

## FEATURE ARTICLE:

## THE UNDERGROUND ECONOMY AND AUSTRALIA'S GDP

### INTRODUCTION

A publication titled *Measuring the Non-Observed Economy: A Handbook*, was released in 2002. It was jointly authored by the Organisation for Economic Cooperation and Development (OECD), the International Monetary Fund, the International Labour Organisation and the Commonwealth of Independent States and was produced for the benefit of both producers and users of the national accounts. The Handbook's key aim is to identify and promote best statistical practice so as to ensure estimates of GDP and its components are as exhaustive as possible within the boundary of economic production as prescribed in the international national accounting guidelines, *System of National Accounts 1993*. The Handbook provides an internationally developed framework against which the ABS can review its current treatment of unobserved transactions in the national accounts.

The 'non-observed' economy refers to economic activities that are often missing from the data sources used to compile the national accounts. Typically, it includes transactions that are either underground, illegal, informal, or household production for own final use. The Handbook promotes best practices to ensure that statistical processes capture these transactions, even though they may be missing from basic data sources.

The underground economy is a sub-category of the non-observed economy. It is defined as covering "those activities that are productive and legal but are deliberately concealed from the public authorities to avoid payment of taxes or complying with regulations" (OECD 2002, page 13). Allowances for underground activity are currently included in estimates of GDP for Australia. However, no allowance is made for illegal production, such as the production and distribution of narcotics. Although illegal production falls within the scope of the production boundary prescribed in *System of National Accounts 1993*, it remains outside the production boundary used in the Australian national accounts and in other countries. It is recognised, however, that such illegal activity could be a significant component of total non-observed production in some countries.

Using the approach outlined in the Handbook, the ABS has been reviewing its treatment of the underground economy in the estimation of GDP and, more particularly, examining the potential for the level of GDP to be understated because of missed underground transactions. This article provides a brief overview of this work. Results suggest that the current allowances in GDP for the underground economy are likely to be conservative, but official estimates of the levels of GDP are highly unlikely to be understated by more than about 2%.

THE  
UNDERGROUND  
ECONOMY IN  
AUSTRALIA'S  
NATIONAL  
ACCOUNTS

By its very nature, the underground economy cannot be directly measured. Estimates of it must rely on a variety of indirect approaches, all of which can be regarded as methodologically contentious. In the Australian national accounts, explicit upward adjustments for the underground economy have been made for many years. More recently, they have been based on indicators from a study of aggregated income tax audits for the late 1990s. However, explicit adjustments are only the first step. Ultimately, the data confrontation process inherent in the supply and use methodology used to compile the national accounts, provides the checks and balances that give the ABS confidence that there are not substantial amounts of production missing from GDP as a whole, although the quality of some components could be more significantly affected. More information on how the ABS derives the adjustments in the national accounts is provided in Chapter 20 of *Australian National Accounts: Concepts, Sources and Methods* (cat.no. 5216.0) which is available free of charge on the ABS web site <www.abs.gov.au>.

The explicit adjustments applied in 2000–2001 to the income side of the GDP account are shown in Table 1. They added \$8.5 billion or 1.3% to the level of GDP. (Similar adjustments have been made in other years meaning that there is no impact on GDP growth rates.) Consistent adjustments are also applied to the production based estimates. On the expenditure side, a small adjustment (around 0.4%) is made to household final consumption expenditure. The data used to compile the expenditure measure are considered less susceptible to understatement. The adjustment factors used for each component are not varied from year to year but are subject to periodic review.

**TABLE 1. GROSS DOMESTIC PRODUCT ACCOUNT, INCOME ESTIMATES, 2000–2001**

	Estimate prior to adjustment	Explicit adjustment for missing underground transactions	Published estimate	Adjustment to initial estimate
	\$m	\$m	\$m	%
Compensation of employees	321,731	—	321,731	—
Gross operating surplus				
Non-financial corporations				
Private	96,766	3,205	99,971	3.3
Public	18,912	—	18,912	—
Total	115,678	3,205	118,883	2.8
Financial corporations	18,110	—	18,110	—
General government	13,018	—	13,018	—
Dwellings owned by persons	55,771	—	55,771	—
Total Gross operating surplus	202,577	3,205	205,782	1.6
Gross mixed income	54,202	5,277	59,479	9.7
Total factor income	578,510	8,482	586,992	1.5
Taxes less subsidies on production and imports	82,315	—	82,315	—
		—		
<b>Gross domestic product</b>	<b>660,825</b>	<b>8,482</b>	<b>669,307</b>	<b>1.3</b>

Source: Australian System of National Accounts 2001–2002 (cat no 5204.0) and unpublished estimates.

WHO IS  
INVOLVED?

Avoiding tax is the primary motivation for an economic agent to operate in the underground economy. Determining a hypothetical upper bound for understatement of GDP is a matter of judgement, but the size of the underground economy is obviously affected by the mode of payment (cash versus other means of payment), respect for the taxation system, and the vigilance of taxation and other authorities. Although the national accounts in Australia are only partly based on data from the taxation system, it has been assumed that, in general, businesses will also understate income in their responses to ABS surveys in order to be consistent with their reporting for tax purposes, even though, by law, the ABS cannot pass information about individual businesses to the Australian Taxation Office.

Businesses can understate their actual income by 'skimming' (i.e. not declaring) their cash receipts and or by overstating their expenses. Small businesses with few or no employees are the most likely to engage in the non-declaration of sales income. Areas such as catering, personal care, most repair services and miscellaneous goods and services, such as domestic services, are examples of areas where small businesses are a significant source of supply. In particular, repair and maintenance work undertaken for households is often paid for in cash directly, so the scope for under-reporting the value of this type of work may be significant. However, it must be stressed that even in industries where there is a high potential for understatement of income, many businesses or individuals could be expected not to understate their income or to understate it only to a minor extent, while others will omit a substantial proportion or even all of their income.

People can understate the level of their compensation, a practice known as 'moonlighting'. 'Moonlighting' takes two main forms:

- an employee works for another employer 'off the books' or
- a person provides services to households after hours and on weekends.

Individuals who undertake this type of activity are normally people with trade or vocational skills, such as car mechanics and those involved in building-related trades, or workers who undertake cleaning and other types of labour intensive unskilled work after hours. Some professional employees, such as schoolteachers and architects, could also be involved. Individuals not in the formal workforce such as students and those who are unemployed may also operate in the underground economy. In cases where an employee is 'moonlighting' by working for another employer the income generated should be classified as compensation of employees in the national accounts. In other forms of 'moonlighting', the individual is in effect operating as a small unincorporated business, and as such the income generated should be classified as gross mixed income in the national accounts.

POSSIBLE UPPER  
BOUNDS OF  
UNDERGROUND  
ACTIVITY MISSING  
FROM GDP

The ABS has recently systematically analysed each component of GDP and made judgements as to the maximum feasible level of understatement. This is the approach recommended in the international Handbook. In undertaking this analysis, the ABS applied subjective judgments at the most detailed level possible for each component. While such judgements are obviously subject to a large margin of error, when totalled they can provide a reasonable indication of what is plausible in terms of missing GDP.

The following key assumptions were made in order to make judgements about upper bounds for underground transactions:

- they are in cash;
- general government and government business undertakings are not involved;
- imputed transactions, including the value of owner-occupied housing services are not involved, by definition;
- large and medium businesses (defined as those with 20 or more employees) are unlikely to be involved in 'skimming' or overstating expenses to any significant extent;
- large and medium businesses are unlikely to understate compensation of employees expenses; and,
- small businesses understating income and individuals 'moonlighting' are the major contributors to the underground economy.

Based on these assumptions and a detailed analysis of GDP components, it is estimated that at least 65% of the goods and services included in GDP are either not subject to underground economy transactions or subject only to a very minor extent. The remainder of GDP, which includes the production of small businesses and individuals, is potentially affected to a more

**TABLE 2. UPPER BOUND ESTIMATES OF UNDERGROUND ACTIVITY MISSING FROM GDP: 2000–2001**

	<i>Estimate prior to adjustment for potentially missing underground transactions</i>	<i>Upper bound estimate of potentially missing underground transactions from GDP</i>	<i>Upper bound estimate of potentially missing underground transactions from GDP</i>
	\$m	\$m	% of estimate prior to adjustment
Compensation of employees	321,731	6,382	2.0
Gross operating surplus			
Non financial corporations			
Private	96,766	5,356	5.5
Public	18,912	—	—
Total	115,678	5,356	4.6
Financial corporations	18,110	—	—
General government	13,018	—	—
Dwellings owned by persons	55,771	—	—
Total gross operating surplus	202,577	5,356	2.6
Gross mixed income	54,202	20,256	37.4
Total factor income	578,510	31,994	5.5
Taxes less subsidies on production and imports	82,315	—	—
<b>Gross domestic product</b>	<b>660,825</b>	<b>31,994</b>	<b>4.8</b>

POSSIBLE UPPER  
BOUNDS OF  
UNDERGROUND  
ACTIVITY MISSING  
FROM GDP  
*continued*

significant extent. Table 2 summarises ABS judgements as to what could be considered very generous 'upper bound' estimates for underground transactions in the context of the income measure of GDP. The estimates shown in Table 2 are built up from estimates that are more detailed.

At first sight the upper bound for understatement of compensation of employees (2%) may appear low. However, the upper bound on compensation of employees paid by small private businesses is substantial and for industries such as construction, accommodation, cafes and restaurants and personal and other services it was assumed for the purposes of the study to be as high as 20%. It should also be noted that the source of data for compensation of employees is the employer and not the employee. Hence, the motivation for understatement by the employer is either not present or far weaker because compensation of employee type expenses are normally tax deductible.

The upper bound estimate for understatement of gross mixed income (37.4%) is very high to take account of both the predominance of small businesses contributing to the gross mixed income estimate and also the potential for tradespersons, professionals and others to 'moonlight' on their own account. Again, generous allowances for the potential understatement of income have been made for the most likely affected industries.

The example most often mentioned in relation to the underground economy is that of building tradesmen doing work 'off the record'. Estimates of the income from construction in the national accounts are not based on the income declared to taxation authorities, but are derived "in-house" using estimates of the investment in constructed assets as a starting point. The ABS believes that the estimates of investment in residential construction are reasonably reliable in spite of underground activity because: the requirement exists to provide a finished valuation as part of the process for obtaining a local government building permit; prime contractors rather than sub-contractors are targeted in surveys; financial institutions are generally involved in making progress payments; and expenditure data from household surveys are used to estimate some components. As a result, the total value of income derived from construction of new dwellings is unlikely to be significantly understated in the national accounts, although there remains some scope for understatement, especially for alterations and additions to existing dwellings and building maintenance.

An alternative approach to determining a possible upper bound for non-disclosed income is through the analysis of detailed population statistics. This approach is useful since a high level of accuracy can be attached to population counts. A study of this

POSSIBLE UPPER  
BOUNDS OF  
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FROM GDP  
*continued*

type was undertaken to check the plausibility of the estimates derived above. In undertaking the study, it was presumed that all underground activity involves participation by persons who are either employed or unemployed, or not officially in the labour force such as full-time students. Again, assumptions were made about the possible extent of individual involvement in underground activity depending on labour force status and occupation. Using very generous assumptions about the proportion of people involved and average hours worked in the underground economy, the study produced results consistent with those shown in Table 2.

Considering that the upper bounds used in the ABS analysis were deliberately chosen to stretch the limits of plausibility for the detailed components of GDP, it strongly indicates that the largest possible upward adjustment required to income for the underground economy would be in the order of 5%. More likely it would be considerably less than this. Given the adjustments already made for underground transactions in the national accounts compilation, the ABS considers it highly unlikely that the level of GDP could be understated by more than about 2% on account of missed underground transactions.

ESTIMATES  
DERIVED FROM  
MONETARY  
MODELS OF THE  
ECONOMY

Monetary modelling techniques have been used in Australia and overseas to derive estimates of the underground economy. Using these techniques, estimates as high as 15% of GDP have been derived by academic researchers for Australia and some other OECD countries. Additional analysis was undertaken by the ABS of the possible implications for the detailed components of GDP if estimates of this order of magnitude were to be valid. While there are obviously a number of scenarios for splitting a given understatement adjustment across the key components that comprise GDP, the analysis concluded that the size of the adjustments required to accommodate under-reporting on this scale are unlikely to be assessed as plausible. Additionally, such levels of understatement would indicate implausibly high levels of household expenditure, in relation to after tax household income, on the limited range of goods that can be purchased 'under the counter'.

This conclusion is consistent with the international guidelines which consider such macro-economic modelling methods to be unreliable. Those guidelines conclude that "Monetary macro-models are unsuitable for estimating the underground economy primarily because they are based on modelling assumptions that cannot be justified" (OECD 2002, page 190).

## CONCLUSION

In the compilation of the Australian National Accounts, allowances are made for underground transactions that are unreported in the source data. The adjustments rely on indicative information from aggregated income tax audit data, anecdotal evidence and checks and balances inherent in the national accounting methodology itself. They are obviously subject to a degree of error, and are more likely to err on the conservative side.

Within each of the three approaches to measuring GDP, areas where there is little or no scope for underground activities account for a substantial proportion of total production. Where understatement does occur it tends to be concentrated in particular areas, which could impact on the reliability of some components of GDP. Overall, the ABS is confident that estimates of the level of GDP are highly unlikely to be understated by more than about 2%.

A discussion paper detailing the recent ABS work in this area will be available later in 2003. The ABS will review this work in 2004 to determine whether any changes should be made to estimates of unreported activity included in the national accounts, with the view to introducing any changes in the 2004 round of annual GDP benchmarks. In making any changes, a key decision will be how to develop estimates for historical periods. Unless there is strong evidence of significant changes in the amount of underground activity over time, it is likely that any revised adjustment factors will be held constant over time.

## FURTHER INFORMATION

Further information can be obtained by contacting Margaret Hausknecht on (02) 6252 6250 or email <margaret.hausknecht@abs.gov.au>.

## REFERENCE

OECD, 2002. *Measuring the Non-Observed Economy: A Handbook*. Jointly authored by OECD, IMF, ILO, Interstate Statistical Committee of the Commonwealth of Independent States.

