The work has been done under the Jordanian - German Technical Co-operation project "Promotion of a National Information System".

Contents

1. Introduction[1]

The Jordanian Consumer Price Index is calculated on a sound bases of methodology and practice. The conclusion from my investigation is that the index reflects the changes in prices, as experienced by the average household, in an adequate way. My investigation into the formulae, the weighing system, the sample of outlets, the sample of representative items, the system of price collection, the data checking and editing procedures, and the computation and aggregation of indices, all seen in relation to the various uses of the index, initiates no imediate need for changes.

As written in the document «Terms of Reference» for this mission, I will make suggestions for changes. These are not required, but should rather be interpreted as suggested areas of further work. My propositions will be in the field of publishing, the construction of special indices, advisory comittee and the treatment of owner occupied housing.

The present conclusion that the index, with its choices of methodology and practice meets the requirements for a Consumer Price Index, is in accordance to earlier findings. This is the same conclusion that Angermann (1988) reached after a similar mission: «The methods of compilation of the weights, the collection of price material, the calculation of the (Jordanian Consumer Price) Index and the publication follow international recommendations...»

My limited investigation into the Household Income and Expenditure Survey has been related to its use as a source of the weights for the Consumer Price Index. This survey seems to meet with the needs for computing weights. A later mission will assess a larger proportion of this survey.

In the field of a Capacity Utilization Indicator I have given the DoS a detailed tour of the work done by Statistics Norway on this issue, the Business Cycle Barometer. This should enable the Department of Statistics to run a similar quarterly survey.

The rest of this report is organized in the following way. First, a detailed explanation of the Consumer Price Index is given. Then my recommended fields of work for the DoS in the future is given. In the annexes the reader will find relevant questionnaires, forms and tables.

[1] My thanks are due to Tom Andersen and Lasse Sandberg at Statistics Norway for their helpful comments on the various drafts. Responsibility for errors and ommisions are mine alone.

2. The consumer price index

2.1 Main areas of use of the Jordanian consumer price index

- Deflating. For the purpose of calculating National Accounts in real terms the Consumer Price Index is used for deflating relevant parts of the accounts, e.g. the consumption block.

- In negotiations between labour unions and employers the Consumer Price Index is used by both sides in the process.

- The index is also used as en indicator of inflation, when analyzing the economy.

- For the purpose of computing purchasing power of the Jordanians the Consumer Price Index is used in combination with income statistics.

2.2 Main components

We will next make a tour through the survey-setup. This will be in the form of short comments and facts, written for persons familiar to the methodology of price indices.

Techniques and methodology followed by Department of Statistics, DoS, meet with most international recommandations. Much can be recognized from the Bureau of Labor Statistics, USA and the International Labor Organization in their respective publications covering the issue of constructing a Consumer Price Index.

A genuine Laspeyres-formula is used in computation of the index at all levels. The Laspeyres-formula is used widely in calculating this type of an index all over the world. The exact form used in Jordan can also be found in Finland and the Netherlands. Links with 5 years length are being used in Jordan.

Laspeyres price index formula: $$I_{t,0} = \frac{\sum_i P_{it} Q_{ib}}{\sum_i P_{i0} Q_{ib}} * 100$$

where:

P_{it} = the price for the i^{th} item in comparison period t
P_{i0} = the price for the i^{th} item in reference period o
Q_{ib} = is the quantity of the i^{th} item sonsumed in the expenditure base period b.

In the current calculation of the Consumer Price Index the base, or reference prices are all 1992-prices. An annual average from this year is used. New base prices are entered every fifth year.

This correspond to the frequency of the Household Income and Expenditure Survey, which was last held in 1992, and next to be held in 1997. The weights currently being used are taken from the latest survey covering 8000 households. No other source of information is used in establishing the weights.

The index is computed at a monthly frequency, which is also the frequency of most price collection.

The price observations are done in 17 different urban areas spread all over of Jordan: Aqapa, Ma'an, Tafeleh, Karak, Mafraq, Mamba, Ajlua, Ramta, Jarash, Irbid, Baqa, Salt, Rusiefh, Zarqa, Wadi Aseer,

Suieleh and Amman. These locations are chosen according to the demographics of Jordan. In computing the Consumer Price Index the prices collected at these sites are weighed, according to the population of the respective cities, in order to give average prices which are representative for the whole Kingdom.

There are a total of 742 representative items which constitutes the market basket of the Consumer Price Index. Every item in the Household Income and Expenditure Survey, which has a weight or relative importance in consumption of more than 0,03%, are included in the Consumer Price Index. But prices are also collected for those items which has a lower weight.

Prices from ten shops are collected if feasible, for each representative item in each individual city where prices are collected. In total the sample of outlets consists of 4595 units.

The week of the month in which to collect prices varies over different classes of goods:

1st week:Food. Some goods (fruits and vegetables) are collected weekly
2nd week:Clothing and Footwear
3rd week:Services and Other goods
4th week:Controlling the collected prices

2.3 Price collection and computation

The computation of the index is done in a straight forward and transparent manner, consisting of three steps where the calculations are carried out semi-manually, each with a specific form. Together these steps implement the Laspeyres index formula.

When collecting prices the field staff uses three different booklets for recording the prices, each containing a different part of the market basket. In these booklets, or forms, the representative items are described in full detail, expressing volumes, quality and other relevant characteristics necessary to ensure that prices are collected for the same good in the different shops and over time. These booklets are item specific, not outlet specific.

There are three booklets: one for food, one for Other goods and Services and one for Clothing and Footwear. Lists of the outlets that make up the outlet sample are kept separate from these booklets, in addition to the listing of the outlets in the booklets. The field staff also carries with them a complete list of the representative items, in addition to the booklets used for recording the prices. In both of these the representative items of the market basket is described in full detail.

When visiting the outlets, the price collector will record the prices which are displayed on the price tags on the approriate items. For goods which are not visibly priced, the price collector will ask the staff in the store to state the price. This price is then recorded.

After collecting the prices, the field staff will compute simple average prices for each representative item for their respective locations, which they report to the DoS. All price collectors report in person at the DoS, Amman. All average prices are then examined and issues relating to the prices are discussed. If necessary additional field trips are conducted.

Aggregations are sometimes done by the field staff in computing these average prices . This is the case for «car-repairs» and «men's trousers» for example. A simple arithmetic average is then taken over several different representative items. Like for the «men's trousers» there are collected prices for ten different fabrics and qualities, these are aggregated into one entry for men's trousers in the preliminary calculations. Only this one entry for men's trousers will be brought forward in the calculations.

Weights at the lowest level of aggregation are taken from the last Household Income and Expenditure Survey held in Jordan (1992). The weight taken from this survey are averages for the whole of the Kingdom of Jordan. The computation of the Consumer Price Index does not involve different sets of weights, neither by rural/urban categories, or by different income groups.The weights used, as well as weights distributed by region, are available to the public since the whole Household Income and Expenditure Survey is published in a comprehensive manner. The relative importance of the different goods and services are computed in an plutocratic manner, as opposed to democratic.

In imputing prices for missing observations, different techniques are used, depending on the representative item. The following practice is used for seasonal items, except food items: The last observed price will be carried forward during the period the item is not available. When the item is again in season the current prices will again enter in the computations. For Fruits and vegetables the procedures of imputation is different. We shall return to this matter later in this paper.

2.4 Practical computation of the consumer price index

We will now explain the three forms, a - c, on which the Consumer Price Index is calculated. All these calculations are done by hand. Four employees at the DoS are involved in these calculations, and in checking the validity of the outcome.

FORM A

Individual average prices for the 17 locations of price collection are computed here on the level of the representative items. Prices weighed by population weights are also computed.

Example: Flour, as a group, consists of four different representative items which are weighted together with weights according to their relative importance. This yields the price for the aggregate Flour for each of the 17 areas. Not all items at this level has more specified goods below themselves.

The price for the group Flour is then multiplied by the factor for the size of the population of the location. These population weights are the same for all items reported for a spesific location in the index.

Form A is not completed for items for which there has not been recorded any change in price since last month.

FORM B

Here average prices for the Kingdom of Jordan is computed at the most detailed level of aggregation. As explained above, some of the entries here will consist of aggregations done in Form A, or in the booklets of the price collectors.

The form used is designed in a manner that reflects all the detailed information when aggregations are done.

Prices from the different regions are weighed using weights according to the size of the population of the 17 sites of price collection. The population numbers originates from the second last census which was held in 1979. These numbers are projected into population figures for 1992 before they enter into the calculation of the Consumer Price Index.

Table 1. Population weight in percentage of the 17 locations.

City	Population weight	City	Population weight
Aqapa	2	Baqa	1
Ma'an	2	Salt	5
Tafeleh	2	Rusiefh	3
Karak	4	Zarqa	13
Mafraq	4	Mamba	2
Ajlun	2	Wadi Aseer	3
Ramta	2	Suieleh	1
Jarash	3	Amman	34
Irbid	17	**Sum**	**100**

This makes the population weights coincide in time with both the expenditure weights and the base prices, which is desired.

The average price for the Kingdom is computed by summing population scaled prices from Form A, and dividing the result by 100. This gives the weighed price for the item for the whole of Jordan.

In the computation of prices for Jordan one will from time to time not have prices for every item in the market basket from every city, this is refered to as partial non-response in the litterature. This might be due to the fact that some food items are not in season for the whole of Jordan at the same time. One will then exclude the missing city from the calculation of the national average, reducing the total population weight accordingly. This exclusion and implicit renormalizing of the weights yields a total effect equal to giving the missing city the average price of the remaining cities.

Average prices for the Kingdom of Jordan are computed at a low level of aggregation, as for example chicken and rice.

FORM C

In this form index numbers for Jordan are produced.

All the current national average prices are compared to the corresponding base price from 1992.

Aggregations leading to the published indexes are done with weights according to the relative importance in consumption according to the Household Income and Expenditure Survey.

This completes the calculation of the Jordanian Consumer Price Index. In order to check the correctness of the calculations, different ways of summing the weighed prices are used which gives clear indications of any miscalculations. Any such findings leads to re-calculations.

In addition to this manual computation, a parallel calculation are done by the Computer Division at the DoS. All the price observations, as reported by the fieldstaff, are entered into a personal computer (pc). The data are then transfered to the Computer Division which has developed a pc-program, performing identical procedures to the ones described above. The results of the manual and the automated computations are compared before publishing takes place. So far these independent calculations has yielded identical results.

2.5 Publishing

The indices resulting from the calculation procedures described above, are approved each month by Dr. Alawin, Director General of the DoS, upon which they are send to the Central Bank, Ministry of Planning, Ministry of Finance and other ministries. At the same time the index is announced in public. The date of publication varies between the months. The Department of Statistics publishes the indices in the Statistical Yearbook. There is at the time no monthly publishing in writing by the Department of Statistics.

The Central Bank of Jordan is publishing the Consumer Price Index monthly in their publication «Monthly Statistical Bulletin», but then under the name «the Cost of Living Index». The Central Bank publishes the Total index, the four main aggregates Food, Clothing and Footwear, Dwelling and Others, with a total of 17 more detailed sub indices.

In addition, as stated above, the DoS publishes the index in «The Statistical Yearbook». Here one will find more detailed sub indices than in the «Monthly Statistical Bulletin»..

The various ministries of Jordan recives on request all the detailed information on the current indices.

The weights used in the computations are available to the public through the publishing of the Household Income and Expenditure Survey. This publication reveals the weights at the most detailed level.

There is no publications which explains the methodology used in computing the index.

3 Areas of special interest

We shall now make a tour through more specific areas of the survey, with an emphasis on what is internationally known as the more difficult and complex fields of measuring prices on a fixed marked basket such as the Jordanian Consumer Price Index.

3.1 Housing

This group constitutes a large relative importance in the index, with a weight of 15,6%. The group includes surveys of rents of tenants, and imputed rents for owner occupied dwellings. Maintenance is not included in this group. It is obvious that movements in this part of the index will have significant effects on the general index number. Greate effort should therefore be taken to continually seek the best solutions. Internationally this is a recognized complex area of measuring price movement.

Several different approaches has been suggested and approved by international organizations as the International Labor Organization and the European Union. The structure of the housing markets differs widely across countries. This is likely one of the reasons why there exists quite different approaches, which are recommended as possible solutions to the task of measure the cost of housing for owner occupied dwellings. But all solutions rest on certain assumptions, often making it possible to prefer one approach to the other. When choosing among the suggested approaches, one is also restricted by the availability of relevant statistics and indicators. This might cause costconsiderations to outrule the favoured solutions.

The core of the problem in this part of household consumtion is the non-existence of observable prices. The DoS are not able to ask an household, living in a dwelling they own, what the price is for living there, and get an useful answer. The household probably know how much they invested when they purchased the dwelling. If one takes this amount and estimate foregone interests (opportunity cost), add maintenance cost, add or subtract a capital gain (depending on whether the price on dwelling has raisen or fallen), add dwelling taxes, insurances and other costs, one could estimate the cost of living in owner occupied dwellings. This is a complicated and resource intensive method, so one often tries to avoid this approach. An easier way around the non-observable price is recommended when it is an valid assumtion that the cost of owner occupied housing has the same development over time as the cost of renting a simular dwelling. One can then simply use imputed rents for the cost of owner occupied dwellings.

One estimates that 20% of the Jordanian households live in rented homes, the remaining 80% own the dwelling in which they reside. As in many other Arab countries one is not allowed to regulate the rent in a running contract ever. The rent is set when the contract is signed, and will remain unchanged until the tenant moves out. Only if the tenant is not paying the rent can he be evicted from the dwelling.

The price for purchasing a dwelling is on the other hand determined freely in the market. No restricions are placed on the development of cost of investing in a house or an appartement.

The Department of Statistics operates a rent survey to cover this part of the household consumption. The survey is carried out every six months and covers 1400 rented dwellings all over Jordan. This sample is selected by simple random sampling from a frame of renters taken from the latest Household Income and Expenditure Survey. When there is a change of tenant in an apartment in the sample, the same apartment will still be in the sample with the new tenants. This does not happen often, because the rent in a new contract can easily be fourfold an old one for a comparable apartment. This is caused by the sharp increase in the price of housing in the last few years, and the law against changing rents.

In Jordan the cost of owner occupied shelter is not covered by a special survey. Instead rents are imputed from the rent survey. This is implicitly the same as assuming that owners experience the same change in the cost of shelter as the renters. The structure of the dwelling market in Jordan, as described above, indicates that this is not a valid assumption.

3.2 Price collection

The collecting of prices are done by 19 full time employees of the DoS. They all live in the area of which they are responsible for the collection of prices, so their knowledge of the local markets is good. Compensations are being paid for their travel expenses during work.

For some goods prices are only collected in Amman: cars, car repairs, servants, gold, jewelry, wedding parties, house maintenance, driver and gardener.

The Ministry of Supply are setting minimum and maximum prices for food items which are considered to be important to the Jordanian people. These prices are advertised every day in Jordanian newspapers. For inclusion in the Consumer Price Index one is not relaying on these announced prices, but one collects the actual prices in the market.

3.3 Missing observations

When an item is not collectable in a location but was collected in the previous month, the price collector will follow the following procedure:

In order to achieve comparable price observations of each item for every area for the current period, the price collector will try to find another store which do carry the good in question. A maximum of ten observations will be made for any item in any area. If one is able to find a new store who carries the item, the new outlet will be included in the sample. One will then enlarge the outlet sample by including shops not originally drawn to be included. If one, on the other hand, is not able to find such a store, the average price for this item will be calculated on the basis of the remaining observations. No imputations are done for these missing observations, but the practice can be interpreted as implicit imputation.

3.4 Outlet sample

The sample of outlets where the prices are to be collected currently consists of 4595 units. Rotating the sample was introduced in 1995. This means some of the outlets in the sample are dismissed, and new outlets are included in order to follow the development in the structure of the retail business.

The sample was drawn in 1992 from a frame constructed on the basis of a Business Survey. This is an comprehensive survey, done by the DoS, registering all kinds of commercial units in the Kingdom. The following characteristics are available in the frame for each unit: Name, address and branch (ISIC). No measure of size is included. On this frame simple stratified sampling is conducted in order to establish a sample of outlets for the Consumer Price Index. The statification is by address and branch.

Outlets in the sample which close down, or by any other reason can not continue as a source of prices for the Consumer Price Index, are replaced by the nearest outlet that is of comparable size in the same branch.

In order to keep the cost of price collection low, one prefers to include larger stores which carries 90-95% of the representative items in the sample. But smaller stores are also included, like butchers and vegetables stores.

3.5 Sample of representative items

The collection of goods for which the price is collected for the index consists of 742 precisely defined individual goods and services. All major groups of consumption is covered. The list of representative items is revised twice a year in order to take into account any changes in the market. A major revision is conducted when a new Household Income and Expenditure Survey is conducted.

3.6 Special indices

In order to explore the feasibility and the value of computing separate indices for urban and rural areas of the Kingdom of Jordan, price collection has been conducted in rural areas in the period 1992-1994. It has been decided that this will continue in 1997. In this survey the department collects prices on 11 different rural locations every month in the same manner as for prices included in the Consumer Price Index. Several conclusions was drawn from this experience: quite a few goods are not available in rural areas as people living there do most of their shopping in the cities. Also for the goods that were available on these locations, comparing the prices with the ones obtained in the rural areas showed there was no siginficant difference. This is likely the case for the change in prices as well.

For these reasons it was decided not to compute separate indexes for urban and rural areas, but the collecting of prices in rural areas will be restarted in 1997. So, should the need and necessary funding occur, the price material will be available.

The possibility of producing separate indexes for different socio-economic groups has not been investigated by DoS. The Household Income and Expenditure Survey from 1992 does hold the necessary information, for construction of weights, to compute separate indices for different income groups.

3.7 Electricity

The price of electricity for private consumption are identical all over Jordan. The price will be one of four different levels determined by the volume of consumption by the individual household. The higher the consumption of electricity, the higher the price. In addition there is a fixed fee every month (2 fils). In calculating the price of electricity in the Consumer Price Index a simple arithmetic average of the four different price levels and the fee is used. The field staff collects the prices from the authorities in the different areas monthly.

3.8 Water

Also water is paid by the amount of consumption. The price pr unit is, like for electricity, depending on the households level of consumption. The price will be higher the more water you consume. There are in each area four different price levels. But, unlike for electricity, the price will vary between the different governates of Jordan. Within each area the price for the Consumer Price Index is computed as a simple average of the four levels of prices in that area.

3.9 Medication

The market basket consists of 13 different medicines. All medicines are paid for by the consumer, so this calls for no special treatment of these items in the index. In some countries there are complicated

systems for reimbursement of expenditures the consumer have on these goods. The existence of such systems calls for special treatment in the perspective of measuring the prices actually paid by the consumer. This is not the case in Jordan.

3.10 Doctor

Jordan has both private and public doctors, where the former is the most expensive. In the Consumer Price Index both are included by measuring the price of a consultation. The fee is observed at both private and public doctors, and a simple arithmetic average is computed over all the observed fees.

3.11 Transportation

The main part of this group is purchase of cars and maintenance, the respective weights are 3,9% and 1,6%. For car purchases the price is collected for 10 different models. These prices are only collected in Amman, and the frequency is yearly. The same is the case with the car repairs.

When computing the index a simple arithmetic average is taken over these observations.

When new models of cars replace the one the DoS is collecting prices on, one will start collecting prices on the model which is most equal, with respect to performance and equipment, to the former one. If there is a difference in prices between these two, this is judged to be a difference in quality, so the index will not show any decrease or increase stemming from this kind of shift in the representative item.

More formal and adequate techniques for assessing changes in quality are in use in e.g. the Swedish and in USA's Consumer Price Indeces. The use of Hedonic methods are belived to aid the task of placing a price on e.g. new equipment in a car. The relatively low weight of this group in Jordan can be used as an argument for not imposing these complicated and labor consuming methods.

3.12 Education

There are both private and public schools and universities in Jordan. The difference in price between the two is quite large, with again the private ones being the most expensive. In the Consumer Price Index these costs are measured by the cost of one credit hour, both in public and private universities.

3.13 Fruit and vegetables

Items for which there are strong seasonal variations in the price, quality and availability proper procedures ought to be established for measuring prices. The following is the procedures adopted by the DoS for their fruit and vegetables basket:

When an item is out of season its price will be imputed by giving it the same development in price as the items in the same group (e.g fruit) which is in season at the time. This procedure of imputing is only used in this part of the index.

On some food items which are known to vary a lot in price, the price will be observed every week. This is the case with fruit, vegetables, chicken, eggs and imported fresh meat. In stead of monthly collection these prices are observed weekly on Tuesdays in at most ten outlets in each city. A simple average is computed for each item in each outlet. Then the average is computed at the level of good by city. This figure is then entered into the booklet and the computations continues as for any other good in the goods basket.

4 Proposals for improvements and changes

4.1 The name of the index

As pointed out by Angermann (1988) the index should be published under the same name in all publications, and the correct name is The Consumer Price Index.

The term Cost of Living, which is used by the Jordanian Central Bank when publishing the Consumer Price Index, is defined in economic theory as the minimum cost of the consumer when obtaining a certain level of utility.

A cost of living index should then measure the change in cost needed to achive the same level of utility between two different points in time. The term utility is much used in economic theory, but in practice it is not feasible to implement the term. So what one does instead, as the closest operatable indicator, is to measure the change in cost between to different points in time for a fixed market basket. This means that instead of holding the level of utility constant, one holds the quantities of consumption unchanged. A fixed quantity index, with quantities taken from the household consumptionspattern, is defined in economic theory as an Consumer Price Index. This is the proper name to be used for an fixed market basket index as the Jordanian Consumer Price Index.

For further elaboration on the differences between the two terms Cost of Living Index and Consumer Price Index, I refer to Angermann (1988).

4.2 Publishing - special indices

To meet the needs of important users of the index one should evaluate the possibility of computing individual indices at the level of the total index number for three main groups of households determined by income. The necessary weight information is available from the 1992 Household Income and Expenditure Survey. This requires some more resources as the monthly workload will increase, but it could be implemented quite easily by use of computers in the calculations.

The availability of such indices by income group would enhance the users ability to investigate the impact on different income groups by changes in prices. This will be of great value in forming the economic policy in Jordan.

By several reasons one should consider publishing more detailed information from the index. If possible also actual prices on the level of representative items could be made publicly available. This would enable everybody to compare the prices in the index with what they find in the stores, and thereby increase the public's reliability in the index.

The presence of this information would also serve as an foundation in the public debate on consumer prices, bringing the debate forward towards agreement on what changes the Jordanian people are experiencing. Calculating these numbers will not take much effort, but one will have to anticipate to deal more with public relations as the public will feel a need to discuss the detailed information with the DoS.

In advance of publishing this detailed information investigations has to be done into the quality of the prices collected for the items in question. As the Consumer Price Index is set up to measure price changes it might not be well designed for publishing the price level. But for goods of a high degree of homogenity, as most food items, this should not be a problem.

An written documentation of the index, covering methodology and practice, should be produced. It is nessesary to make this information available to the public i an formal and extensive manner. One will then have a common foundation for a general debate on the consumer price index, which will increase the value of the outcome of these debates both for the users and for the DoS. Without this basic documentation in existence one will have to spend more recources than necessary giving objective information and clearing missunderstandings.

4.3 Housing

As stated above in sec 3.1, there seems to be room for improvement in the way the cost of housing is measured in the index.

The frequency of the current rent survey should be increased to quarterly at a minimum, monthly would be preferable. Then the index would reflect the price movements in a better manner on the short time horizont.

The use of imputed rents for the cost of owner occupied housing is not recomended when there are substansial rent control. As this is the case for Jordan, a different solution should be sought for this important part of the index. This area of measuring price changes is complex and difficult, and new solutions might not turn out possible without large implementation of new statistics. In any case the alternative solutions will depend on important decisions as to what elements of costs should be included. These decisions should not be made in haste, but after consulting the various users and other competent foras.

The method currently used by the DoS for owner occupied housing is one of three *user cost approaches* described by Turvey (1989) as *estimated rental value*. The method described as *estimated user cost* would be more appropriate in Jordan when measuring the cost of living in a dwelling owned by the family residing in it. To give an idea of the needed components for the calculation of this kind of an index, we shall give an exposistion of the estimated user cost. The thought is that the cost can be interpreted as the opportunity cost of occupying a dwelling instead of selling and later repurchasing it.

Consider a period of a year. Assume that the owner could sell the dwelling for the price P at the beginning of the year. If the relevant one-year index of dwelling prices is I and if, at constant prices, the addition of one year to the age of the dwelling depreciates it by a fraction d, its value at the end of the year will be

(1) $IP(1 - d)$

Assume further that the value of outstanding mortage at the beginning of the year equals a fraction f of P. Then, if the mortage interest rate during the year, expressed as a fraction, is r, the owner's debt at the end of the year will amount to

(2) $fP((1 + r)$

Thus the owner starts the year with a net asset value of

(3) $(1 - f)P$

and ends it with a net asset value of

(4) $IP(1 - d) - fP(1 + r)$

The difference , between (4) and (3) is the loss, or the cost, during the year by owning the dwelling:

(5)$(1 - f)P - [IP(1 - d) - fP(1 + r)]$

By selling the dwelling for P at the beginning of the year, and paying off the mortage, the owner could invest the rest of the sale proceeds, (1 - f)P. If the yield obtainable from this investment, expressed as a fraction, say y, the owner could end the year with a capital sum of

(6)$(1 - f)P(1 + y)$

The gain during the year can be expressed as

(7)$(1 - f)Py$

The cost of ownership during the year is the sum of the loss from ownership, (5), and the gain sacrificed by not selling, (7):

(8)$dIP + fPr + (1 - f)Py - (IP - P)$

where the different components can be given the following interpretations:
dIP - depreciation
fPr - interest on borrowed capital
(1 - f)Py - interest foregone on own capital
(IP - P) - gain in owner's equity

This exposition is simplified by not taking into account the selling and bying cost and by ignoring any tax relief on mortage interest.

By including observed changes in (8) in the Consumer Price Index, one will have a better measure of the cost of housing.

As far as my investigation uncovered, Jordan does not have an price index for dwelling prices, as I denoted earlier. Because this is a necessary component of (8), this index would have to be developed before this preferable solution can be implemented into the Jordaninan Consumer Price Index.

4.4 Advisory committee

The National Statistical Institutes in many countries, including Norway, Sweden, England and USA, have had positive effects from appointing an Consumer Price Index Advisory Committee. It is recommended that the Department of Statistics in Jordan also appoints such a body, to have advisory authority on the Consumer Price Index. Meetings should be held at least yearly with the purpose of discussing important matters conserning the index. All proposals for change to the index methodology should be an item on the agenda of the committee before they are implemented into the index.

The members of the committee should be appointed by the DoS, and should consist of representatives from the most important users of the index, such as the Ministry of Planning, the Central Bank, labor unions, employers unions and consumers rights unions. Representatives of political parties should not be included. In addition more independent and theorethical points of view could be contributed by economists or statisticans from Jordanian Universities, so these should also be represented in the committee.

This committee will serve two main functions. First of all the quality of the index will most likely benefit from the ideas and opinions from such a competent fora. This will insure that the index will take benefit from developments in index number theory and adjust to the change in the user's needs. Second, by giving important users the chance to voice their opinions in this fora before changes are implemented, one avoids misunderstandings and heated public debate over these complicated and important matters. This will improve the public's reliability in the index.

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قسم الاسعار وتكاليف المعيشة

خلاصة الاسعار السنوية

لعام ١٩

City: Amman

Item: Fresh Milk

Description: Fresh Milk, Cow's Milk, Local, The Price Per one Kg.

Dec		Nov		Oct		Sept		Aug		July		Jun		May		April		March		Feb		Jan		Name of The Outlet	رقم المحل
1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
																									1
																									2
																									3
																									4
																									5
																									6
																									7
																									8
																									9
																									10

Appendix 1 Example of price collection booklet. Fresh milk.

قسم الاسعار وتكاليف المعيشة

خلاصة الاسعار السنوية

لعام ١٩

City Amman

Item Limon

Discribtion; high quality, Local, Per one Kg

Dec		Nov		Oct		Sept		Aug		July		Jun		May		April		March		Feb		Jan		Name of The Outlet	رقم السجل
1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
																									1
																									2
																									3
																									4
																									5
																									6
																									7
																									8
																									9
																									10

Appendix 2 Example of price collection booklet. Lemmon.

قسم الاسعار وتكاليف المعيشة

خلاصـــــة الاسعار الســـنوية

لعـــام ١٩

City Amman

Item Sugar

Description: Subsidized, White, Powdered, Multi Sources, Per one kg.

Dec		Nov		Oct		Sept		Aug		July		Jun		May		April		March		Feb		Jan		Name of The Outlet	رقم المحل
1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
																									1
																									2
																									3
																									4
																									5
																									6
																									7
																									8
																									9
																									10

Appendix 3 Example of price collection booklet. Sugar.

قسم الاسعار وتكاليف المعيشة

خلاصة الاسعار السنوية

لعام ١٩

City Amman

Item Honney

Discribtion; Langniza brand, Imported, Jar with Capacity 500 gram

Dec		Nov		Oct		Sept		Aug		July		Jun		May		April		March		Feb		Jan		Name of The Outlet	رقم المحل
1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2		
																									1
																									2
																									3
																									4
																									5
																									6
																									7
																									8
																									9
																									10

Appendix 4 Example of price collection booklet. Honney.

Appendix 5 Example of FORM A. Foods.

Page -1-

Form -A-

Calculation of Prices Avareges For Amman in July 1996

1	2	3	4	5	6	7
Good & Services	Base Weight 1992	The Price	2X3	Total of Column 4	Avarege Price 5÷2	6 X City Weigh
Cereals						
Rice	1018					
Subsidized	754					
Un. Subs.	207					
American	57					
Flour	379					
Zero. No-1	28					
European	46					
Mixed	193					
Local	112					
Bread	1367					
Cockies	206					
Bruised wheat	33					
Frekeh	82					
wheat groats	18					
Macaroni	84					
Cake	46					
Biscuit	156					
Biscuit for infant	86					
Biscuit	70					
Meats & Poultry						
Mutton	5259					
Mutton, Local	3122					
Mutton, Imported	1949					
Mutton, Frozen	188					
Goat Local	207					

The Prices Avareges In The: Cities Of The Kingdom for (,1996)

FORM (B)

Total of cities weights ↑

Price Avarege	100	Total	Aqaqa 2	Maán 2	Tafeleh 2	Karak 4	Mafraq 4	AJlun 2	Ramta 2 3/4	Jarash 3	Irbid 17	Báqa 1	Salt 5	Rusieth 3	Zarqa 13	Mádba 2	Wadi ASeer 3	Suleleh 1	Amman 34	NAME OF ITEMS
																				الحبوب ومشتقاتها
																				الرز
																				الطحين
																				الخبز
																				كعك
																				برغل
																				فريكة
																				سميد
																				معكرونة وشعيرية
																				كيك
																				بسكويت
																				اللحوم والدواجن
																				لحم ضأن
																				لحم ماعز بلدي
																				لحم عجل
																				كبدة غنم
																				لحوم معلبة
																				دجاج
																				كبدة دجاج
																				الاسماك
																				سمك
																				سمك معلب سردين
																				سمك معلب طون
																				الالبان ومشتقاتها والبيض
																				حليب طازج
																				حليب معلب سائل مركز
																				حليب مسحوق بودره

Appendix 6 Example of FORM B.

Appendix 7 Example of FORM C. Foods.

Form-C-

« Calculation of CPI For July 1996 »

Group & Item	Base Weight 1992	Base Prices 1992	Comparision Price	Change Rate	New weight	Index Number
All Items	100000				112870	112.9
Food Group	40590				109.5	44461
Cereals & Prod.	3385				3821	112.7
Rice	1018	216	248	114.8	1169	
Flour	379	3099	3636	117.3	445	
Bread	1367	78	85	109.0	1490	
Cockies	206	386	428	110.9	228	
Bruised wheat	33	476	514	108.0	36	
Freken	82	878	1009	114.9	94	
Wheat Groats	18	139	181	130.2	23	
Macaroni	84	110	100	90.9	76	
Cake	46	4958	6319	127.5	59	
Biscuit	156	357	461	129.1	201	
Meats and Poultry	11100				12623	113.7
Mutton	5259	3512	4615	121.1	6369	
Goat, Local	207	11726	6481	137.1	284	
Veal	1190	2824	3524	124.8	1485	
Livers	72	4481	4974	111.0	80	
Canned Meat	40	907	1088	120.0	48	
Chicken	4296	1119	1125	100.5	4317	
Livers, chiken	36	1929	2164	112.2	40	
Fish	679				848	124.9
Fish	543	1363	1775	130.2	707	
Sardine	69	285	297	104.2	72	
Tuna Fish	67	458	475	103.7	69	

Appendix 8 Consumer Price Index, monthly indices August 1995 - August 1996

(٥٧) الرقم القياسي لتكاليف المعيشة (تابع)

COST OF LIVING INDEX (CON.)

(1992=100)

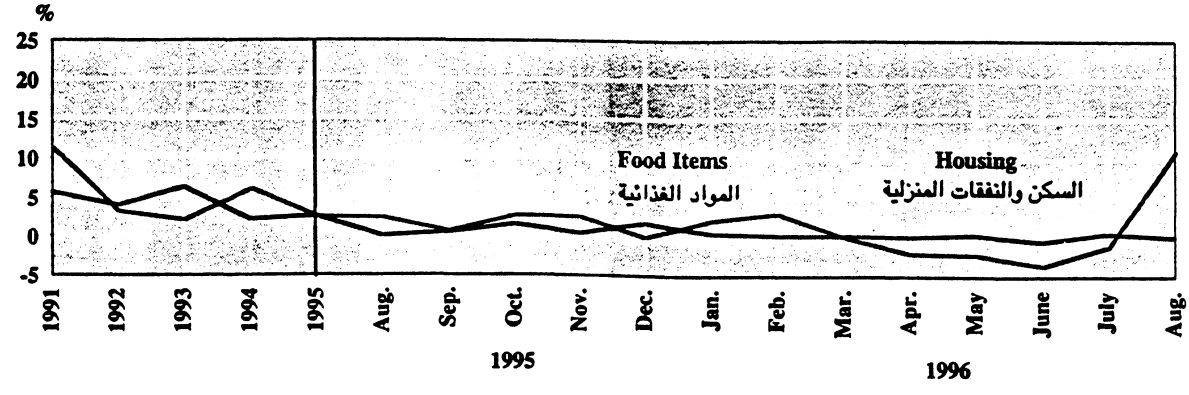
	Other Goods and Services السلع والخدمات الاخرى						Housing السكن والنفقات المنزلية				Clothing & Footwear
	اخرى Other	التعليم Education	العناية الشخصية Personal Care	العناية الطبية Medical Care	النقل Transportation	عام General	اخرى Other	المحروقات و المنافع Fuels and Utilities	السكن و ملحقاته Housing and Related Expenses	عام General	احذية Footwear
Weight	(4.098)	(3.505)	(3.395)	(2.237)	(11.157)	24.392	(6.067)	(5.019)	(15.782)	26.868	(1.503)
Period											
1991	99.9	95.1	99.4	92.4	96.2	**96.7**	97.3	97.0	95.2	**96.2**	93.2
1992	100.0	100.0	100.0	100.0	100.0	**100.0**	100.0	100.0	100.0	**100.0**	100.0
1993	102.4	102.1	101.2	101.8	101.0	**101.5**	107.9	106.0	105.8	**106.3**	108.2
1994	103.6	108.9	103.1	103.9	99.9	**102.6**	113.8	109.4	106.3	**108.6**	113.0
1995	103.8	116.0	106.2	106.6	96.8	**102.9**	116.6	109.4	110.1	**111.4**	121.8
1995											
Aug.	103.5	119.8	105.5	106.6	96.5	**103.2**	114.9	109.4	110.7	**111.4**	121.0
Sep.	103.4	121.5	108.2	106.6	96.5	**103.8**	115.0	109.4	111.5	**111.9**	123.2
Oct.	103.8	122.1	109.8	110.6	96.6	**104.6**	122.5	109.4	111.5	**113.6**	126.7
Nov.	103.9	122.1	110.4	110.6	96.6	**104.7**	124.3	109.4	111.5	**114.0**	129.5
Dec.	106.0	122.1	110.4	111.5	99.6	**106.5**	125.4	109.4	114.5	**116.0**	130.7
1996											
Jan.	108.5	122.5	116.1	115.8	100.1	**108.4**	127.5	109.5	114.5	**116.5**	141.1
Feb.	112.1	122.5	117.3	115.8	100.1	**109.2**	128.4	109.5	114.5	**116.7**	142.8
Mar.	112.4	122.5	116.8	116.3	100.1	**109.2**	129.3	109.5	114.5	**116.9**	145.0
Apr.	112.0	122.5	115.9	116.3	100.1	**109.0**	129.3	109.5	114.5	**116.9**	143.8
May	112.2	122.5	116.4	116.3	100.1	**109.1**	129.2	111.7	114.5	**117.3**	143.8
June	112.0	122.5	115.8	116.3	100.1	**109.0**	126.3	111.7	114.6	**116.7**	141.0
July	112.0	122.5	115.0	116.3	99.5	**108.6**	126.2	115.0	114.6	**117.3**	141.0
Aug.	112.0	126.9	115.8	116.3	99.5	**109.4**	126.2	115.0	114.6	**117.3**	141.0

Source : Department of Statistics.

Note : Data for Year 1991 are Derived By Linking the Old Index (1986=100) to the New One (1992=100) Whereas Components are Weighted Differently.

التغير في اسعار مجموعتي المواد الغذائية والسكن والنفقات المنزلية

CHANGE IN PRICES OF FOOD ITEMS AND HOUSING GROUPS



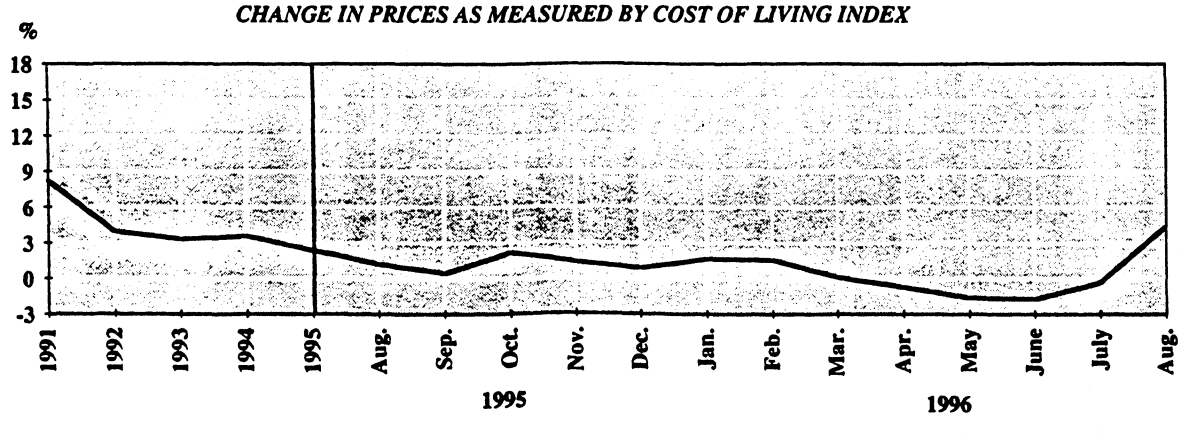
(٥٧) الرقم القياسي لتكاليف المعيشة
COST OF LIVING INDEX

(١٠٠=١٩٩٢)

	الرقم القياسي العام General Index	المواد الغذائية							Food Items		ملابس واحذية
		عام General	الحبوب و منتجاتها Cereal and Bakery	لحوم و اسماك Meat and Fish	فواكه Fruits	خضروات Vegetables	منتجات الالبان والبيض Dairy Products and Eggs	المشروبات الكحولية و التبغ Alcoholic Drinks and Tobacco	مواد غذائية اخرى Other Food-stuffs	عام General	ملابس Clothing
الاهمية الفترة	100.000	40.590	(3.389)	(11.779)	(2.427)	(3.806)	(8.201)	(3.301)	(7.687)	8.150	(6.647)
١٩٩١	96.2	97.1	98.6	98.0	104.8	96.7	93.5	93.2	97.2	92.1	91.9
١٩٩٢	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
١٩٩٣	103.3	101.9	106.1	103.9	112.9	94.5	99.4	100.1	101.3	105.8	105.3
١٩٩٤	107.0	107.9	109.1	110.4	122.3	114.0	100.2	102.2	106.7	109.9	109.1
١٩٩٥	109.5	110.4	110.8	112.3	145.0	97.0	103.6	102.2	113.6	117.9	117.0
١٩٩٥											
آب	108.9	108.9	110.6	115.5	111.0	93.4	103.5	102.2	113.7	117.1	116.2
ايلول	109.4	109.4	110.6	115.8	122.4	88.6	103.4	102.2	114.8	118.2	117.0
تشرين اول	111.8	112.2	111.6	114.5	139.9	99.9	107.2	102.2	115.9	125.2	124.9
تشرين ثاني	113.3	114.9	111.6	112.0	180.7	102.7	109.4	102.3	117.3	128.8	128.7
كانون أول	114.3	114.7	111.9	114.1	152.8	105.8	110.3	102.3	119.3	129.5	129.2
١٩٩٦											
كانون ثاني	116.2	117.0	112.9	117.4	202.9	83.0	110.2	103.8	120.8	134.8	133.4
شباط	118.0	120.4	113.7	122.0	233.7	83.3	110.1	103.8	121.6	136.7	135.3
آذار	118.1	120.3	113.5	121.6	209.1	99.9	110.0	103.8	121.4	137.6	136.0
نيسان	117.2	117.7	112.8	122.2	196.5	103.1	109.6	103.8	109.9	130.0	126.9
ايار	115.3	115.0	112.8	117.4	173.3	81.6	109.7	103.8	120.9	128.9	125.5
حزيران	113.3	110.8	112.7	115.2	122.5	76.2	109.7	103.8	120.8	127.6	124.6
تموز	112.9	109.5	112.7	114.3	107.9	75.1	109.6	103.8	120.6	127.6	124.6
آب	117.8	121.5	213.2	112.8	121.2	94.2	115.9	103.8	121.6	126.3	123.0

المصدر : دائرة الاحصاءات العامة .
ملاحظة : ارقام عام ١٩٩١ اشتقت بربط الرقم القياسي
القديم (١٩٨٦= ١٠٠) بالرقم القياسي الجديد (١٩٩٢=١٠٠)
مع ملاحظة اختلاف اوزان المجموعات .

التغير في الاسعار مقاسا بالرقم القياسي لتكاليف المعيشة
CHANGE IN PRICES AS MEASURED BY COST OF LIVING INDEX



Appendix 9 Consumer Price Index, yearly indices 1967 - 1995

(٤٩) الرقم القياسي لتكاليف المعيشة (تابع)

COST OF LIVING INDEX (CON.)

(1992= 100)

Year	Other Goods and Services السلع والخدمات الاخرى						Housing السكن والنفقات المنزلية				Clothing & Footwear
	اخرى Other	التعليم Education	العناية الشخصية Personal Care	العناية الطبية Medical Care	النقل Transportation	عام General	اخرى Other	المحروقات و المنافع Fuels and Utilities	السكن و ملحقاته Housing & Related Expenses	عام General	احذية Footwear
1967	_	11.6	11.3	15.3	10.6	**11.8**	_	30.6	23.8	**21.8**	9.9
1968	_	11.6	11.3	15.3	10.6	**11.9**	_	30.7	24.5	**22.1**	9.9
1969	_	11.8	11.8	15.5	10.8	**12.1**	_	30.9	25.4	**22.1**	10.1
1970	_	12.5	13.4	18.5	10.8	**13.0**	_	31.4	25.8	**23.5**	10.9
1971	_	13.4	13.8	18.5	11.0	**13.3**	_	32.7	27.1	**24.4**	11.3
1972	_	14.5	14.1	18.2	11.5	**13.5**	_	33.1	29.1	**25.8**	11.6
1973	_	15.2	14.3	18.5	11.7	**13.8**	_	33.9	30.0	**26.9**	12.4
1974	_	17.5	15.4	21.0	11.7	**14.6**	_	34.2	31.1	**29.2**	14.7
1975	10.2	20.3	16.2	26.9	14.5	**16.8**	23.3	34.3	32.4	**30.7**	16.9
1976	12.0	21.2	19.9	28.7	16.8	**18.8**	24.9	36.5	34.4	**32.8**	18.1
1977	9.2	32.5	21.0	38.9	18.1	**22.3**	27.4	36.6	39.0	**35.3**	25.4
1978	11.8	36.5	23.6	41.8	21.8	**25.6**	30.0	39.4	43.2	**38.9**	27.8
1979	16.4	38.5	30.3	43.6	27.1	**29.8**	36.8	54.4	55.0	**50.0**	33.1
1980	24.2	42.2	33.5	49.0	36.2	**35.8**	38.9	67.8	57.1	**53.8**	35.5
1981	24.9	44.6	40.9	52.9	45.2	**39.3**	38.2	75.5	58.9	**55.4**	44.1
1982	31.0	51.1	43.4	53.2	49.2	**44.5**	42.8	81.5	62.5	**59.8**	45.8
1983	32.8	56.4	42.4	55.6	52.7	**47.1**	48.5	83.8	67.9	**65.1**	52.3
1984	34.9	62.3	43.9	57.0	55.0	**50.2**	49.2	84.0	74.3	**68.5**	54.0
1985	36.8	67.9	45.1	56.7	56.1	**52.9**	49.3	87.1	77.8	**70.8**	54.6
1986	38.1	72.5	45.6	57.5	56.1	**55.0**	48.7	84.6	76.7	**69.6**	49.7
1987	38.1	75.7	49.7	61.9	58.0	**57.5**	40.6	82.9	77.4	**67.3**	52.5
1988	42.4	78.8	53.8	64.9	65.5	**62.7**	53.0	83.0	79.4	**72.1**	47.0
1989	75.5	86.7	82.6	81.3	88.8	**84.6**	74.9	85.4	84.5	**81.8**	70.6
1990	93.8	89.7	99.8	84.9	92.0	**92.4**	92.6	89.4	90.7	**91.1**	87.7
1991	99.9	95.1	99.4	92.4	96.2	**96.7**	97.3	97.0	95.2	**96.2**	93.2
1992	100.0	100.0	100.0	100.0	100.0	**100.0**	100.0	100.0	100.0	**100.0**	100.0
1993	102.4	102.1	101.2	101.8	101.0	**101.5**	107.9	106.0	105.8	**106.3**	108.2
1994	103.6	108.9	103.1	103.9	99.9	**102.6**	113.8	109.4	106.3	**108.6**	113.0
1995	103.8	116.0	106.2	106.6	96.8	**102.9**	116.6	109.4	110.1	**111.4**	121.8

Source : Department of Statistics.

Note : Data for Years Prior to 1992 have been Derived by Linking the Old Indices (1967=100), (1975=100), (1980=100) and (1986=100) to the Present One (1992=100).

(٤٩) الرقم القياسي لتكاليف المعيشة

COST OF LIVING INDEX

(١٠٠=١٩٩٢)

السنة	الرقم القياسي العام General Index	المواد الغذائية Food Items								ملابس واحذية	
		عام General	الحبوب و منتجاتها Cereal and Bakery	لحوم و اسماك Meat and Fish	فواكه Fruits	خضروات Vegetables	الزيوت والدهون و منتجات الالبان والبيض Oils & Fats, Dairy Products & Eggs	المشروبات الكحولية و التبغ Alcoholic Drinks and Tobacco	مواد غذائية اخرى Other Food-stuffs	عام General	ملابس Clothing
١٩٦٧	13.5	11.3	48.8	13.0	3.6	9.7	15.1	19.2	14.1	9.0	8.8
١٩٦٨	13.5	11.0	48.8	13.0	3.9	8.6	14.7	19.7	14.2	9.0	8.8
١٩٦٩	14.4	13.2	49.4	14.0	4.8	13.8	16.4	19.9	14.8	9.1	8.9
١٩٧٠	15.4	14.0	51.2	14.3	6.1	14.9	16.9	20.2	15.5	9.7	9.5
١٩٧١	16.1	15.0	48.4	14.9	6.3	16.7	17.8	20.2	17.9	10.2	10.0
١٩٧٢	17.0	16.1	48.4	16.2	7.5	17.2	16.6	20.2	19.2	10.9	10.7
١٩٧٣	19.0	19.2	51.3	17.4	11.7	22.1	21.1	20.5	21.1	12.2	12.0
١٩٧٤	22.7	25.2	57.2	26.3	17.7	26.5	24.2	21.4	26.3	13.8	13.6
١٩٧٥	25.4	29.5	56.6	26.9	24.2	33.0	26.5	22.0	28.7	14.9	14.6
١٩٧٦	28.3	33.9	59.8	29.8	29.0	38.2	33.4	23.2	32.4	16.1	15.7
١٩٧٧	32.4	38.7	61.6	34.5	33.5	47.3	35.7	24.6	39.2	20.8	20.1
١٩٧٨	34.7	40.1	62.0	35.6	39.4	49.4	38.2	25.7	37.4	21.8	20.9
١٩٧٩	39.6	42.4	68.4	39.0	40.0	54.6	39.4	27.6	37.0	26.9	26.0
١٩٨٠	44.0	47.1	80.8	43.3	43.4	58.3	42.9	29.6	41.5	28.5	27.4
١٩٨١	47.4	50.9	82.8	48.1	38.8	59.6	44.5	32.6	49.8	36.0	34.8
١٩٨٢	50.9	53.2	82.6	49.8	46.8	64.7	46.6	38.0	52.6	38.0	36.8
١٩٨٣	53.5	54.6	82.1	51.7	43.6	68.7	47.0	49.0	55.1	39.4	37.4
١٩٨٤	55.5	55.7	82.0	52.5	46.3	64.0	49.6	50.9	57.9	39.6	37.4
١٩٨٥	57.2	56.9	79.5	53.9	46.5	60.3	54.7	58.3	58.5	39.5	37.2
١٩٨٦	57.2	57.8	79.5	54.5	46.9	61.7	56.6	58.4	59.0	35.7	33.5
١٩٨٧	57.1	56.9	77.4	53.8	53.6	56.7	53.3	63.5	59.6	37.0	34.7
١٩٨٨	60.9	60.1	77.3	55.2	59.2	59.3	60.2	64.5	60.9	38.6	37.3
١٩٨٩	76.5	72.5	80.4	65.7	81.5	84.5	70.1	81.9	70.3	63.3	62.2
١٩٩٠	88.9	87.4	87.7	90.2	85.8	80.9	87.0	91.1	85.7	82.7	82.0
١٩٩١	96.2	97.1	98.6	98.0	104.8	96.7	93.5	93.2	97.2	92.1	91.9
١٩٩٢	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
١٩٩٣	103.3	101.9	106.1	103.9	112.9	94.5	99.4	100.1	101.3	105.8	105.3
١٩٩٤	107.0	107.9	109.1	110.4	122.3	114.0	100.2	102.2	106.7	109.9	109.1
١٩٩٥	109.5	110.4	110.8	112.3	145.0	97.0	103.6	102.2	113.6	117.9	117.0

المصدر : دائرة الاحصاءات العامة.

ملاحظة : تم اشتقاق ارقام السنوات قبل عام ١٩٩٢ بربط الارقام القياسية السابقة (١٩٦٧=١٠٠) و (١٩٧٥=١٠٠) و (١٩٨٠=١٠٠) و (١٩٨٦=١٠٠) بالرقم القياسي الحالي (١٩٩٢=١٠٠).

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