

The “underground economy” and BLS statistical data

Critics have argued that BLS employment, price, and productivity indexes are significantly affected by unreported economic activity: Have they made their case?

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Over the past several years, a large number of books and articles on an “underground economy,” have appeared.¹ There is no generally agreed-upon definition of the activities that constitute this “irregular economy,” but a common element is the absence of normal business recordkeeping, or—if records are kept—their unaccessibility, concealment, or falsification for tax avoidance or other reasons. Because the existence of an underground economy usually implies the existence of unrecorded economic activity, the idea has evolved that government statistics may be missing a significant portion of economic activity.

If data are deficient because of the existence and growth of an underground economy, then we may have erroneous ideas about economic trends in employment, output, productivity, and inflation. Establishing the *existence* of a subterranean economy, however, does not necessarily prove that government statistics are invalid. To determine whether a particular government statistic is affected also requires careful consideration of the way the data are gathered—the nature of the survey, what is known about responses to the survey, and the relation between economic activities that

may be covered by the survey and those that are not. Our review of the literature on the underground economy has convinced us that many of the critics of government statistics have simply not taken this necessary step. In many cases, they have done little more than form some estimate of the size of the underground economy and then jumped to the conclusion that various pieces of government statistical information must be in error.

Careful consideration of some government surveys that have been attacked in this literature suggests that most of the claims of error reveal misunderstandings of vital aspects of the surveys. In short, the “case” for error in government statistics is not nearly so strong as some critics make it out to be.

This article evaluates statements made about the effect of the underground economy on Bureau of Labor Statistics (BLS) data. It reviews the pertinent literature on the underground economy, and examines critically charges that various BLS data series may be flawed. No new empirical work has been undertaken, and no new data collection has occurred. Further, no attempt has been made to assess the methods by which various writers have estimated the size of underground Gross National Product because this ground has been well covered by others.² Finally, the large literature on tax avoidance and the potential loss of government revenues, a major thrust of much of the underground economy literature, is covered only to the extent that it is directly relevant to BLS data measurement.

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Defining the underground economy

As indicated, there is no general agreement as to which activities constitute the underground economy.³ The narrowest view considers only government revenues lost when individuals or firms engaged in legal pursuits fail to comply with tax laws. A wider perspective includes economic activity ordinarily included in official government statistics but which is excluded because those involved have reasons for false reporting. A still wider perspective includes illegal activities (proscribed drug sales, prostitution, and so on), treating them analogously to legal employments and outputs. The broadest perspective brings traditionally nonmarket activities (such as housework) into the official statistical framework.

The approach taken in this article is pragmatic. Each BLS data series has a concept being measured. We concentrate on examining the extent to which evidence on the underground economy—by any definition—implies that these concepts may be mismeasured. We also look at whether the statistical concepts themselves give a distorted view of the “true” economic situation.

The principal BLS statistical series singled out by critics are the Consumer Price Index, series computed from the Current Population Survey (such as the unemployment rate, labor force participation rates, and employment levels), and the productivity measures. Series derived from the establishment-based survey of employment, hours and earnings, and so on, are mentioned only occasionally by critics, and then most often with respect to their use in compiling the productivity data. The Producer Price Index, wage measures such as the Employment Cost Index, and other data series are not specifically mentioned.

Analysis of how any series might be affected by the existence of a large or growing underground economy is impossible without an understanding of how that series is constructed and what it is intended to measure. Thus the following discussion begins with a definition and brief description of each series, and then turns to an evaluation of critics’ positions.

Consumer Price Index

The Consumer Price Index (CPI) is a fixed-weight index of the prices of goods and services purchased by a particular population. One index refers to “all urban consumers” and the other is a subset consisting of “urban wage earners and clerical workers.” For both indexes, the expenditure weights currently in use were taken from the 1972–73 Consumer Expenditure Survey (CES). (Weights have been updated at approximately 12–14 year intervals in the past.⁴) This survey was the first to include a diary component along with the traditional quarterly interviews of consumers, in order to capture more accurately small, frequently purchased commodities and services.

Total consumer expenditures are grouped into strata of similar items; from these strata, probability samples of items

to be priced for the index are drawn. Prices are collected in retail outlets drawn from another continuing survey of consumers, the Point of Purchase Survey (POPS).⁵ The selection of items for which prices are collected is done by probability sampling within the outlets and the entire process is controlled in such a manner as to minimize biases from quality changes.

There are three places in this process where the presence of an underground economy might influence the index:

1. The expenditure weights might be wrong, either because respondents to the CES deliberately or through forgetfulness misreported certain categories of expenditure (possibly including purchases from the underground economy), or because the composition of consumer expenditures has shifted toward underground purchases and is no longer accurately reflected by the weights.⁶ The bias this could create in the index depends on the extent to which expenditures are misreported *and* on the sensitivity of the index to “weighting effects.”

2. The selection of outlets from the POPS may be distorted. A majority of those few retailers excluded from the selection process used for choosing CPI outlets are dropped because their addresses turn out to be erroneous. Additionally, it is sometimes apparent that a retail outlet picked up in the POPS is unlikely to be locatable for repeated pricing (for example, college students painting houses or the person who sells watches on the street). It is then excluded from the outlet sample. These excluded cases may very likely be associated with “underground” transactions.

3. The goods and services that BLS prices in retail outlets may not necessarily be representative of all goods and services which are sold in those outlets (for example, plumbers who work during the day at one price and moonlight at another). Note, however, that BLS does not use the price *levels* in particular retail outlets, but only the price *changes* for comparable items from one month to the next. Only if prices in the underground sector are falling (or rising) relative to normal prices for the same goods and services will this factor make a difference. Thus, for the accuracy of price indexes for individual items generally, it is not the existence of an underground sector that matters, but whether the prices in that sector are moving differently from those in the measured sector. (There is a qualification to this to be discussed later.)

The accuracy of CES weights has been considered in several studies. Independent estimates of consumer expenditures are available from the Personal Consumption Expenditure (PCE) data in the Gross National Product Accounts compiled by the U.S. Department of Commerce. The PCE data are intended to represent the market value of goods and services purchased by private individuals and nonprofit institutions in the United States. The estimation procedure for the national accounts is considerably more roundabout than that used in the CES. Roughly, production and sales values from economic censuses and other sources, and various estimates

of values of services are traced through the economy using input-output analysis, with cost and profit margins added at each stage.⁷

In principle, the expenditures measured by the CES should be exhaustive, containing everything measured in the PCE plus that part of the underground economy missed by the Bureau of Economic Analysis. However, for those components of expenditure gathered in the interview component of the expenditure survey, recall is a problem, and those expenditures made in small amounts (for example, food and drink, personal care) tend to be underreported, even in the survey's diary component.

Robert Pearl compared the 1972-73 CES results with revised detailed PCE estimates for 1972.⁸ He stresses that a number of incomparabilities and conceptual disparities exist between the two bodies of data, and that the PCE estimates are "subject to various errors and biases and considerable caution must be exercised in interpreting the results." Pearl found that, on average, expenditures estimated by the CES were 85-90 percent of the same categories of expenditures estimated by the PCE, with some categories far below that. (See table 1.) Two categories where the effects of the underground economy might most likely turn up—household

services and home repairs and alterations—were both 4 percent greater in the CES than in the PCE estimates.

In view of the potential errors in both sets of estimates, it is not clear that the PCE is a reliable standard by which to measure the CES. It is even more unclear whether the differences reflect underground activity. Judging statistical significance of differences between the CES and PCE data is handicapped by PCE variance estimates not being available. However, 21 of 47 of the ratios in Table 1 indicate CES-PCE differences of 10 percent or less. There also remain small unreconcilable discrepancies between the definitions of categories in the two surveys.

Data from the diary component of the continuing CES has just been released by BLS. Comparisons with the 1972-73 CES data and with current PCE data may shed additional light on this issue. Many of the more interesting categories of expenditure for this inquiry, however, are only included in the interview component of the continuing CES, which will not be available until late this year.

Even if there are errors of moderate size in the expenditure estimates, past research on "weighting effects" indicates that it takes very large, disproportionate misreporting by categories to have an appreciable effect on the measurement

Table 1. Ratio of consumer expenditures in the 1972-73 Consumer Expenditure Survey to those in the 1972 Personal Consumption Expenditures estimates

Category	Ratio	Category	Ratio
Food purchases for home use . . . . .	.85	Other larger items (floor coverings, drapes, slipcovers, etc.) . . . . .	.81
Meat or poultry	1.02	Household linens (sheets, tablecloths, towels, etc.) . . . . .	.77
Eggs . . . . .	.95	Smaller items (dinnerware, cookware, luggage, decorative items, hand tools, etc.) . . . . .	.59
Fresh milk . . . . .	.92	Automobile and other vehicle expenses	
Bread and other fresh baked items . . . . .	.88	Vehicle purchase	1.01
Food staples (flour, sugar, shortening, canned milk, etc.) . . . . .	.59	Gasoline and oil . . . . .	.98
Fruits—fresh or processed . . . . .	.86	Tires and accessories . . . . .	.75
Vegetables—fresh or processed . . . . .	.74	Vehicle repairs and maintenance . . . . .	.91
Purchased meals or snacks	1.07	Vehicle insurance . . . . .	.93
Alcoholic beverages . . . . .	.36	Housing expenses	
Small nonfood expenditures		Rent	1.06
Products		Mortgage payments and taxes	1.02
Items purchased mainly by homemaker (laundry and cleaning products, paper goods, etc.) . . . . .	.82	Home repairs and alterations	1.04
Items likely to be purchased by various members (toiletries, film, reading material, etc.) . . . . .	.55	Utility costs (electricity, gas, water, telephone, etc.)	1.01
Services		Fuel costs (fuel oil, bottled gas, coal, etc.) . . . . .	.76
Mainly responsibility of homemaker (laundry services, household help, etc.)	1.04	Health expenditures	
Dispersed responsibility (hair care, shoe and watch repairs, sporting events, etc.) . . . . .	.54	Hospital services . . . . .	.76
Clothing expenditures . . . . .	.73	Physician, dental, and other professional services . . . . .	.98
Larger items (coats, suits, etc.)	1.01	Drugs and medicines . . . . .	.96
Medium and smaller articles (dresses, shirts, underwear, hosiery, etc.) . . . . .	.66	Medical supplies and appliances . . . . .	.72
Accessories (ties, handbags, gloves, etc.) . . . . .	.72	Health insurance premiums	1.10
Footwear . . . . .	.77	Other expenditures	
Household appliances		Education tuition and fees . . . . .	.82
Major appliances (refrigerators, washers, television, etc.) . . . . .	.96	Trips and vacations	1.02
Minor appliances (toasters, hair dryers, radios, etc.) . . . . .	.75	Public transportation . . . . .	.53
Household furnishings		Miscellaneous	
Furniture . . . . .	.91	Large items (pianos, organs, funeral costs) . . . . .	.96
		Moderate items (musical instruments, sporting equipment, appliance repairs) . . . . .	.81
		Watches and jewelry . . . . .	.48
		Moving and storage costs . . . . .	.51

SOURCE: *Reevaluation of the 1972-73 Consumer Expenditure Survey: A Further Examination Based on Revised Estimates of Personal Consumer Expenditures.*

Technical Paper No. 46 (U.S. Department of Commerce, Bureau of the Census, 1979), pp. 7-8.

of the rate of inflation. Several researchers, among whom are Robert Michael and Robert Hagemann, have calculated CPI-type indexes for a wide variety of different expenditure weights. While some differences in levels show up over a period of time, they are small relative to the overall rate of inflation. In reconciling differences between the CPI and the PCE Deflator (the index used by BEA to deflate the PCE), Jack E. Triplett compares current- and base-weighted indexes and also finds that alternative weighting patterns cause very small differences in measured rates of inflation (less than two-tenths of a percentage point). Steven Braithwait compared a fixed-weight index with an estimated cost-of-living index in which weights implicitly shift with changing expenditure patterns and found very small deviations from this source for the aggregate index.

These studies do not mean that weighting never matters in a price index measurement. It does. The studies indicate that measured price movements are relatively insensitive to *actual* patterns of weights that are drawn from a variety of expenditure data sources, and that reflect weight differences that actually occur between groups of consumers and in different periods. Accordingly, the probability that weighting errors from under-reporting will appreciably affect price indexes is very low.

The potential for systematic bias in the Point-of-Purchase Survey is difficult to assess. As mentioned earlier, some of the retail outlets provided by respondents in the POPS can not be traced when an attempt is made to locate them for price collection. It is impossible to determine, however, whether this is because they are part of the underground economy, the normal fluidity of the regular economy, or simply, erroneous reporting of addresses by respondents.

We are aware of little direct evidence on the price levels in the underground economy, much less on the rate of change relative to regular economy prices. Edgar Feige and Jeffrey Nichols infer that prices are 20–40 percent lower underground.⁹ Feige reasons that most underground transactions go untaxed, and current marginal tax rates are roughly in the 20–40 percent range for relevant underground suppliers. Consequently, he feels that sellers would be willing to pass along about that much advantage to buyers. To reach this conclusion, Nichols relies on his own informal survey of purchases of commodities such as fruits and vegetables, denim jeans, small appliances, plumber's and electrician's services, and so on, in New York City.

Carl Simon and Ann Witte claim that lower prices in the underground economy have caused us to overstate inflation.¹⁰ Their only analysis of price measurement, however, is with respect to the fencing of stolen goods.¹¹ They claim that "price discounts are substantial with retail and wholesale buyers receiving discounts as high as 80 percent of the legitimate price." However, they present no evidence on differences in *rates of change* in prices in the underground and regular economies.

Peter Gutmann, on the other hand, agrees that price levels

might be lower in the underground economy, but disagrees on the net effect of that economy on the CPI. He thinks that prices are rising faster underground than in the regular economy¹² because the underground economy is concentrated in those sectors of the economy—retailing services and construction—where productivity growth has been least. He also claims that if all underground transactions were suddenly included in the CPI—he is implicitly assuming that they are all excluded now—there would be a once and for all *drop* in the index, and then the index would rise at a faster rate than otherwise, because of the difference in rates of change. Like the others, Gutmann offers no firm evidence on the difference in price levels. Feige disagrees with Gutmann's reasoning;¹³ he points out that it is based on measured productivity growth, which he thinks is biased by the growth in the underground economy.

Although they disagree on the direction of the effect on measured inflation, both Feige and Gutmann conclude that its quantitative impact is small.¹⁴

The *other* possibility—that price *levels* are lower in the underground, and that a growing share of consumer expenditures are taking place there—has been advanced by Feige, Gutmann, Nichols, and Simon and Witte. The first point is if the weights are wrong but stay the same year to year, the error in the price index will be small. Only if the share of expenditure in the underground economy grows *steadily larger* will it have a continuing effect on the CPI.¹⁵ Even if this is the case, it makes a great deal of difference how it is happening. If consumers are shifting between the fixed-weight expenditure categories (there are 265 of them) then there is a possible weighting effect, since these weights are held constant. In this case, the preceding discussion of weighting effects in price indexes applies. And studies have invariably shown small effects. But if the shift is taking place *within* expenditure categories (that is, from "above-ground" to "underground" plumbing repair), then the effect is much less clear. The continuing POPS allows us to gather prices from the retail outlets from which consumers are currently purchasing, and the retail outlets actually priced for the index continually change to reflect shifting consumer patronage of retail establishments. The most transient of these outlets are likely to be excluded from the price collection process.

We conclude that the way the CPI is designed means that much of the evidence on prices in the underground economy has no clear implications for the measured rate of inflation.

Unemployment rate and other CPS data

Feige, Gutmann, and Simon and Witte have all argued that the unemployment rate, as measured, is too high—Gutmann suggests by 1½ to 2 percentage points—and employment measures too low because of the existence of a large underground economy. Others, notably Louise Berndt, Barry Molefsky, and Peter Reuter, have expressed skepti-

cism about these claims. Before examining the arguments presented by the various writers, we will sketch the process by which the unemployment rate and other labor estimates are constructed.

Survey description. The monthly Current Population Survey (CPS) of the U.S. Bureau of the Census uses a stratified probability sample of living quarters representative of the civilian noninstitutional population of the United States. About 60,000 households are interviewed each month. Each housing unit remains in the sample for 16 calendar months, but is sampled for eight (in a four months in, eight out, four in rotation). The regeneration of the sampling frame is staggered so that an eighth of the sample, called a rotation group, is replaced every month. The first interview for each household is carried out in person when possible, while a greater proportion of later interviews are by telephone. The respondent in the household is asked questions about all members of the household.

Among other questions (concerning age, education, marital and veterans status, and so forth), the respondent is asked a series of questions concerning the major activities of each person in the household who was 16 years of age or older during the previous week. (See exhibit 1, a facsimile of this portion of the CPS questionnaire.) The respondent's answers are used to place the individuals in one of three mutually exclusive and exhaustive categories: employed, unemployed, or out of the labor force. The respondents are not asked directly to place the respective household members in these categories, however. Rather, specific questions are asked about labor force activities during recent weeks and the reasons for them.

The first relevant question for labor force status (number 19) asks what the household member was doing *most* of last week. The many parts of the next question uncover, among other things, if the household member worked *at all* last week (excluding housework). Question 21 inquires about temporary absences from work and the reasons for them (layoff, illness, vacation, and so forth). Question 22 concerns job search. First it is determined whether household members who had not worked at all the previous week and were not temporarily absent from work (including layoff) had looked for work in the past 4 weeks. The type of search activity engaged in (if any) is then determined, and then the line of questioning goes into other related matters, including (for those in the outgoing rotation group) earnings.

The answers to these questions determine each eligible household member's labor force status: people are counted as *employed* if during the past week they worked at least 1 hour as paid employees or in their own business, profession or farm, or for at least 15 hours as unpaid workers in a family-operated enterprise, or if they had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, labor-management dispute, or various personal reasons. Each employed person is counted

only once, no matter how many jobs they might have worked at during the week. Individuals are classified as *unemployed* only if they meet *all* the following conditions: they did not work at all during the survey week, and were looking for work (had made specific efforts to find work within the preceding 4-week period) or were on layoff, and were available for work during the reference period (except for temporary illness). All civilians 16 years of age and older who are not classified as employed or unemployed are defined as being *not in the labor force*.

This concept of employment is all-embracing, and, at least in theory, would arguably cover most of the activities that are generally associated with the underground economy. There are no questions in the CPS about the legality or propriety of one's work, and it is not known to what extent illegal or quasi-illegal activities are reported. Interviewers report that some activities generally considered illegal (prostitution, for example) are occasionally reported to them, but there are obvious reasons to suspect that such activities are not well reported. Some persons engaged in illegal activities may report themselves as engaged in an entirely different and legal type of work.

It is, of course, also possible that some legal activities may go unreported because of apprehension that disclosure may lead to a loss of some benefits—such as unemployment insurance, food stamps, welfare payments, social security benefits—or to an increase in tax liabilities. Kenneth W. Clarkson and Roger E. Meiners speculated that unemployment was overstated in the CPS because respondents who should have been classified "out of the labor force" were fearful that they would lose benefits unless they indicated they were looking for work.¹⁶ This possibility was not supported by CPS evidence.¹⁷ While all respondents in the CPS are assured that the information they provide will be used only for statistical purposes, we know from having observed the interviewing process that some respondents are still not convinced.

Recent trends. While there is still relatively little respondent resistance to CPS questions on employment activities, the refusal rate—the proportion of households which refuse to participate in the survey—has edged upward from 0.8 percent in 1960, to 1.6 percent in 1970, and to 2.5 percent in 1982.¹⁸ This might be symptomatic of growing reluctance by part of the population to report their labor force activity. In fact, some writers on the underground economy have speculated that the well-documented decline in labor force participation among adult men might reflect concealment of some employment activities.¹⁹ Over the past two decades, the rates for men 25 to 54 have behaved as follows:

	1960	1970	1980	Change (1960-80)
Men 25-34	97.5	96.4	95.3	-2.2
Men 35-44	97.7	96.9	95.5	-2.2
Men 45-54	95.7	94.2	91.2	-4.5

Exhibit 1. Extract from Current Population Survey Interviewer Schedule

<p>18. LINE NUMBER</p> <p>19. What was ... doing most of LAST WEEK --</p> <p>Working Keeping house</p> <p>Going to school or something else? <input checked="" type="checkbox"/></p> <p>Working (Skip to 20A) ... WK <input type="checkbox"/></p> <p>With a job but not at work ... J <input type="checkbox"/></p> <p>Looking for work ... LK <input type="checkbox"/></p> <p>Keeping house ... H <input type="checkbox"/></p> <p>Going to school ... S <input type="checkbox"/></p> <p>Unable to work (Skip to 24) ... U <input type="checkbox"/></p> <p>Retired ... R <input type="checkbox"/></p> <p>Other (Specify) ... OT <input type="checkbox"/></p>	<p>20. Did ... do any work at all LAST WEEK, not counting work around the house? (Note: If farm or business operator in hh., ask about unpaid work.)</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> (Go to 21)</p> <p>20A. How many hours did ... work LAST WEEK at all jobs?</p> <p>0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/></p> <p>20B. INTERVIEWER CHECK ITEM</p> <p>49+ (Skip to Item 23)</p> <p>1-34 (Go to 20C)</p> <p>35-48 (Go to 20D)</p>	<p>21. (If / in 19, skip to 20A.) Did ... have a job or business from which he/she was temporarily absent or on layoff LAST WEEK?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> (Go to 22)</p> <p>21A. Why was ... absent from work LAST WEEK?</p> <p>Own illness ... <input type="checkbox"/></p> <p>On vacation ... <input type="checkbox"/></p> <p>Bad weather ... <input type="checkbox"/></p> <p>Labor dispute ... <input type="checkbox"/></p> <p>New job to begin within 30 days (Skip to 22B and 22C2) <input type="checkbox"/></p> <p>Temporary layoff (Under 30 days) <input type="checkbox"/></p> <p>Indefinite layoff (30 days or more or no def. recall date) (Skip to 22C3) <input type="checkbox"/></p> <p>Other (Specify) ... <input type="checkbox"/></p>	<p>22. (If LK in 19, skip to 22A.) Has ... been looking for work during the past 4 weeks?</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> (Go to 24)</p> <p>22A. What has ... been doing in the last 4 weeks to find work? (Mark all methods used; do not read list.)</p> <p>Checked with --</p> <p>pub. employ. agency <input type="checkbox"/></p> <p>pvt. employ. agency <input type="checkbox"/></p> <p>employer directly ... <input type="checkbox"/></p> <p>friends or relatives ... <input type="checkbox"/></p> <p>Placed or answered ads. ... <input type="checkbox"/></p> <p>Nothing (Skip to 24) ... <input type="checkbox"/></p> <p>Other (Specify in notes, e.g., CETA, union or prof. register, etc.) ... <input type="checkbox"/></p> <p>22B. Why did ... start looking for work? Was it because ... lost or quit a job at that time (pause) or was there some other reason?</p> <p>Lost job ... <input type="checkbox"/></p> <p>Quit job ... <input type="checkbox"/></p> <p>Left school ... <input type="checkbox"/></p> <p>Wanted temporary work <input type="checkbox"/></p> <p>Other (Specify in notes) <input type="checkbox"/></p>	<p>24. INTERVIEWER CHECK ITEM (Rotation number)</p> <p>First digit of SEGMENT number is:</p> <p>0 1, 3, 4, 5, 7 or 8 (Skip to 26)</p> <p>2 or 6 (Go to 24A)</p> <p>24A. When did ... last work for pay at a regular job or business, either full- or part-time?</p> <p>Within past 12 months <input type="checkbox"/></p> <p>1 up to 2 years ago ... <input type="checkbox"/> (Go to 24B)</p> <p>2 up to 3 years ago ... <input type="checkbox"/></p> <p>3 up to 4 years ago ... <input type="checkbox"/></p> <p>4 up to 5 years ago ... <input type="checkbox"/></p> <p>5 or more years ago ... <input type="checkbox"/> (Skip to 24C)</p> <p>Never worked ... <input type="checkbox"/></p> <p>24B. Why did ... leave that job?</p> <p>Personal, family (incl. pregnancy) or school ... <input type="checkbox"/></p> <p>Health ... <input type="checkbox"/></p> <p>Retirement or old age ... <input type="checkbox"/></p> <p>Seasonal job completed ... <input type="checkbox"/></p> <p>Slack work or business conditions <input type="checkbox"/></p> <p>Temporary nonseasonal job completed ... <input type="checkbox"/></p> <p>Unsatisfactory work arrangements (Hours, pay, etc.) <input type="checkbox"/></p> <p>Other ... <input type="checkbox"/></p> <p>24C. Does ... want a regular job now, either full- or part-time?</p> <p>Yes ... <input type="checkbox"/> (Go to 24D)</p> <p>Maybe -- it depends ... <input type="checkbox"/> (Specify in notes)</p> <p>No ... <input type="checkbox"/> (Skip to 24E)</p> <p>Don't know ... <input type="checkbox"/> (Ask 25D)</p>	<p>25. INTERVIEWER CHECK ITEM (Rotation number)</p> <p>First digit of SEGMENT number is:</p> <p>0 1, 3, 4, 5, 7 or 8 (Skip to 26)</p> <p>2 or 6 (Go to 25A)</p> <p>25A. How many hours per week does ... USUALLY work at this job?</p> <p>0 <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/></p> <p>25B. Is ... paid by the hour on this job?</p> <p>Yes <input type="checkbox"/> (Go to 25C)</p> <p>No <input type="checkbox"/> (Skip to 25D)</p> <p>25C. How much does ... earn per hour?</p> <table border="1"> <tr> <td>Dollars</td> <td>Cents</td> </tr> <tr> <td>0 <input type="checkbox"/></td> <td>0 <input type="checkbox"/></td> </tr> <tr> <td>1 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> </tr> <tr> <td>2 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>3 <input type="checkbox"/></td> <td>3 <input type="checkbox"/></td> </tr> <tr> <td>4 <input type="checkbox"/></td> <td>4 <input type="checkbox"/></td> </tr> <tr> <td>5 <input type="checkbox"/></td> <td>5 <input type="checkbox"/></td> </tr> <tr> <td>6 <input type="checkbox"/></td> <td>6 <input type="checkbox"/></td> </tr> <tr> <td>7 <input type="checkbox"/></td> <td>7 <input type="checkbox"/></td> </tr> <tr> <td>8 <input type="checkbox"/></td> <td>8 <input type="checkbox"/></td> </tr> <tr> <td>9 <input type="checkbox"/></td> <td>9 <input type="checkbox"/></td> </tr> </table> <p>25D. How much does ... USUALLY earn per week at this job BEFORE deductions? Include any overtime pay, commissions, or tips usually received.</p> <table border="1"> <tr> <td>Dollars</td> <td>Cents</td> </tr> <tr> <td>0 <input type="checkbox"/></td> <td>0 <input type="checkbox"/></td> </tr> <tr> <td>1 <input type="checkbox"/></td> <td>1 <input type="checkbox"/></td> </tr> <tr> <td>2 <input type="checkbox"/></td> <td>2 <input type="checkbox"/></td> </tr> <tr> <td>3 <input type="checkbox"/></td> <td>3 <input type="checkbox"/></td> </tr> <tr> <td>4 <input type="checkbox"/></td> <td>4 <input type="checkbox"/></td> </tr> <tr> <td>5 <input type="checkbox"/></td> <td>5 <input type="checkbox"/></td> </tr> <tr> <td>6 <input type="checkbox"/></td> <td>6 <input type="checkbox"/></td> </tr> <tr> <td>7 <input type="checkbox"/></td> <td>7 <input type="checkbox"/></td> </tr> <tr> <td>8 <input type="checkbox"/></td> <td>8 <input type="checkbox"/></td> </tr> <tr> <td>9 <input type="checkbox"/></td> <td>9 <input type="checkbox"/></td> </tr> </table>	Dollars	Cents	0 <input type="checkbox"/>	0 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	Dollars	Cents	0 <input type="checkbox"/>	0 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
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<p>20C. Does ... USUALLY work 35 hours or more a week at this job?</p> <p>Yes <input type="checkbox"/> What is the reason ... worked less than 35 hours LAST WEEK?</p> <p>No <input type="checkbox"/> What is the reason ... USUALLY works less than 35 hours a week?</p> <p>(Mark the appropriate reason)</p> <p>Slack work ... <input type="checkbox"/></p> <p>Material shortage ... <input type="checkbox"/></p> <p>Plant or machine repair ... <input type="checkbox"/></p> <p>New job started during week ... <input type="checkbox"/></p> <p>Job terminated during week ... <input type="checkbox"/></p> <p>Could find only part-time work <input type="checkbox"/></p> <p>Holiday (Legal or religious) ... <input type="checkbox"/></p> <p>Labor dispute ... <input type="checkbox"/></p> <p>Bad weather ... <input type="checkbox"/></p> <p>Own illness ... <input type="checkbox"/></p> <p>On vacation ... <input type="checkbox"/></p> <p>Too busy with household, school, personal bus., etc. ... <input type="checkbox"/></p> <p>Did not want full-time work ... <input type="checkbox"/></p> <p>Full-time work week under 35 hours ... <input type="checkbox"/></p> <p>Other reason (Specify) ... <input type="checkbox"/></p> <p>(Skip to 23 and enter job worked at last week)</p>	<p>20D. Did ... lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?</p> <p>Yes <input type="checkbox"/> How many hours did ... take off?</p> <p>(Correct 20A if last time not already deducted; if 20A reduced below 35, correct 20B and fill 20C; otherwise, skip to 23.)</p> <p>No <input type="checkbox"/></p> <p>20E. Did ... work any overtime or at more than one job LAST WEEK?</p> <p>Yes <input type="checkbox"/> How many extra hours did ... work?</p> <p>(Correct 20A and 20B as necessary if extra hours not already included and skip to 23.)</p> <p>No <input type="checkbox"/> (Skip to 23)</p>	<p>21B. Is ... getting wages or salary for any of the time off LAST WEEK?</p> <p>Yes ... <input type="checkbox"/></p> <p>No ... <input type="checkbox"/></p> <p>Self-employed <input type="checkbox"/></p> <p>21C. Does ... usually work 35 hours or more a week at this job?</p> <p>Yes <input type="checkbox"/></p> <p>No <input type="checkbox"/> (Skip to 23 and enter job held last week)</p>	<p>22C. 1) How many weeks has ... been looking for work?</p> <p>2) How many weeks ago did ... start looking for work?</p> <p>3) How many weeks ago was ... laid off?</p> <p>22D. Has ... been looking for full-time or part-time work?</p> <p>Full <input type="checkbox"/> Part <input type="checkbox"/></p> <p>22E. Is there any reason why ... could not take a job LAST WEEK?</p> <p>Yes <input type="checkbox"/> Already has a job ... <input type="checkbox"/></p> <p>Temporary illness ... <input type="checkbox"/></p> <p>Going to school ... <input type="checkbox"/></p> <p>No <input type="checkbox"/> Other (Specify in notes) <input type="checkbox"/></p> <p>22F. When did ... last work at a full-time job or business lasting 2 consecutive weeks or more?</p> <p>Within last 12 months (Specify) ... (Month) <input type="checkbox"/></p> <p>One to five years ago ... <input type="checkbox"/></p> <p>More than 5 years ago ... <input type="checkbox"/></p> <p>Never worked full-time 2 wks. or more ... <input type="checkbox"/></p> <p>Never worked at all ... <input type="checkbox"/></p> <p>(SKIP to 23. If layoff entered in 21A, enter job, either full or part time, from which laid off. Else enter last full time job lasting 2 weeks or more, or "never worked.")</p>	<p>24D. What are the reasons ... is not looking for work? (Mark each reason mentioned)</p> <ul style="list-style-type: none"> Believes no work available in line of work or area <input type="checkbox"/> Couldn't find any work ... <input type="checkbox"/> Lacks nec. schooling, training, skills or experience ... <input type="checkbox"/> Employers think too young or too old ... <input type="checkbox"/> Other pers. handicap in finding job <input type="checkbox"/> Can't arrange child care ... <input type="checkbox"/> Family responsibilities ... <input type="checkbox"/> In school or other training ... <input type="checkbox"/> Ill health, physical disability ... <input type="checkbox"/> Other (Specify in notes) ... <input type="checkbox"/> Don't know ... <input type="checkbox"/> <p>24E. Does ... intend to look for work of any kind in the next 12 months?</p> <p>Yes ... <input type="checkbox"/></p> <p>It depends (Specify in notes) ... <input type="checkbox"/></p> <p>No ... <input type="checkbox"/></p> <p>Don't know ... <input type="checkbox"/> (If entry in 24B, describe job in 23; otherwise, skip to 26)</p>	<p>25E. On this job, is ... a member of a labor union or of an employee association similar to a union?</p> <p>Yes <input type="checkbox"/> (Skip to 26)</p> <p>No <input type="checkbox"/> (Ask 25F)</p> <p>25F. On this job, is ... covered by a union or employee association contract?</p> <p>Yes <input type="checkbox"/> (Go to 26)</p> <p>No <input type="checkbox"/></p>																																												
<p>23. DESCRIPTION OF JOB OR BUSINESS</p> <p>23A. For whom did ... work? (Name of company, business, organization or other employer.)</p> <p>23B. What kind of business or industry is this? (For example: TV and radio mfg., retail shoe store, State Labor Dept., farm.)</p> <p>23C. What kind of work was ... doing? (For example: electrical engineer, stock clerk, typist, farmer.)</p> <p>23D. What were ...'s most important activities or duties at this job? (For example: types, keeps account books, files, sells cars, operates printing press, finishes concrete.)</p>		<p>23E. Was this person an employee of PRIVATE Co., bus., or individual for wages, salary or comm. ... P <input type="checkbox"/></p> <p>A FEDERAL government employee ... F <input type="checkbox"/> (Go to 23F)</p> <p>A STATE government employee ... S <input type="checkbox"/></p> <p>A LOCAL government employee ... L <input type="checkbox"/></p> <p>Self-empl. in OWN bus., prof. practice, or farm <input type="checkbox"/></p> <p>Is the business incorporated? Yes ... I <input type="checkbox"/></p> <p>No ... SE <input type="checkbox"/> (Skip to 26)</p> <p>Working WITHOUT PAY in fam. bus. or farm ... WP <input type="checkbox"/></p> <p>NEVER WORKED ... NEV <input type="checkbox"/></p>	<p>23F. INTERVIEWER CHECK ITEM</p> <p>Entry (or NA) in item 20A <input type="checkbox"/> (Go to 25 at top of Page)</p> <p>Entry (or NA) in item 21B <input type="checkbox"/></p> <p>All other cases <input type="checkbox"/> (Skip to 26)</p>																																														

Labor force participation for black men 20 years of age and over has dropped from about 85 percent in 1960 to about 75 percent in 1980. On the other hand, it should be noted that there has *not* been an intensification of many of these trends in recent years. The refusal rate in the CPS has been at its current level since about 1976, and the participation rates for men 25 to 54, after falling for decades, have also been relatively stable since the mid-1970's.

John Cogan has examined the declining employment-to-population ratio for black teenagers. He attributes much of the decline from 1950 to 1970 to the drying up of opportunities for low-skilled agricultural labor, and not to the increasing concentration of black teenagers in central cities.²⁰

The following tabulation, which Cogan developed from Censuses of Population, compares the changes in the black teenagers' employment ratios from 1950 to 1970 for total and agricultural employment, both for the United States and for four regions.²¹

	Total	Agricultural
United States	-19.6	-20.2
Northeast	2.6	-.8
Northcentral	-.3	-1.0
South	-27.0	-26.4
West	1.3	-6.7

Cogan admits, however, that this explanation does not hold for the 1970's when black teenage employment-to-population ratios continued to decline, while the corresponding rates for white teenagers went up. He concludes that this puzzle remains unresolved.

Various recent studies have explained participation rate declines by pointing to the greater ease with which workers can now qualify for disability benefits,²² increased schooling and training, and earlier retirement. The possibility, however, that part of these declines may be associated with the nonreporting of underground economic activity cannot entirely be discounted. Simon and Witte address this issue. They assert: "Our research leads us to believe that minority teenage unemployment is particularly overstated, since relatively large numbers of young minority group members find employment in the underground economy."²³ Nowhere in their book, however, do they present evidence that these teenagers show up as *unemployed* in the CPS.

Only if underground economic activity is the primary job would it possibly affect data in the household survey. That is, if the alleged increase in underground economic activity is in the form of secondary jobs, the fact that it may go unreported would have no impact on the basic measurements of employment—and of unemployment—so long as the first or principal job is reported correctly. The only statistical bias that would result would be an underestimation of hours worked, or total labor input. But establishment-based data are used to measure labor input for many purposes.

There is as yet relatively little respondent resistance to CPS questions concerning employment. There is clearly,

however, more reluctance to answering questions concerning earnings, even when these relate only to one's principal job. For example, failures to respond to questions on usual weekly earnings, now asked monthly of one-fourth of the CPS sample, have been running in the 16–20 percent range. In such cases, earnings are imputed by assuming that nonrespondents earn as much as persons of the same characteristics who reported their earnings. (Experimentally, this method has proven to work well in predicting the earnings of workers whose earnings were known, but questions have recently been raised as to whether the method performs as well in predicting the earnings of nonrespondents.²⁴) For the workers whose earnings are reported, a special test made in 1977 indicated an average underreporting of 3 to 5 percent relative to payroll records for the same workers.²⁵ These more sophisticated response problems in the CPS have not, so far as we can tell, motivated the underground economy researchers, and provide little or no support for the particular hypotheses they have advanced.

Benchmarking. An analysis of the structure of responses to the CPS can provide insight into labor force statistics expressed in the form of rates, such as the unemployment rate or labor force participation rates. But to examine the *levels* of employment, unemployment, and so on, the practice of "benchmarking" must be considered; that is, the responses from the survey are not used to estimate labor force levels. Instead they are adjusted to independent population estimates using Decennial Census of Population figures and inter-censal projections. If these "benchmarks" are in error, the level estimates will be correspondingly affected.

During the 1970's, the inter-censal projections did not perform as well as in the past. By April 1980, the month the decennial Census was conducted, these projections turned out to be much lower than the actual population counts obtained in the Census. In preliminary reports on the average problem in the Census itself, the Bureau of the Census concludes that reasonably reliable estimates of the undercount can now be made only for the black population, and for this group the estimates are in the 5–6 percent range.²⁶ For the rest of the population, the undercount question is clouded by the difficulty of obtaining good data on the number of illegal immigrants. It is very difficult to relate Census coverage and illegal immigration issues to the question of the underground economy.

Critics. Many writers have claimed that the existence of the underground economy causes the measured unemployment rate to be too high. Few, however, seem to have considered how the unemployment rate is measured and fewer still, how respondents answer particular questions. We have seen, for example, that respondents are *never* asked to directly categorize household members as unemployed. In addition, some writers appear unaware of the distinction

between the *official* unemployment rate calculated from the Current Population Survey, and the unemployment rate that can be computed using the Unemployment Insurance system data. CPS definitions of the unemployed are different from insured definitions (benefit claimants).

Feige has stated, “. . . unemployment statistics are almost certain to overestimate the true situation,” but gives no reason for this statement except to include it in a list of “unavoidable implications” of his estimates of the size of the underground economy.²⁷ As we have noted, the implications of any presumed level or type of underground activity must be considered within the context of the way the CPS measures unemployment. In this early paper, Feige mentions the CPS only in reference to the high nonresponse rate on earnings questions. But as we have stated, earnings questions are only asked *after* the questions about labor force status, which have unremarkable nonresponse rates.

In a later paper²⁸, Feige elaborates on his earlier claim. His reasoning concerns the illegal acquisition of unemployment benefits:

Measured unemployment rates are also expected to be temporarily increased by shifts of resources into the unobserved sector. Workers finding employment opportunities in the unobserved sector are likely to leave, lose, or not report their former jobs and at least temporarily enjoy the benefits of unemployment insurance.²⁹

This quotation seems to link responses on the CPS to claims for unemployment benefits. He gives no indication in either paper of how particular non-response patterns might affect the official unemployment rate measured by BLS.

Simon and Witte also conclude that unemployment is mismeasured (along with other official economic statistics): “Because the prices are often lower and employment is high in the underground economy, we have overestimated official inflation and unemployment.”³⁰ Their analysis is based on detailed case studies of various sectors of the underground economy, rather than on indirect inferences from financial data, but they fail to document their claims about the unemployment rate. On illegal gambling they say “As mentioned earlier, illegal gambling organizations can benefit society by providing employment for tens of thousands of individuals who are officially listed as being unemployed.”³¹ They cite Lawrence Kaplan’s and J. Maher’s estimate that 10,000–100,000 New York City residents are employed in the “numbers” business.³² On loansharking they say “The loan shark industry also provides employment opportunities for a large number of people—many of whom may be listed as ‘unemployed’ on official employment records.”³³ Leaving aside the questionable assumption (in each instance) that those employed in illegitimate activities have not been diverted from other productive pursuits, nowhere do they present evidence that many of those so employed are miscounted as unemployed by CPS interviewers, nor do they discuss CPS procedures in making their estimates. They fail to distinguish between unemployment as measured by

the CPS and the receipt of illegal UI benefits. Their only comments on the CPS accuracy occur in their concluding chapter: “. . . given current laws, we will probably be unsuccessful in encouraging the drug sellers, thieves, pimps, prostitutes, fences, etc. of this sector to report their employment status accurately to the interviewers of the Current Population Survey.”³⁴ Again, nowhere in their book do they discuss the incentives those illegally employed might have to try and get themselves classified in the CPS as unemployed, as opposed to concocting a cover story for the benefit of probers into their private affairs (or simply refusing to participate in the survey). (These comments also apply to the remarks earlier on black teenage unemployment.)

Gutmann claimed that the actual unemployment rate for April 1978 was not 5.8 percent as announced by BLS, but 4.3 percent or 1.5 percentage points lower.³⁵ His calculations reveal, however, that he attributed only one-third of this difference to the underground economy. The other two-thirds were arrived at by using a differential weighting for part-time workers and by making further assumptions about the amount of unemployment attributable to liberal welfare policies.

In making the underground-economy adjustments, Gutmann adds 2.16 million persons to the denominator (civilian labor force) and subtracts 310,000 from the numerator (unemployment level). His reasoning is that during 1961–1977, there was a 2-percentage point decline in labor force participation among prime-age males, most of whom, *in his opinion*, simply “went off the books.” To estimate the total number of persons in this category, Gutmann states, “we apply the two percent drop in labor force participation to the total labor force of 98.87 million, obtaining 1.98 million who work on a full or part-time basis exclusively in the subterranean sector, while they are officially not in the labor force.”³⁶

But Gutmann applies the 2-percent adjustment to the *entire* labor force, including groups—such as young women—whose labor force participation rates had actually *risen* dramatically over the period. Thus Gutmann implies that the actual growth in women’s participation rates was even faster than measured by BLS. How this can be rationalized, he does not say.

In his next step, Gutmann subtracts from the unemployment level and adds to the labor force his estimate of the number of persons receiving unemployment insurance while “working off the books.” Making his own adjustment to some data from the Unemployment Insurance Service on the number of claimants found to be working in 1977, he pegs their number at 350,000, or approximately 13 percent of the 1977 insured unemployment level. Then adjusting for full-time/part-time status, he reduces their number to 310,000.

Gutmann makes a clear conceptual error when he subtracts these persons from the unemployment level, and adds

them to the labor force. Since the labor force is the sum of the employed and the unemployed, these 310,000 were already a part of it and should not be added again. So the Gutmann methodology clearly would be faulty even if all of his assumptions were correct. He is also assuming that all individuals collecting illegal UI benefits would be counted as unemployed in the CPS.

Gutmann has strong views about how individuals collecting benefits would respond to the CPS:

The government naively takes for granted that the questions are answered with the gospel truth. But there is a great deal of incentive to do otherwise. Put bluntly, plenty of respondents lie; they lie consistently, and they lie with good reason. Will someone collecting unemployment insurance—but also working “off the books,” paid in cash in the subterranean economy—tell the Census interviewer that he is, in fact employed? Of course not. He knows that what he is doing is illegal. Will someone collecting welfare benefits, who has been required to register for employment as a condition for receiving such benefits, tell the Census interviewer that he is, in fact, not looking for work? Of course not! He knows that he is supposed to be tossed out of the program if he fails to look for work.

But these groups would be only a small part of his underground economy total. Even if those collecting benefits were to respond this way, their benefits would run out eventually, and the incentive to lie would disappear.

Louise Berndt, on the other hand, has argued that because of the questions actually asked in the CPS, the employment numbers probably include individuals engaged in underground work:

Theoretically the CPS estimates of employment should classify irregular workers as employed. No questions are asked regarding unemployment insurance payment, AFDC, social security, disability or any income received other than through the job. Unless we assume a substantially greater degree of caution with respect to reporting irregular work than our own research leads us to expect, we can assume that many, if not most, irregular workers are counted as employed by the CPS.³⁸

Barry Molefsky argues that “Berndt’s thesis may be supported by the sharp rise in the number of self-employed workers.”³⁹ His findings are based on CPS employment data. In discussing professional workers who fail to report earnings for income tax purposes, Molefsky says:

These individuals are obviously part of the underground economy. But many of them are also established businessmen and if asked about their employment status would probably indicate that they were self-employed. Those who are collecting benefits under various Government programs and who have underground jobs might be reluctant to admit their employment. It should be noted that less than half the officially counted unemployed collect unemployment benefits.⁴⁰

Peter Reuter’s analysis of the CPS interviewing process is probably the most careful, and deserves to be quoted in full:

I have been unable to find any literature specifically dealing with this issue. A review of the survey instrument itself suggests that the matter is a complex one. Respondents are not asked to

label their employment as regular or reported. Indeed, the questions probe very little into the nature of the employment setting. Nor are respondents ever asked whether they are unemployed; they are only asked if they are looking for work.

The first issue for the irregular sector worker, when approached by the CPS interviewer, is whether to become a respondent. It seems reasonable to assume that he is more likely to be a nonrespondent than he would be if he were not in the irregular sector. But the nonresponse rate for the CPS is surprisingly low; about 4 percent overall, with refusals amounting to 2.5 percent of the total. If irregular sector workers tend to be nonrespondents, the consequence for measured unemployment is minor.

Alternatively, and it is clear that this is what Feige and Gutmann assume, irregular sector workers may classify themselves as unemployed. Total labor force counts would be unaffected but measured unemployment would be raised. This possibility cannot be discounted but it is not obviously the dominant response pattern, among the three alternatives.

First, the respondent may also be employed in the regular sector. Given the conditions of social security, unemployment insurance, and medical insurance programs, the optimal situation may in fact be part-time employment in both sectors. In that situation the CPS, insofar as it is used simply to estimate the overall unemployment rate, will not be biased by irregular sector employment.

Second, if the irregular sector worker has no regular sector employment and is not looking for work, he may choose to provide a pattern of responses which leads to him being classified as “not in the labor force.” This will lead to an underestimate of the labor force but have only a second-order effect on measured unemployment.

The third situation is the one that Gutmann and Feige probably refer to, an irregular sector worker who is receiving unemployment benefits. Presumably he responds to the questions solely in his capacity as registered unemployed, thus raising measured unemployment. However, in order to be eligible for unemployment benefits the worker must have held, within a relatively recent period, a job in the regular sector. While one cannot discount the possibility that a significant portion of the registered unemployed is able to move at will between regular and irregular employment, it does require implausibly high access to regular sector jobs.⁴¹

A few comments on the way individuals engaged in underground activities might respond to the CPS are in order. One group of underground workers includes those people with regular employment, but who also enter the underground sector through moonlighting or whatever. These workers have a clear incentive to report their regular sector activities to the CPS interviewer, as this is the course that (in the respondent’s eyes) would arouse the least suspicion. These people are highly unlikely to wind up classified as unemployed in the CPS.

A second group are those whose entire income comes from underground activity. These respondents may well conceal their source of income from the CPS interviewer. But rather than give the interviewer the kinds of responses that would cause them to be reported as unemployed, they would be more likely to present some cover story that amounts to an assumed regular economy job. It may even be that the household respondent is unaware of the underground

activities of other household members, but has been given a phony job that gets passed on to the CPS interviewer. For criminal activity, this is especially likely. An example is provided by the notorious case of the wealthy Washington, D.C., burglar who shot a prominent Georgetown doctor during a burglary. The burglar's neighbors were told that he was engaged in legitimate financial activity. What would he have told a CPS interviewer about his labor force status? That he was a burglar? That he was unemployed but living in an obviously very expensive house in an exclusive suburb? For cases like this, the type of CPS responses posited by Gutmann seem naive. Cover stories to hide the true sources of respondents' incomes could distort the measured distribution of jobs across occupations and industries in the CPS, but would not affect aggregate employment and unemployment levels at all.

Even in the case of individuals who are illegally receiving government benefits tied by law to unemployment status, the issue is not as clearcut as Gutmann (and to some extent Reuter) would have it. The interviewer does not ask about the receipt of benefits. All questions about earnings come after the questions on labor force status have been answered. On the one hand, the respondent presumably does not want to lose the illegally obtained benefits, and may give the CPS enumerator the same answers that (falsely) were given to the UI people. On the other hand, the respondent may want to avoid telling anyone the truth about sources of income, and so will have concocted a convenient story intended to arouse the least suspicion. A nonspecific but legitimate sounding job would appear the easiest way out for those individuals. Which of these effects would dominate is anyone's guess.

We conclude that while there is a basis for concern about the possible effects of the underground economy on CPS data, particularly the earnings data, there are as yet no soundly based estimates of those effects on employment and unemployment. Moreover, the extreme views taken by some writers on the underground economy are based largely on conjecture. Our analysis of the CPS survey fails to confirm these conjectures. Evidence that labor force status has been reported incorrectly in the CPS because of the underground economy has yet to be collected.

Productivity measures

BLS publishes two sets of productivity indexes for the U.S. business economy. One relates real output to labor input and the other relates output to labor and capital input—multifactor productivity. Only indexes of output per unit of labor input—output per employee or per employee hour—are published at the industry level.

For the productivity measures covering the business sector, the output measures are based on real gross product data developed by the BEA of the U.S. Department of Commerce. In deriving these measures, BEA, in turn, relies for the most part on data from BLS' Consumer Price Index and

Producer Price Index to deflate nominal output to obtain real output. Any biases in the price deflators will have an equal and opposite effect on BEA's measures of real output and thus on BLS's measures of productivity.⁴²

Labor input is alternatively measured by the total count of, or the total hours of, all persons, including paid employees, self-employed persons, and unpaid family workers. The data for employees is taken from BLS' establishment-based survey of employment, hours, and earnings. The data on the self-employed and unpaid family workers come from various sources, but principally from the Current Population Survey. Errors in labor input measures will cause errors of equal magnitude but of opposite direction from output errors in the BLS productivity measures.

The BEA measures of nominal output are strongly challenged by Feige and Gutmann, who based their separate and methodologically different analyses on changes in the relationship between various financial variables. Their revised estimates of output are nearly enough to explain the post-1973 productivity slowdown. Both their methods are indirect, however, and have been questioned by some analysts.⁴³ In 1982, Edward Denison analyzed the issue in terms of how the official national accounts are actually prepared, and in terms of comparison of the output and income sides of the accounts. He reached the conclusion that mismeasurement of GNP as officially defined due to the underground economy is relatively small.⁴⁴

An analysis of Feige's or Gutman's methods is beyond the scope of this report, but it is of some value to examine the implications that their findings would have for productivity measurement even if they were only approximately true. Feige has provided several estimates of the size of the underground economy.⁴⁵ His latest estimates are to be preferred, if only because they no longer produce a negative estimate for the underground sector for the 1939–68 period. They provide similarly much higher estimates for the recent past, with two of his estimates of the "Monetary unobserved sector as a percentage of GNP" set at about 28 percent in 1979.⁴⁶ Feige does not prepare estimates of underground employment, but argues that shifts in employment should lag shifts in output because of moonlighting, skimming, and so forth.⁴⁷ He further claims that people tend to "save the best performances for moonlighting."⁴⁸ Feige does not construct new indexes of productivity but does find a high degree of correlation between his measures of the output of the unobserved sector and measures of the unexplained productivity residual prepared earlier by Denison,⁴⁹ and claims that he has explained two-thirds of the observed productivity slowdown.⁵⁰

Gutmann has prepared independent estimates of output and employment.⁵¹ His method for constructing employment estimates based on the Current Population Survey has been discussed earlier in this report. His estimates of output and employment can be used to calculate his implied estimate of the impact of the underground economy on estimates

of national productivity. If for the sake of argument we accept his estimates of underground GNP and underground employment, we can add these to previously measured GNP and employment and get a rough idea of the impact upon BLS productivity measures. To do this, we are forced to assume that everything about Gutmann's work is correct, that all otherwise uncounted GNP actually belongs in GNP, and that the subterranean rest-of-the-world sector is small enough to be ignored. Though Gutmann's employment estimates (discussed earlier) are based on adjustment to the CPS, and not on BLS' establishment survey primarily used in BLS productivity measurement, we use them because they are the only estimates available. That would imply roughly 1.7 million persons employed in the subterranean economy in 1971 and 1.9 million persons in 1976. Gutmann's estimates of underground GNP are based upon the growth of currency in circulation relative to demand deposits. Richard X. Bove and Thomas D. Klingenstein have prepared estimates of subterranean GNP derived from the Gutmann methodology of \$69.2 billion in 1971 and \$190.6 billion in 1976.⁵²

Using the implicit price deflator and average weekly hours that apply to the legitimate economy as proxies for those in the underground economy, we find that the ratio⁵³ of output to hours for the total economy (with the underground included) would have been 6.96 in 1971 and 8.09 in 1976. This implies a 3.1-percent compound annual growth rate. By contrast, unpublished BLS data on productivity in the total economy⁵⁴ indicate that output per hour was 6.67 in 1971 and 7.28 in 1976, implying that productivity in the legitimate economy grew at a 1.8-percent compound annual rate over the same period. Thus if Gutmann's underground estimates were accurate, they could serve to explain much of the post-1973 productivity slowdown.

How believable is the productivity differential implied by Gutmann's work? Molefsky points out that Gutmann's output and employment estimates, if taken at face value, imply that value added in the subterranean sector was more than

\$100,000 per worker in 1978 compared with \$22,000 per worker in the legitimate economy.⁵⁵

One aspect of the underground economy that is consistent with these numbers is the possibility of skimming—output or revenue kept off the books. If it is possible for some business to make a lot of their sales off the books without getting much of their employment off the books, they might well do so because of the economic rewards in the form of reduced tax bills associated with the resulting lower reported profits. This could mean that more output than employment is off the books, and that a certain amount of recorded employment is actually engaged in producing unrecorded output. If it were possible for this to occur on any kind of scale, and if the national accounts were affected, the result would be an understatement of observed productivity in the measured economy with an implied very high productivity in the unmeasured economy.

The results which we have seen in recent years for the published BLS productivity measures show declining productivity growth, declining unit profits, and increasing unit labor cost, results which might be attributable to increasingly important skimming. Of course, they are also consistent with other economic forces. A sectoral breakdown of productivity might shed some light on this issue. Table 2 measures the productivity slowdown in 10 sectors of the private economy and in government enterprises (the manufacturing and trade sectors are broken down further) by computing the difference between average annual rates of growth in labor productivity in the 1958–73 and 1973–79 periods. Measuring productivity by output per hour or output per employee makes only trivial differences in the results.

The sectors where skimming would appear most likely (for example, wholesale and retail trade and services) show large slowdowns in productivity. The striking feature of the table is that the slowdown has occurred in nearly all sectors of the economy.

Notwithstanding these results, the possibility that part of the story of the underground economy is connected with

Table 2. Sectoral breakdown of the productivity slowdown, average annual rates of growth (least squares method), 1958–79

Industry	Output/hour				Output/person			
	1958 to 1973	1973 to 1979	Difference	Rank	1958 to 1973	1973 to 1979	Difference	Rank
Farming	5.3	3.0	-2.3	4	5.2	3.4	-1.8	5
Mining	3.9	-5.1	-9.0	1	4.4	-4.6	-9.0	1
Construction ¹	0.2	-1.7	-1.9	5	0.0	-1.6	-1.6	6(T)
Durable manufacturing	2.9	2.1	-0.8	10	3.1	2.0	-1.1	10
Nondurable manufacturing	3.4	1.8	-1.6	7	3.4	1.8	-1.6	6(T)
Transportation	3.1	1.3	-1.8	6	2.9	1.0	-1.9	4
Communications	5.0	6.0	+1.0	13	5.0	6.1	+1.1	13
Electricity, gas, utilities	4.5	1.1	-3.4	2	4.6	1.1	-3.5	2
Wholesale trade	3.6	0.9	-2.7	3	3.3	0.7	-2.6	3
Retail trade	2.5	1.4	-1.1	9	1.4	0.0	-1.4	8(T)
Finance, insurance and real estate ¹	0.9	0.4	-0.5	11	0.6	0.3	-0.3	11
Services ¹	1.8	0.4	-1.4	8	1.2	-0.2	-1.4	8(T)
Government enterprises	0.8	1.3	+0.5	12	0.5	1.4	+0.9	12

¹Because of the limitations in the real output measures for these sectors, these data do not meet BLS standards for publication and are not published. They are included here for illustrative purposes.

T = a tie.

skimming would tend to diminish the validity of Denison's position.⁵⁶ He argues that the case made so far for a bias in output measures is not compelling, and that employment-to-population ratios and labor force participation rates, which are more pertinent than monetary ratios, have been stable over time. A measured productivity slowdown along with stable employment ratios and labor force participation rates would be consistent with increased skimming, however. On the other hand, the critics themselves have argued that measured employment is increasingly biased.

Even if Feige's or Gutmann's measures of subterranean economic activity were correct, it is still not clear that it would be appropriate to add them to the published output and employment measures (thus changing the productivity calculations). Some underground activity may end up in the official measures anyway, since BEA makes an attempt to adjust for it based on Internal Revenue Service estimates. Further, that portion of underground activity that is illegal, even apart from the issue of tax evasion, is not included in the definition of GNP. For this reason the BEA does not attempt to measure such activities. It is also worth repeating what Denison has said:

“. . . much of the value of illegal products—an estimated 99.5 percent in the case of drugs—exists only because their illegality has made their prices high. The value of the quantities of drugs now produced would be of trivial importance in the economy if they were legalized.”⁵⁷

The establishment survey. The BLS survey of employment, hours, and earnings in establishments has not come under much specific criticism. In fact, many writers on the underground economy seem unaware that more than one BLS measure of employment exists. However, this survey is used in the measurement of productivity and it provides an estimate of employment that is largely independent of that derived from the CPS, aspects of this survey may make it susceptible to inaccuracy because of misreporting of underground activity. We begin with the definition and construction of the survey, then discuss the possible effects of various aspects of the underground economy.

BLS cooperates with State agencies in collecting monthly data on employment, hours, and earnings from a sample of about 200,000 establishments in all nonagricultural activities including government. For this survey, an establishment is defined as an economic unit producing goods or services, such as a factory, mine, or store. Where a single physical location encompasses two or more distinct and separate activities these are treated as separate establishments, provided that separate payroll records are available and certain other criteria are met. When a company has more than one establishment engaged in the same activity in a geographic area, these establishments may be covered by a combined report. In general, data refer to persons who worked during, or received pay for, any part of the pay period that includes the 12th of the month.

The definition of employed persons includes both permanent and temporary employees and those who are working either full or part time. Payroll workers on paid sick leave, or paid holiday or vacation, or who work only a part of the specified pay period are counted as employed. The survey is a count of jobs filled, as reported by employers, and makes no attempt (in contrast to the CPS) to count the number of persons at work. This means that persons on two or more payrolls during the survey pay period are counted in each establishment whether the replication is due to turnover or multiple jobholding. Proprietors, self-employed, unpaid family workers and domestic workers in households are excluded. Data on government employment refer to civilian employees only.

The sampling universe for the establishment employment survey is largely derived from the Unemployment Insurance records of employers maintained by State employment security agencies, which, since the expansion of UI coverage in 1972, include 97 percent of private nonagricultural establishments. The UI records are augmented by various other sources to ensure complete coverage of employers. Sampling is stratified by industry and by establishment size. In nearly all industries, establishments with 250 or more employees are included in the sample with certainty and in many industries the cutoff is lower. In industries with considerable employment in small establishments, the sample includes all large establishments and a substantial number of small ones. Because of cost considerations, it is necessary to accept samples in these divisions with a smaller proportion of universe employment than is the case for most manufacturing industries.

State agencies (usually the employment security agency) collect the primary data by mail, using a shuttle schedule (BLS form 790, which provides the common name for this series). The data collected are limited to what can be extracted from payroll records, which respondents would ordinarily maintain for a variety of tax and accounting purposes.

The establishment estimates exclude, by definition, all self-employment and all private household work, and these two fields are where much of the unreported income that help make up the underground economy is likely to originate. Thus the extent of potential error in the establishment series due to the misreporting of underground activities is limited.

The establishment survey is, nonetheless, subject to measurement difficulties which, as in the case of the household survey, depend primarily on the complex motives of potential respondents, who may choose not to respond, or not to respond accurately. Establishments that are attempting to elude the tax and law enforcement arms of the government may choose not to respond to the survey despite BLS assurances of confidentiality.⁵⁸ Establishments that are attempting to avoid some kinds of taxes (unemployment insurance, workers' compensation, social security, and so forth) may underreport their employment and payroll for

the same reasons. On the other hand, payroll is a tax-deductible expense, so the latter incentive may be moderated or even reversed, depending on the establishments' tax liability situation and depending on their trade-off between paying less income tax and reporting low profits (or losses) to owners. Feige cites anecdotal evidence that firms engaged in "skimming" activities may take workers off the books (for tax purposes) when their profits start to look too low.⁵⁹ The actual extent of this behavior is unknown. As Reuter points out, firms engaged in illegal activities doubtless take the probability of detection into account when deciding how to deal with the various data requests they receive.⁶⁰ We do not know where the payroll employment survey stands in underground establishments' rankings of various potential sources of detection.

Perhaps most important in terms of the accuracy of the estimates derived from the establishment survey are the problems of keeping track of the universe. Many of the incentives mentioned in the previous paragraph could also work to keep establishments out of the sampling universe, which comes largely from Unemployment Insurance reports. The birth of new firms and the death of old ones raise particular problems for this survey, particularly during a slide into and recovery from a recession.

An annual benchmarking process, again using data from the UI program and other independent sources, attempts to correct for any deficiencies. Thus the accuracy of long-term trends hinges on the adequacy of the benchmarking process.

The accuracy of the benchmark estimates probably improved when coverage by the UI system became nearly universal. It was previously necessary to make some estimates of the number of small employers. When coverage was extended from firms with 4 or more employees to firms with one or more employees, it was found that the number of such small employers had previously been underestimated. It was also found, at least in some States, that some employers with more than four employees had previously escaped UI coverage by allegedly claiming they had only one to four employees.

In a series of studies, David Birch concluded (based on an analysis of Dun and Bradstreet files) that small firms accounted for most of the employment growth during the 1970's.⁶¹ If Birch's findings were true, this could have implications for the measured level of employment. His conclusions have been challenged by Catherine Armington and Majorie Odle, however. Using a later version of the same data base, they found that 55 percent of employment growth between 1978 and 1980 took place in establishments with fewer than 20 employees in 1978, and 78 percent of net growth took place in establishments of fewer than 100. They then examined the question of whether these establishments were truly small, or were parts of larger enterprises. This changed their findings drastically:

However, a significant portion of these growing small establishments are branches or subsidiaries of large firms. Indeed, if

we retain the 100 employee size limit, but apply it to the size of the whole firm, rather than to separate establishments, the share of total employment accounted for by small business (firms with fewer than 100 employees) is 38.6%. These truly small businesses contributed 39.1% of the employment growth between 1978 and 1980. Thus the small business share of employment growth was almost exactly proportional to its share of the private sector, paid labor force.⁶²

Armington and Odle also conclude that the same result is generally true in all regions and industry divisions, with some exceptions in sectors with shrinking shares of employment.

If Armington and Odle's findings are also applicable to earlier periods, then the case for bias in employment levels as measured by the establishment survey is weakened considerably. It is unlikely that there are any Exxons or other large establishments lurking around out there without being entered in the UI records. So potential errors would have to come from small establishments. But if small establishment employment growth is roughly proportional to large establishment employment growth, as Armington and Odle conclude, then only trivial errors could occur in employment trends. And for many purposes, such as measurement of changes in productivity, only trends matter.

We conclude this section with a brief comparison of the BLS establishment and household employment surveys. Although there are conceptual differences between the two surveys, they do provide independently derived estimates of nonagricultural employment. The main differences between the two surveys are: the payroll survey excludes unpaid family workers, private household employees, proprietors, and other self-employed persons, all of whom are included in the CPS. The payroll survey counts a person employed by more than one establishment at each place of employment, while the CPS counts each individual only once. Certain persons on unpaid leave are counted as employed in the CPS but not in the payroll survey. The BLS attempts to reconcile the movements in the two surveys. The most recent report is by Gloria Green and John Stinson who provide references to earlier literature on the subject.⁶³ They conclude that although the levels of employment estimated by the two series differ significantly, in the long-term they have moved similarly. The relevant question is whether household and establishment survey samples would both be motivated by the underground economy to respond (or not respond) in ways that would make the two independent measurements track the same in the long run.

Is BLS data affected?

We have examined the claims that have been made about the possible effects of a large and growing underground economy on BLS data. Because of the very nature of the underground economy, it tends to leave very few quantifiable traces, either in official data or elsewhere. Thus many of the claims made have been based on indirect evidence. Further, the main thrust of the research has been directed

to topics other than the accuracy of BLS statistics, so statistical methods have not been examined closely by many of the researchers. We have concentrated on examining the adequacy of the analysis—the facts and logic—behind the claims that the underground economy has caused error in some BLS statistical series.

Our general conclusion is that the claims made do not stand up to close scrutiny. What has been done, for the most part, is to document in some manner that some sort of underground activity exists or that it probably exists, and then to form estimates of its size. Some critics have then simply leaped to the conclusion that some BLS series are in error, without even the most elemental consideration or review of the way the series is constructed, and whether the actual collection of BLS data is likely to be affected by characteristics of the underground economy. We believe we have shown that when one looks at the way the data are collected, claims of major defects in BLS statistics must be deemed unproven.

With regard to the Consumer Price Index, we have concluded that because of the manner in which it is constructed, which few of the critics considered, the chance of a large systematic bias attributable to the underground economy is minimal. This conclusion is reinforced by the disagreement among the critics of the series as to the supposed direction of bias.

In both the household- and establishment-based employment surveys, we have seen that the possible effects of the

underground economy hinge to a large degree on whether the respondents to the surveys answer truthfully. We have argued that their motives are complex and may be different than the critics have assumed. Considering how various classes of people might wish to respond, together with the way the survey instruments are designed, we argue that there is little basis for the often extravagant claims that have been made, particularly with regard to the unemployment rate.

Measures of productivity change may be affected by the underground economy, through mismeasurement of national output, of the price deflators, or of labor input. But we have seen that the relation between possible mismeasurement of output change, on the one hand, and of input change, on the other, is not at all direct. Given the state of the evidence on the possible extent of mismeasurement, any claims, on the direction of productivity mismeasurement are speculation.

Findings from economic research must be monitored closely by a statistical agency, for research can often point to areas of new statistical needs and suggest improvements in existing series. We have reviewed the literature on the “underground economy” with this objective in mind. It is of course always *possible* that underground activity affects BLS statistical series. The crucial question is: Does the evidence suggest that major effects are probable? We conclude that the literature on the underground economy has not made the case—far from it. The issues however remain important ones that will continue to be monitored as new findings emerge. □

—FOOTNOTES—

¹ An annotated bibliography of this literature will be included with the reprint of this article.

² See Richard X. Bove and Thomas D. Klingenstein, “The Underground Economy: How is it Measured?” *Financial Markets* (New York, Wertheim and Co. Inc., 1981); Edward F. Denison, *Accounting for Slower Economic Growth* (Washington, D.C., The Brookings Institution, 1979), and Denison, “Is U.S. Growth Understated Because of the Underground Economy? Employment Ratios Suggest Not,” *Review of Income and Wealth*, March 1982, pp. 1–16; Gillian Garcia, “The Currency Ratio and the Subterranean Economy,” *Financial Analysts Journal*, November-December 1978, pp. 64–66, 69; Barry Molefsky, “America’s Underground Economy,” chapter 3 in Vito Tanzi, ed., *The Underground Economy in the United States and Abroad* (Lexington, MA., D.C. Heath and Co., 1981); Richard Porter, “Some Notes on Estimating the Underground Economy,” Federal Reserve Board, 1979, mimeographed; Vito Tanzi, “A Second (and More Skeptical) Look at the Underground Economy in the United States,” chapter 6 in Vito Tanzi, ed., op. cit.; and *Estimates of Income Unreported on Individual Income Tax Returns*, Publication 1104, (U.S. Department of the Treasury, Internal Revenue Service, 1979).

³ Other names for the underground economy are “irregular,” “subterranean,” and “black.”

⁴ Beginning in 1980, a Continuing Consumer Expenditure Survey was implemented which may make possible more frequent updating of the weights in the future.

⁵ Exceptions are items such as house prices, utility rates, and certain tax rates which are collected from other sources.

⁶ Edgar L. Feige, “A New Perspective on Macroeconomic Phenomena: The Theory and Measurement of the Unobserved Sector of the United States Economy: Causes, Consequences and Implications,” August 1980 (mimeographed), p. 39, contends that the shift has occurred.

⁷ *Development of National Income Measures*, supplement of *Survey of Current Business* (U.S. Department of Commerce, Office of Business Economics (Now Bureau of Economic Analysis), 1954).

⁸ *Reevaluation of the 1972–73 Consumer Expenditure Survey: A Further Examination Based on Revised Estimates of Personal Consumer Expenditures* (U.S. Department of Commerce, Bureau of the Census, Technical Paper No. 46, 1979).

⁹ Edgar L. Feige, “A New Perspective,” p. 39; and Jeffrey Nichols’ testimony in *Underground Economy* (U.S. Congress, Committee on Ways and Means Subcommittee on Oversight, 1980), Hearings held in 1979.

¹⁰ Carl P. Simon and Ann D. Witte, *Beating the System* (Boston, Auburn House, 1982), pp. xiv–xv.

¹¹ *Ibid.*, pp. 93–4.

¹² Peter Gutmann, in “Wertheim’s Underground Economy Conference—Palace Hotel—June 24, 1981,” *Financial Markets*, Vol. 2, No. 5 (Wertheim and Co., 1981), pp. 43–4.

¹³ Feige in “Wertheim’s Underground Economy Conference” pp. 90–92.

¹⁴ Feige and Gutmann in “Wertheim’s Underground Economy Conference,” p. 91.

¹⁵ It is interesting to note that Simon and Witte (p. 98) believe the big growth in fencing occurred during the 1960’s when inflation was not very large, but tapered off in the 1970’s, just as inflation began to hit double-digit values. Their view is also somewhat inconsistent in that they realize that theft increases the cost of doing business in the legitimate sector, but ignore the fact that these costs may be passed on to consumers of regular sector products. Whether the two opposing effects on the CPI would net out is an open question.

¹⁶ Kenneth W. Clarkson and Roger E. Meiners, “Government Statistics

as a Guide to Economic Policy: Food Stamps and the Spurious Increase in the Unemployment Rate," *Policy Review*, Summer 1977, pp. 27-51.

¹⁷ Richard M. Devens, "Unemployment Among Recipients of Food Stamps and AFDC," *Monthly Labor Review*, March 1979, pp. 47-52.

¹⁸ Data provided by Demographic Survey Division, U.S. Bureau of the Census.

¹⁹ Peter M. Gutmann, "The Subterranean Economy," *Financial Analysts Journal*, November-December 1977, pp. 26-27; "Are the Unemployed, Unemployed?" *Financial Analysts Journal*, September-October 1979, pp. 26-29; and "Taxes and the Supply of National Output," *Financial Analysts Journal*, November-December 1979, pp. 64-66.

²⁰ John F. Cogan, "The Decline in Black Teenage Employment: 1950-70," *American Economic Review*, September 1982, pp. 621-638.

²¹ *Ibid.*, p. 626.

²² William Deutermann, "Another look at working-age men who are not in the labor force," *Monthly Labor Review*, June 1977, pp. 9-14.

²³ Simon and Witte, p. 292.

²⁴ See John Greenlees, William S. Reese, and Kimberly D. Zieschang, "Imputation of Missing Values When the Probability of Response Depends on the Variable Being Imputed," *Journal of the American Statistical Association*, June 1982, pp. 251-61; and Lee Lillard, James P. Smith, and Finis Welch, "What Do We Really Know About Wages: The Importance of Non-Reporting and Census Imputation." University of California at Los Angeles Discussion Paper (1981).

²⁵ See Larry Carstensen and Henry Woltman, "Comparing Earnings Data from the CPS and Employers' Records," *Proceedings of the American Statistical Association, Social Statistics Section*, 1979.

²⁶ See "Coverage of the National Population in the 1980 Census by Age, Sex and Race: Preliminary Estimates by Demographic Analysis," *Current Population Reports, Special Studies P-23, No. 115* (U.S. Department of Commerce, Bureau of the Census, 1983).

²⁷ Edgar L. Feige, "How Big is the Irregular Economy? *Challenge*, November-December 1979, p. 11.

²⁸ Feige, "A New Perspective".

²⁹ *Ibid.*, p. 40.

³⁰ Simon and Witte, pp. xiv-xv.

³¹ *Ibid.*, p. 223.

³² Lawrence Kaplan and J. Maher, "The Economics of the Numbers Game," *American Journal of Economics and Sociology*, October 1970, p. 402.

³³ Simon and Witte, p. 239.

³⁴ *Ibid.*, p. 294.

³⁵ Gutmann, "Are the Unemployed, Unemployed?" pp. 26-29.

³⁶ *Ibid.*, p. 27.

³⁷ Peter M. Gutmann, "The Grand Unemployment Illusion," *Journal of the Institute for Socioeconomic Studies*, Summer 1979, pp. 25-26.

³⁸ Louise E. Berndt, "Effects of the Irregular Economy on the Reliability of Estimates of Labor Force Utilization." Unpublished draft of a paper presented at the annual meeting of the American Sociological Association, San Francisco, September 1978.

³⁹ Molefsky, p. 25.

⁴⁰ *Ibid.*, p. 24.

⁴¹ Peter Reuter, "The Irregular Economy and the Quality of Macroeconomic Statistics," chapter 8 in Vito Tanzi, ed., *The Underground Economy in the United States and Abroad* (Lexington, MA., D.C. Heath and Co., 1981).

⁴² See the discussion of BLS price data earlier in this article.

⁴³ See footnote 2.

⁴⁴ Denison, "Is U.S. Growth Understated?" pp. 1-16.

⁴⁵ Edgar L. Feige, "The Irregular Economy: Its Size and Macroeconomic Implications" (Madison, WI., University of Wisconsin, SSRJ Workshop Series, May 1979), 23 pp.; Feige, "How Big is the Irregular Economy?"; pp. 7-11; and Feige, "A New Perspective", pp. 18-32.

⁴⁶ Feige, "A New Perspective," table 3.

⁴⁷ *Ibid.*, p. 42.

⁴⁸ Feige, quoted in "The Underground Economy's Hidden Force," *Business Week*, April 5, 1982, p. 70.

⁴⁹ Denison, *Accounting for Slower Economic Growth*.

⁵⁰ Denison, "Is U.S. Growth Understated Because of the Underground Economy? Employment Ratios Suggest Not," p. 42.

⁵¹ Peter M. Gutmann, "Professor Gutmann Replies," *Financial Analysts Journal*, November-December 1978, pp. 67-9.

⁵² Bove and Klingenstein, p. 4.

⁵³ All productivity figures used in this article are ratios of constant (1972) dollar output to total hours.

⁵⁴ Because of limitations in the data for general government, owner-occupied housing, and households and institutions, the largest sector for which BLS publishes productivity indexes is the business economy. The BLS, however, calculates but does not publish productivity data for the total economy. We have used the total economy here because that has been the context of Gutmann's work on the underground economy. While it may be difficult to draw inferences about BLS' published productivity measures for the major sectors such as private business, this is the best way of analyzing Gutmann's claims as well as any possible productivity impact that such claims, if valid, might have.

⁵⁵ Molefsky, pp. 27-28.

⁵⁶ Denison, "Is U.S. Growth Understated Because of the Underground Economy?"

⁵⁷ *Ibid.*, p. 3.

⁵⁸ Reuter, p. 130.

⁵⁹ Feige, "A New Perspective," p. 42.

⁶⁰ Reuter, p. 130.

⁶¹ David Birch, "The Job Generation Process," *The Effective Utilization of Small Business to Promote Economic Growth* (U.S. Congress, Joint Economic Committee, 96th Cong., 1st Sess, October 1979); see also, Richard Greene, "Tracking Job Growth in Private Industry," *Monthly Labor Review*, September 1982, pp. 3-9.

⁶² Catherine Armington and Majorie Odle, "Sources of Employment Growth 1978-1980" (Washington, D.C., The Brookings Institution, March 1982).

⁶³ Gloria P. Green and John Stinson Jr., "Comparison of Nonagricultural Employment Estimates from Two Surveys," *Employment and Earnings*, 1982, pp. 9-12.