

PRECISE ESTIMATES OF THE INFORMAL ECONOMY[♦]

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Abstract

Informal activities are present in almost all the sectors of the Pakistan economy, whether it is agriculture, manufacturing, construction, finance, transport or services. Several approaches are available in the literature to estimate the size of the underground/informal economy. Most popular among these approaches is monetary approach. Other approaches are labour market approach, fiscal approach, etc. However, all these approaches have number of problems among which the first and foremost is that they do not give the actual estimates of the underground economy instead they give the trend estimates of it. In this paper we are estimating size of the informal economy using a new approach. We call it “KQ” (Kemal and Qasim) approach or discrepancy approach. Our idea in this paper is to calculate total private consumption from the household survey for the total population and adjust it for trade misinvoicing and calculate the true estimates of the GDP which is then compared with the GDP estimates reported in the National Accounts (at current prices). The difference between the two is the size of the informal economy. PSLM 2007-08 is used to calculate total private consumption and Mahmood (2012) is used for misinvoicing of exports and imports. Our estimates show that the informal economy of Pakistan was 91 percent of the formal economy in 2007-08.

Introduction

Informal¹ economy in Pakistan is the backbone of the economy. However, the problem is that we do not know how big it is due to non-availability of the precise estimates. Precise estimates of the informal economy would help policymakers to make better macroeconomic policies. If informal economy becomes part of the formal economy government can seek revenues from it and rest of the formal sector may have to take lesser burden of taxes. This would be a win-win situation for the government and for those sectors that are part of the formal or documented system. In return, by becoming part of the formal economic system the informal sector can enjoy all those benefits and incentives that are available to the formal sector

Informal activities are present in almost all the sectors of Pakistan whether it is agriculture, manufacturing, construction, finance, transport or services. Several approaches are present in literature to find the estimates of underground/informal economy. Most popular among these approaches is monetary approach which is based on the assumption that informal economy is operated through cash transactions in order to reduce the chances of detection. Other approaches are labour market approach, fiscal approach etc. Several studies in Pakistan have

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¹ Informal economy here refers to the all those sectors of economy, which are not documented either by getting actual data or by prediction in the formal GDP in the National Accounts.

used monetary approach to estimates the size of underground economy [Shabsigh (1995), Ahmed and Qazi (1995), Iqbal, Qureshi and Mahmood (1998), Aslam (1998), Kemal (2003, 2007), Yasmin and Rauf (2003)]. Other than monetary approach most recently Arby, Jahanzeb and Hanif (2009) used mimic approach and electricity approach to estimate the size of underground economy. However all these approaches have number of problems among which first and major problem is that indicators of underground economy are indicating the size of underground economy. Thus it does not give the actual estimates of underground economy instead it gives the trend estimates of it². Using these estimates for the policy measures could be misleading [Ahmed (2003)] since all the studies give different and volatile estimates of underground economy (see Appendix Table). Differences in the estimates are due to the assumption and explanatory variables which are taken by different studies.

In this paper we are estimating size of informal economy using a new approach. We call it “KQ” (Kemal and Qasim) approach or discrepancy approach. The introduction of the study is followed by discussion on the problems in the other approaches. Methodology is then discussed in the next section followed by data and estimates and in the end we draw some conclusions of the study.

Problems with the monetary approach

Main theme of the monetary approach is that currency is the sole medium of exchange in the informal activities and all of the transactions cannot be detected by the tax authorities. Thus higher the currency holding means higher evasion of taxes and higher informal activities. Following Cagan (1958), Tanzi (1980) regress currency ratio on the tax variables and get the tax induced currency in circulation which is known as legal currency holding and the rest is illegal holding of money (see the following procedure, taken from Kemal (2007)).

$$\text{Regress} \left(\frac{CC + FCA}{M2} \right)_t = \alpha + \beta \left(\frac{T}{Y} \right)_t + \gamma BS_t + \phi G_t + \delta \left(\frac{CC + FCA}{M2} \right)_{t-1} + \varepsilon_t$$

Where CC implies Currency in Circulation, FCA implies Foreign Currency Accounts, M2 implies Money Supply, T implies Total Tax Revenues, Y implies GDP at current market prices, BS implies Banking Services, G implies Growth Rate of Real GDP, ε is the Error Term of the equation, and Subscript t shows time period.

$\frac{CC + FCA}{M2}$ Is known as currency ratio and FCA is added with currency in circulation based on the assumption that they are also used as liquid as cash in hand.

² In short Indicators of informal economy are indicating about the informal economy whether it is going up or down. Indications can never be original estimates.

For each year predicted values of currency ratio including tax variables $\left(\frac{CC + FCA}{M2}\right)_t$ and without tax variables $\left(\frac{CC + FCA}{M2}\right)_{wt}$ are calculated by estimated regression equation. The difference between the two terms gives us an indication that how much currency holding is tax induced. Mathematically it is;

$$\left(\frac{CC + FCA}{M2}\right)_t - \left(\frac{CC + FCA}{M2}\right)_{wt} = \beta \left(\frac{T}{Y}\right)_t$$

We know that β is constant and the entire series depend on the fraction $\left(\frac{T}{Y}\right)$, thus if it goes down underground economy decreases and if it goes up underground economy increases. Despite the fact that decrease in revenues as percentage of GDP means that people are involved in the informal activities and evading taxes but since not all the sectors are taxed thus if non-taxed sector is increasing then there is a good chance that tax to GDP ratio decreases. Although there is a chance that people will show their income as agriculture income and evade taxes but national accounts do not follow this procedure of accounting agriculture value added and value added of other manufacturing sector, it's an IRS problem.

Another problem which can be handled in the regression but it may have impact on the estimates is that currency holding can be increased and decreased due to variety of reasons such as increase in inflation, during recession etc. Moreover, T-bill auctions and issuance of bonds by the SBP also reduces currency in circulation.

As Tanzi (1980) reported that underground economy estimates from the monetary approach should not be considered as precise estimates, because they are sensitive to assumptions. However, these estimates can be broad indicators of a fluctuating trend over the period of analysis. However, in a recent exercise in estimating underground economy from monetary approach tells us the problem that underground economy varies due to changes in the tax-GDP ratio even though evasion does not happen.

Problems with MIMIC Approach

The multiple indicators multiple causes (MIMIC) model is a structural equation model. It was first introduced by Joreskog and Goldbreger (1975) and its contemporary version is best described by Giles and Tedds (2002). Informal economy is unobservable in the model which is caused by various factors and it affects several indicators. Mathematically we can write it as;

$$\hat{\eta}_t = \gamma x_t + \zeta_t \quad \text{Informal Economy is a function of it Causative Factors}$$

The variable η_t is unobservable caused by several factors represented by vector “ x_t ”, γ is a vector of coefficients and ζ_t is the error term.

$$\check{Y}_t = \lambda \eta_t + \varepsilon_t \quad \text{Indicators are explained by informal economy}$$

\check{Y}_t is a vector of indicators explained by informal economy, λ is a vector of parameters and ε_t is the error term.

These two models are connected through the unobservable variable and final equation is estimated by using some econometric technique.

$$\check{Y}_t = \Pi x_t + v_t \quad \text{Indicators are dependent on the causative factors of informal economy.}$$

Where $\Pi = \lambda \gamma$ and $v_t = \lambda \zeta_t + \varepsilon_t$.

Recently the mimic approach obtains burgeoning attention of the researcher especially in estimating the informal economy. Many research endeavors have been made to estimate the underground economy using this mimic approach. In case of Pakistan this method was first applied by Arby, Malik and Hanif(2010) and later by Gulzar ,Junaid and Haider (2010). They considered tax revenue, financial development, and interest rate as the cause variables and currency in circulation and electricity consumption as the indicator variables.

Several deficiencies of the approach are discussed by Breusch (2005) such as it is based on the common errors and anomalies. The results are sensitive to the unit of measurement. *Ibid* also asserted that the informal economy is not a latent or hypothetical variable thus mimic model is not applicable to get informal economy estimates. Estimation of the model involves differencing the variables by doing this we might lost the long run relationship among the variables. Moreover, condition of rank of Π should be equal to *one*, i.e., rows and columns need to be dependent, creates difficulties if these are orthogonal. Another problem with the approach is to set λ equals to ± 1 to calculate parameter γ . Choosing sign of the coefficient sometimes chosen simply out of convenience which might invert the time path of the results. This also implies that informal economy has one-to-one association with its indicators

The actual estimates of the parameters in the mimic model are obtained by using the Model's covariance matrix in such a way that the model's covariance is as close as possible to sample covariance matrix. The estimates of informal economy give us the time path of informal economy, which has little to do with informal activities.

Problems with the Electricity Approach

Electricity approach is a physical indicator approach based on the assumption that the usage of electricity in the informal economy is same as in the formal economy. Thus, by analyzing

the aggregate electricity consumption and economic activity we can find the traces of informal economy. Kaufman and Kaliberda (1996) are prominent champions of this method. They assumed that elasticity of electricity consumption to GDP is unity, which is also confirmed by many other studies³. Based on this assumption, if in an economy the electricity consumption grows by say 10 percent, subsequently the growth in the GDP should be 10 percent. However, if the growth of the GDP is less than the growth in electricity consumption then this indicates the existence of informal economy. The difference between the electricity consumption growth and the formal GDP growth gives the growth in the informal economy.

Problem started with first assumption of the model that in case of Pakistan, especially, not everyone is paying full electricity payments whether there are involved in formal or informal activity. In short this approach cannot capture the informal consumption of electricity. Moreover, not all the sectors involved in informal activities consume electricity such as transport, financial services, etc. The technological advancement makes more efficient usage of resources especially energy. This is true for both formal and informal economy therefore growth rate of electricity consumption might not able to indicate the actual growth in the economy. Last, it is not necessary that the elasticity of electricity consumption to GDP is unity for all countries and remain constant over the time. This challenges the basic assumption of the electricity consumption approach.

Methodology

Formal GDP (expenditure on GDP at market prices) is the addition of private consumption, investment, government expenditures and net exports. In general, most of us are unaware that what is the procedure of data collection, compilation and then come up with these figures. However, these stories are given on the website of Pakistan Bureau of Statistics and it is easily accessible.

Data on exports and imports of merchandise items are collected from the International Trade Statistics of the Pakistan Bureau of Statistics and non-factor services and other current transfers are collected from the State Bank of Pakistan's balance of payments statistics. Data on government expenditure are calculated by the national accounts and investment data is computed by a combination of approaches i.e. commodity flow, expenditure (survey method) and financial approach. Rest is consumption which is a residual⁴. It is calculated as the difference between total national income and total national savings. Savings are derived from the Twin deficit identity, i.e., Current Account Balance = Saving – Investment.

Thus National Accounting approach of calculating consumption might underestimate the total private consumption since people involved in the informal sector does not report their activities in the formal GDP. For instance, manufacturers do not report their actual production and report underemployment to avoid labor laws and taxes. Moreover, services

³see for instance, Dobozi and Pohl (1995), and Johnson, Kaufmann and Shleifer (1997).

⁴ All the computational procedure of national accounts is given on the following link. http://www.pbs.gov.pk/sites/default/files/national_accounts/methodology/methodology_new1.1.pdf

sectors including transports services, and especially wholesale and trade services are difficult to document and remain unaccounted in the formal GDP because these are estimated/predicted for some of the products of manufacturing sector based on survey conducted in 1999-2000. Thus consumption calculated as a residual to the GNP is definitely underestimating the overall private consumption of the country.

Our idea in this paper is to calculate total private consumption from the household survey for the total population and then compares it with private consumption in formal GDP. The difference between the two is the expenditure on private consumption from the income generated at the informal sector.

Misinvoicing of imports and exports are among the important illegal activities, which are not documented in the formal GDP. Recently Mahmood (2012) estimated misinvoicing of exports and imports for Pakistan since the early 1970s and we used *Ibid* estimates to incorporate the illegal activities in the international trade sector. Thus, component of the net exports gives us informal activity in international trade.

Although, data on investment are also under reported as it is calculated on the basis of old survey methodologies for certain sectors and predicted according to commodity flow mechanism for rest of the sectors. Survey was done in 1999-2000 and since then several changes in the economy has happened thus there is a need to do a new survey to get up-to-date estimates. Commodity flow could be under reported because commodity producing sector under report as well. Thus there are ample chances that investment data is also under estimated and increases the national income if it is calculated correctly. However, in this paper we are taking investment and government expenditures same as in the formal GDP. Thus our informal GDP is the difference between “formal GDP” and “GDP in which private consumption is taken from household survey and net exports are adjusted for trade misinvoicing”. Mathematically, it can be written as;

$$GDP_f = C_f + G_f + I_f + Nx_f \quad \text{GDP in Formal Sector}$$

$$GDP_T = C_H + G_f + I_f + Nx_T \quad \text{GDP adjusted for total consumption and net exports}$$

$$GDP_i = GDP_T - GDP_f \quad \text{GDP in Informal Sector}$$

GDP = Gross Domestic Product

C = Consumption

I = Investment

G = Government Expenditures

NX = Net Exports

Subscript *f*, T, H, and *i* represent formal, total, household, and informal respectively

Since, Pakistan is among the very few countries if not the only country where consumption is estimated as a residual to GNP. Thus, our approach can safely be used in situations where the data discrepancy is present and large.

Data and Estimates

We have used two data sets to estimate the informal economy. Consumption is calculated using the PSLM 2007-08 data and exports and imports misinvoicing is taken from Mahmood (2012). Rest of the data on investment and government expenditures is taken from Economic survey. Since one needs to calculate informal economy for each year thus we need household data set for all those years for which we want to estimate/calculate informal economy. The latest data set for PSLM is available for the year 2007-08 thus we are estimating informal economy for 2007-08 and we'll update the estimates as soon as PSLM 2010-11 is available to us.

We've taken all those transactions done by the households present in section 6 of both male and female survey forms and all the purchases done in that current year otherwise in the other sections of survey form. There are certain issues on the inclusion of certain transactions such as land purchased, house purchased, refrigerator purchased, seeds and pesticides purchased etc. In this study we have not included land and house purchased since it may be part of investment and we will explore it further in the next version of the paper. By excluding house and land purchased we are committing omission biased since it is generally observed that people involve in informal activities buy real estate to make their money white. People in the last few years are also involved in buying agricultural land to make their money white. Thus by excluding these two transactions our calculation might under estimate the true size of informal economy. Total transactions per household are then calculated by excluding land and house purchased. In the end we calculated the weighted total sum of the private consumption for the entire population.

Total private consumption for the entire population is Rs.17261.6 Billion in 2007-08 (Table 1). Private consumption recorded in the economic survey is Rs.7835.31 Billion. Thus Rs.9426.29 Billion is the consumption not reported in the formal economy.

Next step is to include misinvoicing in exports and imports in the calculations. According to (Ibid) in 2007-08, on average during 2000-09 imports misinvoicing were-\$732.15 Million and exports misinvoicing were -\$238.14 Million (Table 1).

Table 1 below shows the calculation of the informal economy. It shows that the informal economy is 91.44 percent of the formal economy. In our view it is still an underestimated figure since investment data is not adjusted and we are assuming that investment in the formal economy is total investment made by the people. Moreover, land and house purchased are not part of the calculations. On the other hand, some people would argue that consumption is over reported in the household's survey, thus it could be over estimation, in this case. Our concern would be how much? Is it 10 percent or 20 percent and if it more than

20 percent then we need to check the reliability of our surveys as well. Estimates of informal economy falls to 74.58 percent of GDP if we reduce overall consumption by 10 percent to check for the over reporting of consumption in household survey.

Table 1
Estimates of Informal Economy

| | GDP | C | I | G | X | M |
|----------|-------------------|------------|-----------|-----------|-----------|-----------|
| | (in Rs. millions) | | | | | |
| Formal | 10,242,800 | 7,835,310 | 2,258,628 | 1,278,431 | 1,316,439 | 2,446,008 |
| Total | 19,608,404 | 17,261,602 | 2,258,628 | 1,278,431 | 1,301,544 | 2,491,801 |
| Informal | 9,365,604 | 9,426,292 | | | -14,895 | 45,793 |
| % of GDP | 91.44% | 120.31% | | | -1.13% | 1.87% |

| If household consumption is over-reported by 10 percent | | | | | | |
|--|-----------|-----------|--|--|---------|--------|
| Informal | 7,639,444 | 9,426,292 | | | -14,895 | 45,793 |
| % of GDP | 74.58% | 120.31% | | | -1.13% | 1.87% |

Table 2 shows an extreme example of increase in tax revenues and decrease in overall deficit by keeping the percentage of direct taxes and indirect taxes same among the formal and informal economy. Since informal economy and formal economy is almost the same thus the revenue collection from the informal economy would be the same as in the formal economy. Accordingly our tax revenues would jump from ten percentage of GDP to 19.64 percentage of GDP. Initially our budget deficit was 7.59 percent but if we include the informal economy estimates it becomes surplus to 2.7 percent.

Table 2
Change in Revenues after inclusion of informal economy

| | Tax Revenues | Direct Taxes | Indirect Taxes | Budget Balance |
|--|--------------|--------------|----------------|----------------|
| Revenues from the formal sector (in Rs. millions) | 1050696 | 391350 | 659346 | -777,169 |
| %of GDP | 10.26% | 3.82% | 6.44% | -7.59% |
| Revenues from Informal Sector (in Rs. millions) | 960911 | 357766 | 603145 | |
| %of GDP | 9.38% | 3.49% | 5.89% | |
| Total Revenues as percentage of formal GDP | 19.64% | 7.31% | 12.33% | 2.70% |

Conclusions

Measurement of variables in the national accounts has severe problems. These problems lead us to calculate informal economy. It's a new approach and can be applied in all those countries which have data discrepancy problems. The estimates of underground economy are very crucial for the policymakers and, in general, researchers came up with vague estimates which do not make much sense. This study calculated the precise estimates of informal economy. Since we do not have the data for PSLM 2010-11, thus we estimate the informal economy using 2007-08 and it was 91 percentage of GDP in the year 2007-08. This implies that our formal GDP is almost half of the actual GDP. However, it is still an under estimated figure since we did not work out informal proportion of investment and excluded some of the transactions from private consumption.

References

- Ahmed, M and M. A. Qazi (1995), "Estimation of the Black Economy of Pakistan through the Monetary Approach" *The Pakistan Development Review* Vol. 34 (4): 791-807
- Ahmed, Q. M. and M. H. Hussain (2008), "Estimation of the Black Economy of Pakistan through the Monetary Approach: A Case Study of Pakistan", *Economic Issues*, Vol. 13, No. 3, pp. 45 -60
- Arby, M. F., M. J. Malik and M. N. Hanif (2010), "The Size of Informal Economy in Pakistan", *SBP Working Paper Series*, No. 33, May 2010.
- Aslam, S. (1998), "The Underground Economy and Tax Evasion in Pakistan: Annual Estimates (1960-1998) and the Impact of Dollarization of the Economy", *The Pakistan Development Review*, Vol. 37 (4): 621-631
- Breusch, T. (2005), "Estimating the Underground Economy using MIMIC Models", School of Economics, Faculty of Economics and Commerce, *The Australian National University*, Canberra, ACT 0200
- Dobozi, I. and G. Pohl (1995), "Real Output Decline in Transition Economies-Forget GDP, Try Power Consumption Data", *Transition Letter*, Vol. 6, No. 1-2
- Iqbal, Z., S. K. Qureshi, and R. Mahmood (1998), "The Underground Economy and tax Evasion in Pakistan", *Research Report No. 158*, Pakistan Institute of Development Economics.
- Johnson, S., D. Kaufmann and A. Shleifer (1997), "The Unofficial Economy in Transition", *Brookings Papers on Economic Activity*, Vol. 1997, No. 2, pp. 159-227.
- Kaufmann, D. and A. Kaliberda (1996), "Integrating the Unofficial Economy into the Dynamics of Post Socialist Economies: A Framework of Analysis and Evidence", *World Bank Policy Working Paper* No.1691
- Kemal, M. A. (2003), "Underground Economy and Tax Evasion in Pakistan: A Critical Evaluation", *Research Report No. 184*, Pakistan Institute of Development Economics
- Kemal, M. A. (2007), "A Fresh Assessment of the Underground Economy and Tax Evasion in Pakistan: Causes, consequences and Linkages with Formal Economy", *PIDE Working Paper # 13*, Pakistan Institute of Development Economics
- Khalid, M. (2002), "Estimation of Underground Economy, Causality and Business Cycle Analysis of Pakistan", M.Phil Thesis, *Department of Economics, Quaid-i-Azam University*, Islamabad

Mahmood, Z. (2012) “Reverse Capital Flight to Pakistan: Some Latest Estimates”, Submitted to *The Pakistan Development Review*

Qasim, A. W. (2011), “Relationship between Inflation and Tax Evasion: A Case Study of Pakistan”, MPhil Thesis, *Department of Economics, Quaid-i-Azam University, Islamabad*

Shabsigh, G (1995), “The Underground Economy: Estimation, and Economic and Policy Implications – The Case of Pakistan”, *IMF Working Papers*, WP/95/101

Tanzi, V. (1980), “The Underground Economy in the United States: Estimates and Implications”, *BancaNazionale Del Lavoro – Rome*

Tanzi, V. (1983), “The Underground Economy in United States: Annual Estimates, 1930-80”, *IMF Staff Papers*, Vol. 30 (2): 283-305

Yasmin, B. and H. Rauf (2003), “Measuring the underground Economy and its Impact on the Economy of Pakistan”, *The Lahore journal of Economics*, Vol. 9 (2): 93 – 103

Appendix Table
Estimates of Underground Economy by Different Studies

| Year | Qasim (2011) | Arby, Malik, and Hanif (2010) | | | Gulzar, Junaid, and Haider(2010) | | | | | Kemal (2007) | | | Ahme and Hussain (2006) | | Bushra and Rauf (2003) | Kemal (2003) | Iqbal, Qureshi and Mahmood (1998) | Aslam (1998) | Ahmed and Ahmed (1995) | Shabsigh (1995) |
|------|--------------|-------------------------------|-------|-----------|----------------------------------|------|-------|----------|-----------|--------------|------|------|-------------------------|------|------------------------|--------------|-----------------------------------|--------------|------------------------|-----------------|
| | Monetary | ARDL Model | MIMIC | Elec Cons | Elec Cons | DOLS | MIMIC | Monetary | Labor app | Eq1 | Eq2 | Eq3 | Eq1 | Eq2 | Monetary | Monetary | Monetary | Monetary | Monetary | Monetary |
| 1960 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 51.6 | 60.2 | | ... | ... | 29 | 52 | ... |
| 1961 | | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 44.8 | 51.3 | | ... | ... | 29.3 | 55.1 | ... |
| 1962 | | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 40 | 45.1 | | ... | ... | 31 | 54 | ... |
| 1963 | | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 36.3 | 40.4 | | ... | ... | 29.4 | 47.1 | ... |
| 1964 | | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 33.4 | 37.2 | | ... | ... | 30.5 | 45.7 | ... |
| 1965 | | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 31 | 35.2 | | ... | ... | 33 | 49.6 | ... |
| 1966 | | 24.4 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 29 | 33.8 | | ... | ... | 31 | 40.3 | ... |
| 1967 | | 29.2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 27.3 | 32.9 | | ... | ... | 37 | 45.2 | ... |
| 1968 | | 28.8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 25.7 | 31.7 | | ... | ... | 35 | 39.7 | ... |
| 1969 | | 33.1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 24.2 | 30.2 | | ... | ... | 41 | 45 | ... |
| 1970 | | 36 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 22.7 | 27.9 | | ... | ... | 40.6 | 44.8 | ... |
| 1971 | 22 | 32.3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 21.2 | 25.1 | | ... | ... | 32.4 | 36.9 | ... |
| 1972 | 23.04 | 29.8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 20 | 22.5 | | ... | ... | 44.4 | 37.2 | ... |
| 1973 | 22.85 | 29.3 | 29.3 | ... | ... | 27.7 | 31.8 | ... | ... | ... | ... | ... | 18.8 | 20.4 | | ... | 20.2 | 42 | 36.4 | ... |
| 1974 | 24.01 | 27.1 | 29.5 | ... | 30.7 | 26.6 | 31.6 | ... | ... | 16.3 | 38 | 22.4 | 18.3 | 19.3 | 13.8 | 20.3 | 21.6 | 34.7 | 36.9 | ... |
| 1975 | 22.18 | 25.9 | 29.8 | 1.2 | 38.3 | 27 | 32 | ... | ... | 15.7 | 33.1 | 21.4 | 18.1 | 18.8 | 16.2 | 19.4 | 24 | 30.6 | 32.8 | 20.7 |
| 1976 | 24.03 | 28.4 | 29.8 | 2.8 | 43.4 | 27.5 | 32.5 | ... | ... | 17 | 31.6 | 23.4 | 18.4 | 19.3 | 15.1 | 21.2 | 24.2 | 27.1 | 33.3 | 22.9 |
| 1977 | 23.69 | 27.9 | 29.7 | 5.5 | 46.3 | 27.1 | 32.1 | ... | ... | 16.8 | 30.9 | 23 | 19.3 | 21.1 | 16.2 | 20.8 | 26.2 | 27.5 | 32.1 | 22.1 |
| 1978 | 28.11 | 29.2 | 29.7 | 5.1 | 54.8 | 27.1 | 32.1 | ... | ... | 18.9 | 34.9 | 26 | 21 | 24.6 | 17.6 | 23.5 | 26.2 | 46.3 | 35.5 | 22 |
| 1979 | 30.95 | 31.1 | 29.6 | 7.9 | 56.5 | 26.8 | 31.8 | ... | ... | 21.1 | 39.2 | 29.2 | 22.5 | 28 | 19.3 | 26.4 | 29.8 | 46.7 | 38 | 22 |
| 1980 | 33.47 | 33.3 | 29.7 | 7.9 | 50.1 | 26.3 | 31.3 | ... | ... | 22.6 | 45.6 | 31.4 | 24 | 31 | 20.9 | 28.2 | 32.9 | 52.6 | 45.3 | 22.5 |
| 1981 | 31.6 | 33.1 | 29.8 | 9.6 | 47.8 | 26.2 | 31.2 | ... | ... | 21.5 | 43 | 29.8 | 25.2 | 32.9 | 21.5 | 26.9 | 35.7 | 45.3 | 47.1 | 24.2 |
| 1982 | 38.95 | 31.6 | 29.7 | 12 | 51.5 | 26.4 | 31.4 | 36.2 | ... | 24.2 | 47.8 | 33.8 | 25.8 | 33.1 | 21.0 | 30.4 | 36.1 | 43.1 | 43.7 | 21.9 |
| 1983 | 38.71 | 32.8 | 29.6 | 14.2 | 56.9 | 25.7 | 31.3 | 36.2 | ... | 23 | 42 | 31.9 | 27.2 | 34.2 | 22.5 | 28.8 | 36.6 | 46.8 | 44.7 | 25.6 |
| 1984 | 38.22 | 32.1 | 29.4 | 17.9 | 53 | 21.8 | 31.1 | 36.6 | ... | 24.8 | 49.3 | 34.7 | 27.2 | 33.5 | 23.3 | 31.2 | 39.6 | 42.5 | 45.6 | 23.1 |
| 1985 | 35.77 | 29.6 | 29.4 | 19.4 | 57.1 | 26 | 31.1 | 33 | ... | 21.9 | 39.3 | 30.4 | 27 | 33.1 | 23.9 | 27.4 | 39.6 | 40.2 | 42.1 | 21.6 |
| 1986 | 36.85 | 35.2 | 29.7 | 22.5 | 62.2 | 31 | 31.2 | 34.6 | ... | 24.1 | 44.7 | 33.7 | 27 | 33.2 | 22.0 | 30.3 | 36.9 | 43 | 37 | 21.6 |
| 1987 | 36.22 | 35.4 | 29.6 | 24.5 | 57.7 | 26.6 | 31.1 | 34.2 | ... | 25.5 | 50.5 | 35.9 | 26.6 | 32.9 | 22.6 | 32.2 | 38.9 | 38.8 | 39.2 | 21.4 |
| 1988 | 35.47 | 32.7 | 29.6 | 25.3 | 52.5 | 21.6 | 30.9 | 33.3 | ... | 22.8 | 45.5 | 31.7 | 26.1 | 32.3 | 25.3 | 28.5 | 37.9 | 45 | 38.9 | 24.7 |
| 1989 | 37.26 | 32.5 | 29.8 | 27.5 | 51.4 | 20.5 | 30.9 | 35.6 | ... | 21.9 | 42.7 | 30.4 | 26 | 32 | 23.9 | 27.4 | 33.3 | 46 | 39.1 | 23.3 |

