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Studies in Contemporary Economics

The Economics of the Shadow Economy

Proceedings of the International Conference on the Economics of the Shadow Economy Held at the University of Bielefeld, West Germany October 10–14, 1983

Edited by
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INTRODUCTION

Robbery, larceny, blackmail, fraud, and other crimes with economic motives are likely to be as old as mankind, and the evasion of taxes and economic regulations can be assumed to begin with the introduction of taxes and economic regulations. Thus the shadow economy is certainly not a new phenomenon. However, economists did not pay much attention to it until quite recently. P. GUTMANN in his pioneering article "The Subterranean Economy" (Financial Analysts Journal, Nov/Dec 1977, p. 24-27) was first to point out that unreported economic activity cannot (or, at least, can no longer) be considered as a "quantité négligeable". Challenged by GUTMANN's hypothesis many economists have then tried to assess the quantitative and qualitative importance of the shadow economy (commonly also known as the underground, or subterranean, or black, or unreported economy, and by other names). There seems to be wide agreement nowadays that the shadow economy has not only reached a substantial portion of total economic activity in both Eastern and Western countries but that it is also growing at rates which can no longer be experienced in the official sector.

The existence of a considerable volume of unreported economic activities implies that important macroeconomic variables are biased in the official statistics. The rate of unemployment, for example, may be over-estimated while production figures, on the other hand, tend to be underrated. The government could thus be mislead and choose inadequate policies.

The underground economy seems to be ubiquitous in all industrialized countries and so are the reasons for its existence: a high and rising tax burden, a decline in tax moral, a wide-spread scepticism toward official politics, administrative regulations imposed on all kinds of economic activity, and a substantial reduction in weekly working hours. Furthermore, a "normal" criminal, i.e. a person whose economic activity is per se against the law, will of course also perform in the underground.

The growing interest in the underground economy has persuaded the two editors of this volume to organize an international conference on "The Economics Of The Shadow Economy" which was held at Bielefeld University from October 10 - 14, 1983. The conference was sponsored by the "Zentrum für interdisziplinäre Forschung (ZiF)" of Bielefeld University and by the "Deutsche Forschungsgemeinschaft".

More than sixty scholars from Europe, Israel and the United States met for five days to discuss some forty papers presented at this conference. Unfortunately, it is impossible to include all contributions in the present volume; it is hoped, however, that the actual selection made gives a clear picture of the current "state of the art".

The structure of this volume is such that there are six main categories making up six chapters:

Conceptual Questions
Empirical Evidence
Theoretical Approaches
Policy Implications
Household Production
Eastern Countries

It is very well possible that some of the contributors to this volume would have liked a (hopefully slightly) different allocation of their own paper to one of the six categories above. So may some of our readers. In all these cases, the editors ask for generosity.

The first contribution to chapter 1 starts with a nice quotation from Bert Brecht's "Dreigroschenoper". P.M. GUTMANN's paper takes a critical look at the research on the phenomenon of the shadow economy done during the last seven years, and it also points at areas for future research. The author ends with a plea to re-examine some of the statistics we use and to revise certain parts of economic theory. Otherwise, wrong analysis, wrong conclusions, wrong policy prescriptions will result.

E.L. FEIGE puts forward a taxonomic framework that distinguishes economic, fiscal and social concepts of income. Issues in macroeconomics typically revolve around the notion of total economic income (or parts of it), whereas issues in public finance normally refer to the concept of total fiscal income (or one of its components). Unrecorded market income, for example, is the concept relevant to those macroeconomic investigations that attempt to determine an economy's "true" rate of growth or the "true" unemployment rate. Shifts from the reported taxable income sector into the unreported taxable income sector are assumed to reflect tax evasion. Starting from this taxonomy, the author is able to introduce new concepts of fiscal deficits which make it possible to distinguish between the effects of counter-cyclical policy and the effects of non-compliance (the case where some taxable income is not reported).

In B. STEIN's paper yet another taxonomy is developed. STEIN proposes that subterranean markets be divided into two basic categories: Those for goods and services that are intrinsically illegal and those for goods and services that are legal, but where transactions are constrained by regulations. Productive activities in the first category are illegal; therefore, no taxes will be paid. However, as the author points out, this does not mean that these activities are (completely) untaxed nor does it mean that such activities are unregulated (e.g. organized crime).

The last contribution to chapter 1 focuses entirely on per se illegal activities. D.W. BLADES' analysis suggests that for the U.S. seven types of illegal transactions could, in principle, be included in the national accounts. In total, these activities amounted to 2 1/2 % of United States' GDP in 1975. Due to the lack of reliable data in this area, the author, however, dismisses the idea that illegal activities should be included in the national accounts on a regular basis.

In the first paper of chapter 2, J. SKOLKA summarizes several recent Austrian studies on the size of the underground economy, the tax loss caused by the hidden economy, and the extent of do-it-yourself activities, moonlighting and business off the books in the construction of family houses. SKOLKA reports, for example, that the estimated volume of the underground economy amounted to 4 % of Austria's GDP for the year 1976. The share of the unofficial economy in total costs of an average family house was estimated to be around 4/10.

H. WECK-HANNEMANN and B. FREY discuss and apply various methods designed to measure the shadow economy. Among the methods presented are the participation rate approach and the currency demand equation approach which have been frequently used, and also a soft modelling approach as well as an interview survey among Swiss experts. Most of the methods indicate that the Swiss hidden economy has expanded between 1960 and 1980. The currency demand method suggests for 1975 a size of 3.5 % of official GNP, a figure that comes close to the corresponding figure for Austria's underground economy.

G.A.A.M. BROESTERHUIZEN investigates in his contribution the bias in the level and the growth rate of GDP caused by under-reporting income to the tax authorities. His findings are that for the Netherlands, the bias in the level of GDP amounts to not more than 5 % and the bias in the annual growth rate of GDP does not exceed 0.5 %.

It has sometimes been suggested that there is an inverse relationship between the developments in the official and the hidden economy. This hypothesis is the subject of M. O'HIGGINS' analysis. A priori, one might expect a positive correlation between the size of the underground economy and macroeconomic indicators such as inflation, unemployment, and, to some extent, economic growth. The empirical data which the author has been able to use give, however, less clear-cut results. In addition, there are important differences among the countries considered. While there seems to be a positive relationship between the sizes of the official and the unofficial economy and also between the unofficial economy and the rate of inflation, the effect of unemployment is left undecided.

P. PESTIEAU reports an interview survey on the participation of Belgians in the hidden economy. This survey not only sheds light on the absolute amount of supply and demand of various types of unreported labour, it also shows that lower income groups supply more black labor than higher income groups. Moreover, the probability of demanding black labor increases with income and, within a given income group, decreases with years in school.

Closely related to PESTIEAU's research is an investigation by J.D. SMITH which attempts to measure the value of purchases households made from informal vendors (i.e. vendors who do business off the books) during 1981. In this investigation, approximately 2.100 households were asked whether they had possibilities of earning extra money, and, if so, what types of commodities they were trading in. They were also asked to point out the major advantages and disadvantages of buying from informal vendors, and whether they intended to buy more or less from them in the near future. Another focus in SMITH's investigation was the role of cash in hidden transactions. The author reports that in his study the proportion of transactions settled by check was about the same as the proportion settled by cash.

The theoretical papers grouped together in chapter 3 are either macroeconomic or microeconomic analyses. The two papers by B. BENTAL, U. BEN-ZION, A. WENIG and by V. GINSBURGH, Ph. MICHEL, F. PADOA SCHIOPPA, P. PESTIEAU focus on macroeconomic policy in the presence of an unofficial sector of the economy. The model analyzed by BENTAL et al. consists of two sectors producing the same commodity: In the official sector production is performed by firms that employ skilled and unskilled workers; in the unofficial sector production is carried out by unskilled laborers who are self-employed. Government expenditures divide into consumption of commodities produced in the legal part of the economy and transfer payments to those who are not employed in the official economy. The government's budget always has to be balanced.

Within this setting the authors study the effect of various government policies on the sizes of the official and the unofficial sector. For the effects of fiscal policy the structures of the labor markets in both the official and the unofficial sector are crucial. If wages, for example, are competitive in both sectors an increase in government expenditures has the expected effect of stimulating employment in the official sector. However, if the real wage for the unskilled is exogenously given, or if the unskilled have the choice to work in the official sector, to engage in shadow activities with the risk of being fined, or to completely stay out of the underground, then the government cannot affect the size of the official sector by manipulating public expenditures. In most cases considered an increase in unemployment compensation is likely to reduce employment in the official sector.

The two-sector model developed by GINSBURGH et al. is similar to the first class of models. This time, however, the commodity price (there is just one homogeneous good) is fixed as is the wage rate in the official sector. In the unofficial sector, the wate rate is flexible down to a given reservation wage. Within this framework, various positions of the two sectors can be expected to co-exist. For example, it is possible that both sectors are in classical unemployment, or both are in Keynesian unemployment, or one is in a state of classical unemployment, while the other is in a situation of Keynesian unemployment. For all these regimes the authors analyze various government policies (e.g. change of government consumption, change of the tax rate, change of the fixed wage rate) and their impact on the official sector, the unofficial sector and the overall state of the economy.

P. DE GIJSEL's neoclassical model considers firms that produce a single legal output but have the choice to employ black or legal labor. Workers can supply their working time officially or unofficially. For both firms and workers there is the risk of being caught and fined by state authorities, once they co-operate in the shadow. Under the hypothesis that both firms and workers maximize their expected profit and their expected utility respectively, optimal demand for and supply of legal and illegal labor hours is determined. Then effects of changes in the tax rate, in the official and unofficial wage rate, and in the probability of being caught and fined are analyzed.

A.J. ISACHSEN, S.O. SAMUELSON, and St. STRØM's study of tax evasion behavior examines two types of tax evasion: Underreporting of ordinary income and the supply of black labour. In order to arrive at clear-cut results the authors introduce a particular utility function with decreasing absolute risk aversion and constant relative risk aversion and a specification of the tax function which reflects Norwegian tax rules. For these functional forms, it is found that an increase in the marginal tax rate reduces the number of working hours spent in the shadow, an ALLINGHAM/ SANDMO-type of result. The paper ends with an econometric analysis based on Norwegian data. Now it is shown that an increase in the marginal tax rate has a positive rather than a negative impact on the supply of black labour, a result that conforms more to our intuition. The underlying utility function in this investigation differs from the one in the theoretical model in that it shows constant absolute risk aversion and increasing relative risk aversion.

The contribution by Y. BENJAMINI and S. MAITAL is a behavioral approach to the phenomenon of individual tax evasion. The authors are dissatisfied with the conventional expected-utility model of optimal tax evasion. They modify this approach by considering social stigma and by including a subjectively perceived probability of being caught by the tax authorities (which may be different from the actual audit probability). The authors also construct a game-theoretical model of tax evasion that takes into consideration the obvious fact that the more tax evaders a taxpayer knows, the more likely he is to evade taxes himself.

This aspect of social contagion which leads to an erosion of social norms is also the topic of E. SCHLICHT's note. SCHLICHT argues against the view that a slightly increasing incentive to unlawful behavior will generally lead to a slightly lower degree of law-obedience. Using the concept of reference group behavior, the author shows that starting from a stable situation of law-obedience, at a certain point, a cumulative breakdown of morals may be initiated by just a small increase in the incentive to ignore the existing laws.

Is tax evasion necessarily detrimental to society's welfare or could there be reasons for the tax authority to tolerate tax evasion? That the answer to the first question is not an unconditional "yes" is demonstrated in the first paper of chapter 4. Actually, as F.A. COWELL points out in his analysis there may be several reasons why a tax authority could be indifferent to or even encourage income tax evasion. This seems to be counterintuitive. However, one has to bear in mind that the effect of an increase in the rate of investigation and of a reduction in the fine for tax evasion on the individuals' utilities is not symmetrical. Suppose, for example, that the actual fine is increased while the rate of auditing is decreased such that the expected fine (which is the product of the two) remains constant. Then clearly total revenue, i.e. taxes and fines collected, is constant. Yet if risk aversion is low then tax evasion increases and so do the individuals' utility levels.

The relationship between tax evasion policies and welfare effects is also studied in I. HANSSON's paper. Within a two-sector general equilibrium model with one sector evading taxes and the other being taxed, two government policies are examined: One, which effectuates an increase in the disutility from labor in the tax evading sector, and one which aims at decreasing productivity in this sector. The increase in disutility from work may, for example, be caused by a higher probability of detection or (and) higher prison penalties. A decrease in productivity can be achieved by enhancing the frequency of tax audits so that firms are forced to spend more resources on concealing their activities. The author shows that while the welfare effects of the first government policy are ambiguous, the second policy clearly diminishes overall welfare.

In order to determine the growth rate of the money supply in the Federal Republic of Germany, the Deutsche Bundesbank takes into account, among other indicators, the expected growth rate of the production potential and the expected change in the utilization of capacities. Since due to the growing unofficial sector, official statistics are systematically distorted, the question arises how monetary policy should react to this phenomenon. Or, to put it more precisely, the question is whether money supply targets should take a growing hidden economy into consideration. Specifying a money demand function and using quarterly data for Germany for the period 1965 to 1982, E. LANGFELDT arrives at the conclusion that in spite of the expanding underground sector, the money authorities should continue to pursue a steady and pre-announced expansion of the money supply.

Chapter 5 is devoted to household production. In the United States there was a large decline in both the relative level and the absolute level of employment of domestic servants during the period 1964 to 1976. An obvious question is whether the statistical decline of household employment is a real one or whether more and more domestic workers have disappeared in the shadow. The purpose of E. WOLFF's investigation is to show that the decrease in domestic employment during the above period can be adequately explained by a standard consumer demand model using variables such as the price elasticity of demand, the cross-elasticity of demand and demographic factors (family size, number of families).

WOLFF's regression results demonstrate that the ratio "price index of household workers to consumer price index" has a significant negative influence on the demand for household employment. WOLFF's analysis should caution us to regard each and every aggregate ratio that "fits in with our picture" as an indicator for an expanding shadow economy.

Household production not only comprises the production of goods and their maintenance, it also encompasses the production of personal services which range from child care to the care for handicapped persons and older people. The data which W. GLATZER and R. BERGER use for their investigation into the productive activities of private households in the Federal Republic of Germany reveal that the composition of a particular household, i.e. the number of family members and the relationship among them is an important determinant for its productive performance. Consequently, changes in the distribution of household types (from four-person households to two-person or even one-person households) will have immediate repercussions on the overall volume of household production. The authors have found that income level, social class and age have some influence, but on the whole these characteristics have a lower explanatory power than household composition.

Our last chapter takes a look at socialist countries in Eastern Europe. The role which the so-called second economy plays in socialism is quite different from the role of the underground economy in capitalist countries. In socialist countries the second economy is not illegal per se. On the contrary, the socialists state needs the second economy because the official sector is apparently unable to meet the demand of both the population and the official enterprises. However, as P. GALASI points out in his contribution, the socialist state expects the second economy to be subordinate to the first. In other words, the shadow sector is expected to play an auxiliary and (or) a complementary role in the production of goods and services. Consequently, the state does not foster the development of the second economy beyond its determined auxiliary role. The second economy, therefore, remains a sphere of small-scale production with stagnant productivity. It is not surprising that under such restrictive conditions parts of the second economy disappear in the shadow, thus achieving a status of illegality.

H. BREZINSKI's paper on the second economy in the USSR is complementary to GALASI's analysis. BREZINSKI notes that the productive activities of the second economy have clearly increased the standard of living in the Soviet Union. This has led to a stabilization of the

Soviet leadership which is, of course, in the interest of the communist party. Efficient production in the second economy has also made it possible for the government to continue with a policy that gives priority to heavy industry, the space industry, and the military sector. The shortages ensuing from such a policy mainly occur in the production of consumer goods and this exactly is the area where the second economy is most active (agricultural production, luxury goods, repair services). In spite of all this, however, it should be kept in mind that the existence of a second economy constitutes a violation of the principles of socialist ethics. There apparently is a clash between the long-term goals of communism and economic efficiency.

W. BRUS and K. LASKI's theoretical analysis is based on the observation that in a socialist economy spending money is difficult, since shortages of commodities are the rule. The subject of this last paper is the phenomenon of repressed inflation under socialism. Here, excess demand for consumer goods does not lead to appropriate price increases to restore equilibriums. In the presence of the second economy the inflationary gap could be closed if prices rose sufficiently. Apparently, prices do not rise appropriately in the second economy in order to close the gap. The authors provide quite an interesting explanation why this is so. They argue that the hope of money holders to spend their earnings eventually in the first economy where lower prices prevail, creates speculative money balances. These speculative money holdings rise when the price difference between the second and first economy widens. On the other hand, an increasing rate of time preference induces a fall in these speculative holdings.

At the end of this introduction it is a great pleasure to express our thanks. First of all, we are greatly indebted to Deutsche Forschungsgemeinschaft and Bielefeld's Zentrum für Interdisziplinäre Forschung for providing the funds for this conference. We also gratefully acknowledge the help and understanding of SPRINGER Verlag for making this volume possible. Next we wish to thank all contributors to this volume for their friendly co-operation. We are also greatly indebted to Christina Gerth, Jochen Jungeilges and Renate Wellhausen for their help and assistance during the preparation of the Bielefeld conference. Furthermore, we are very grateful to Karin Alfsmann who typed the whole manuscript so skilfully and to Ronald Grzybowski who prepared the authors' index. We also have to thank Konrad Noltenhans, Gerald Uhlich, and Martin Straub for carefully reading the proofs of the papers. Last

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