

The UK's Unobserved Economy: A Preliminary Assessment

I count myself among the growing number of macro-economists who sense that there is something terribly amiss with our profession. Many of the world's most developed economies appear to be experiencing a combination of economic symptoms which traditional theory taught us could not co-exist. Official government statistics reveal that the past decade has been characterised by declining rates of growth in real output and productivity, accompanied by unemployment levels which had been thought to be fatal to any government presiding over them. Concurrently, inflation rates have soared. Stagflation is an economic disease whose causes remain obscure, whose consequences disrupt the social fabric and whose cures remain to be discovered.

Macro-economic models produce such erratic forecasts of real growth and inflation that they can no longer be relied upon as an adequate basis for industrial or governmental planning. Careful studies of declines in productivity conclude that they remain a 'mystery'. Inflation remains stubborn in the face of apparent monetary stringency. And even the complex structural changes induced by energy shocks can explain only a small portion of the stagflation. In short, the widening gap between the predictions of our traditional theories and our measured observations of economic activity induce concern and frustration among professional economists, politicians and citizens. Before we race lemming-like toward the uncharted sea of 'supply side' economics, perhaps we should consider more

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seriously a jestful adage often heard in the corridors of 'Chicago School' economists: 'If the fact don't fit the theory, check the facts'.

The Unobserved Income Hypothesis

In the hope of stimulating an alternative direction for inquiry about our perceived economic maladies, I put forward the unobserved income hypothesis (UIH). Most simply stated, the UIH suggests that systematic biases, unwittingly introduced into our official data, have fundamentally distorted our perceptions of economic realities. A distorted information system leads rational individuals and well-intentioned policy-makers to undertake actions that transform initial statistical illusions into real economic maladies. My conjecture is that the bias introduced into our official information system is closely associated with a large and growing sector of economic activity which has eluded governmental observation.

This unobserved sector (or as some may prefer, unmeasured, untaxed, unofficial sector) includes all economic activity which, because of accounting conventions, non-reporting or under-reporting, escapes the social measurement apparatus, most notably the GNP accounts. The observed sector consists of governmental and private economic activities which are captured by our national income accounting framework.

Where conventional Keynesian and post-Keynesian analysis sought to explain macro-economic phenomena in terms of shifts between the *government* and *private* components of the observed sector, the UIH suggests a more compre-

hensive total income framework is required, which focuses on shifts between the *observed* and *unobserved* sectors.

Unfortunately, the statistics on the observed sector have become so closely identified with what we perceive to be economic reality that we have blindly accepted the medium of observation as the substance of economic activity. It is the official statistics which generate the questions economists feel compelled to answer. It is the official statistics that are the fodder for our forecasting industry, empirical testing and our policy prescriptions. But any systematic discrepancy between our measures of economic activity and reality will generate misguided questions and produce erroneous answers. The UIH suggests that, as a result of higher taxes, increased regulation and eroded confidence in governmental authority, individuals and firms have resorted to legal and illegal means of hiding a growing proportion of economic activity from governmental observers. I view this development as a consequence of a more general principle, which is the social science analogy of the Principle of Uncertainty formulated in the 1920s by the German physicist Werner Heisenberg, who recognised that measurements of physical phenomena would themselves be affected by the very process of observation. In the social sciences, the phenomenon studied is human behaviour involving volition, rather than particles unconscious of the presence of the observer. It is therefore not surprising that measurements of human behaviour, indeed, the behaviour itself, will be strongly and systematically affected by the process of observation. Moreover, since the observer is typically not a detached scientist, but a policy-making organisation, there exists a complex feed-back mechanism between the observer and the object of study.

I contend that even in a fundamentally healthy economy, shifts from the observed to the unobserved sector can induce the perception of declining real

income, rising unemployment, reduced productivity and higher prices. Since these predictions conform generally with the symptoms of economic distress increasingly felt throughout the developed world, we must turn our attention to the task of attempting to estimate the size, and more significantly the growth, of the unobserved sector.

Measuring the Unobserved Economy in the UK

Any attempt to measure a social phenomenon whose *raison d'être* is to defy detection is fraught with complex conceptual and empirical difficulties, and all estimates are bound to contain substantial errors. I wish therefore to review briefly what we know about the unobserved sector in the United Kingdom, and to present some new empirical estimates based on a methodology which has been applied to the United States with some encouraging results.

A useful review of various United Kingdom studies of the phenomenon is found in *Measuring the Hidden Economy* by Michael O'Higgins prepared for the now-dissolved Outer Circle Policy Group. The existing evidence on the UK's unobserved economy consists of:

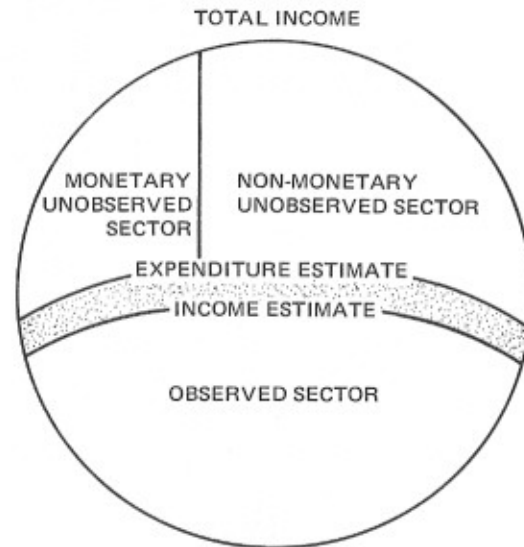
1. anecdotal evidence collected by Stuart Henry (*The Hidden Economy*, Martin Robertson, 1978);
2. an assertion in 1979 by Sir William Pile, former Chairman of the Inland Revenue, that it was 'not implausible' that undeclared income might amount to 7½% of GNP;
3. evidence that a growing proportion of the nation's currency supply is in larger denomination notes;
4. the observation that the ratio of currency to current accounts has shown some increase from 1960 to the mid-1970s;
5. measures of discrepancies between income-based and expenditure-based estimates of national income.

Henry's anecdotal information is incapable of yielding quantitative estimates of the magnitude of the unobserved sector, but it provides a rich source of qualitative material suggesting that unobserved activities have become a way of life in the UK. Pile's estimate has been appropriately characterised by the Inland Revenue as a 'broad judgement' rather than a 'firm estimate' and no further documentation concerning it has been forthcoming. Evidence concerning the growing number of £10 and £20 notes in circulation can largely be explained in terms of rising prices. When UK figures are compared with those of other countries, the UK proportion of large denomination notes seems insignificant. For example, the Netherlands issues notes equivalent to £250 and these notes alone now make up more than 30% of the value of circulating currency. The currency-demand deposit method of estimating the unobserved sector has received widespread attention in the United States, but is completely vacuous. In Italy, notorious for its large and growing unobserved sector, the ratio of currency to current accounts has fallen from .50 in 1960 to .18 in 1979. The income-expenditure measure estimated by the British Central Statistical Office (CSO) merits closer attention.

Discrepancies between income and expenditure

To appreciate the relationship between the CSO measure and the unobserved sector, in *Figure 1* I have depicted a schema of the components of a society's total income. Total income is composed of income measured in the observed sector by various means and income produced in the unobserved sector, further subdivided into monetary and non-monetary components. In the UK, measurement of the Gross Domestic Product by the CSO is conducted by two essentially independent methods which should, in principle, produce identical

FIGURE 1
CONCEPTUAL SCHEMA FOR TOTAL INCOME



estimates of income. The income measure of the observed sector is based to a large degree on data supplied by Inland Revenue; the expenditure measure is derived from industrial and household survey data, most notably from the Family Expenditure Survey. In a recent CSO report, 'A Glimpse of the Hidden Economy in the National Accounts' (*Economic Trends* No. 316, February 1980), K. Macafee revealed that during the mid-1970s the expenditure method of estimation yielded an estimated income considerably in excess of the income measure, and that this initial discrepancy between methods amounted to approximately 4% of GDP. An analogous study by the US Bureau of Economic Analysis reported a \$ 82 billion US discrepancy for 1977, equivalent to roughly 5% of GDP.

These measures of discrepancy essentially reflect the larger degree of under-reporting in the records of income tax than in the records of expenditure. The CSO claims 'that estimates of items of final expenditure are unbiased since there is little reason for *respondents* to the

Family Expenditure Survey or other inquiries to disguise or exaggerate expenditure, *except* in the case of sensitive items of household expenditure' (my italics). But the total non-response rate for the Family Expenditure Survey is 30% and for sensitive groups, such as the self-employed, the non-response rate exceeds 40%. Not only are those engaged in unobserved activities most likely to be among the survey's non-respondents, but respondents who have significant undeclared *incomes* are also likely to understate *expenditures*, assurances of confidentiality notwithstanding. A recent US survey of taxpayer opinion found that the random response technique, which *guarantees* anonymity, produced estimates of evasion four times as high as those yielded by direct questions with only an *assurance* of anonymity. The CSO has been careful to note that both expenditure and income data are under-reported, and that their measure of discrepancy should not therefore be misinterpreted as a direct estimate of the 'black economy'. These caveats have, however, been all too often neglected in journalistic accounts of their findings.

A first attempt at a comprehensive estimate

In short, there simply does not yet exist a comprehensive estimate of the UK unobserved sector. In order to remedy this gap, and to stimulate further investigation into this important subject matter, I present below some preliminary estimates of the unobserved monetary sector in the UK.

The methodology used here represents an adaptation of my 'transactions approach' which has already been used with some promise in both the United States and Canada.

The transactions approach

This approach to estimation, while conceptually straightforward, requires con-

siderable finesse in its empirical implementation for individual countries. Special account must be taken of institutional details concerning both changes in financial institutions and data sources. This transactions method, as described in *Challenge* (New York, November 1979) and *Economisk Debatt* (Volume 8, Stockholm, 1980) is based on a simplifying assumption which has been employed by monetary economists for over fifty years — including Irving Fisher, J. M. Keynes and Milton Friedman. It is assumed that there exists a relatively stable relationship between the *volume* of non-financial transactions and the *income* produced by them. Since the total volume of *non-financial transactions* included monetary transactions undertaken in *both* the observed and the unobserved sector, one can determine the total income which should have been produced by all such transactions. The difference between this *estimated* total income and *observed* income then provides an estimate of *unobserved* income.

The task is to obtain accurate estimates of the volume of non-financial transactions. These can, in principle, be obtained by careful examination of the stock of currency in circulation, its velocity, and measures of the volume of cheque transactions for non-financial purposes. Estimates of currency stock are readily available from published sources. Estimates of currency velocity are based on rates of destruction of soiled or unfit currency, from which average lifetimes of circulating notes can be calculated. Estimates of currency velocity are further adjusted to account for changes in the structure of currency denomination, in the quality of the paper used for money, and in the Bank of England's policy on the destruction of unfit notes. Cheque transactions are estimated largely from bank clearing data, adjusted for intra-bank transfers; direct credit clearings; bank mergers; automated clearing arrangements; giro

accounts; financial transactions; and cash withdrawals. (The Bank of England, the Central Statistical Office, the Interbank Research Organization and the Committee of London Clearing Banks generously provided me with data and institutional details which guided my calculations. I am, of course, solely responsible for any errors in the final estimates.)

Size and growth of Unobserved Sector: preliminary estimates

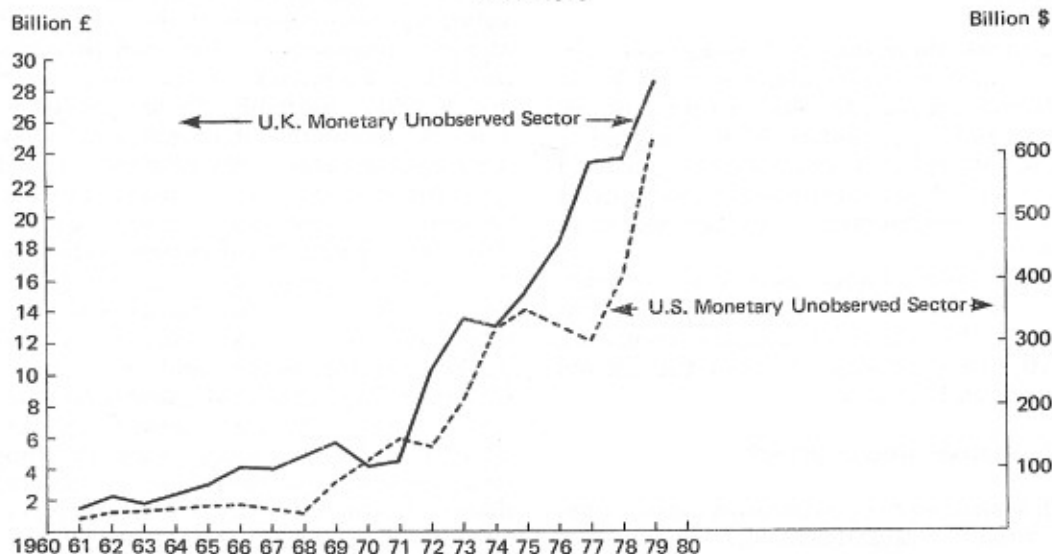
Given the number and complexity of the assumptions required to undertake calculation, these estimates should be regarded as preliminary. These estimates of the *monetary unobserved* sector in the UK are displayed in *Figure 2* along with corresponding estimates utilising a similar approach for the US. The UK estimates suggest a monetary unobserved economy approaching £28 billion in 1979, an estimate twice as high as that implied by Sir William Pile's judgement of 7½%. This estimate compares to

estimates of 27% for the US (Feige, *Ekonomisk Debatt*, 1980) and 19% for Canada (Smith and Mirus, 1981). Given the complexity of the UK data base, and the number of institutional changes which had to be accounted for in order to derive estimates, I would be the first to admit that these figures may be quite sensitive to alternative specifying assumptions and are likely to contain substantial measurement error. Nevertheless, whenever decisions based on judgement were required to apply the calculations, I consistently employed assumptions which would impart a conservative bias to my estimates.

Dramatic growth in the 1970s

Figure 2 reveals that the UK's monetary unobserved sector grew dramatically during the troublesome decade of the '70s, and this growth is similar to that observed in the US. I have already shown that the growth in the US unobserved sector is closely associated with the phenomenon of stagflation. The US

Figure 2
Estimates of the U.K. and U.S. Unobserved Monetary Sector
1960-1979



estimates also provided at least a partial explanation for declining trends in productivity and for the systematic errors forecasts produced by major US macro-econometric models. Whether similar paradoxes for the United Kingdom can be resolved by these preliminary UK estimates remains for further research. To date, I know of no efforts in the UK to estimate the size and growth rates of the non-monetary unobserved sector, but important studies by Kendrick (1979) and Eisner (1980) for the US suggest that the non-monetary unobserved sector is considerably larger than the monetary sector and that it has exhibited a temporal growth pattern not unlike that of the monetary unobserved sector.

The relative growth of the unobserved economy

In *Figure 3*, I present the estimates of the monetary unobserved sector as a percent of official GDP, along with CSO discrepancy measure and the UK average tax rate. The ratio of unobserved to observed activity appears to peak in

1974 after a sustained rise during the early 1970s and shows a decline during the latter half of the decade. To the extent that these estimates correctly capture the time path of the unobserved sector, they suggest that the massive recession and soaring inflation recorded in the official statistics in the mid-1970s might be partially explicable in terms of a statistical illusion induced by the growth of the unobserved sector. Similarly, the apparent recovery between 1975 and 1978 and the diminution of inflation during that period may also be partially attributable to perceptual pranks played by the relative shrinking of the unobserved sector. These conjectures certainly deserve further scrutiny, and it would be highly inappropriate to conclude from the available evidence that the current maladies afflicting the UK economy are merely statistical artefacts.

What tentative conclusions can be gleaned from the foregoing exercise? On the basis of the available evidence, it appears that the unobserved sector in the UK is both so large and so volatile as to have far-reaching implications:

1. The relative growth of the unobserved

Figure 3
Estimated ratio of monetary unobserved income to GDP
1960-1979



¹ Y_u = estimated monetary unobserved income.

² Average tax rate = (tax revenue ÷ GDP) × 100

sector calls into question the reliability of the official statistical apparatus which guides our perceptions of the economic health of the nation and informs our judgements concerning the equitable distribution of its income.

2. Massive shifts between the observed and the unobserved sector which go unnoticed will give rise to governmental policies whose consequences might be quite different from their intent.
3. Social welfare policies which do not take adequate account of the redistributive impact of a sizeable unobserved income may well lead to less equitable rather than more equitable distribution.
4. If all of the income produced in the unobserved sector were subject to the prevailing average tax rate this alone would imply a current revenue loss exceeding £9 billion, implying a massive redistribution of income from taxpayers to tax-avoiders.

Conclusion

I have consciously refrained from the temptation to adduce policy implications from these preliminary findings. Indeed, I have not yet ventured a 'normative' opinion on whether I regard a large and growing unobserved sector as good or bad. To do either at this early stage of inquiry would be both premature and misguided. While I am convinced we are dealing with an issue of considerable significance, we must for the moment content ourselves with the knowledge that we have only scratched the surface of understanding the full implications of the unobserved economy and that our current methods for measuring its growth and determining its economic, social and political impacts are still in their infancy. Such a message will not hearten impatient policy-makers with short-term political horizons. My hope is that it will stimulate my professional colleagues to lend their talents to further our knowledge of this important area of inquiry.