

**Individual Behaviour in the Cash / Shadow Economy in Australia:  
Facts, Empirical Findings and some Mysteries<sup>1)</sup>**

by

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**Abstract:**

This paper first gives an explanation of the behaviour that motivates individuals to engage in the shadow economy. It will be shown that people who fear being caught by tax authorities will be less likely to supply or demand work in the shadow economy. Further, those who earn more money in the 'official' economy will work less in the shadow economy but demand more work. The results of logistic regressions show that when working in the shadow economy is socially acceptable, shadow economy activities are higher. It was found that on average, a shadow economy worker earned AUS\$2135.31 during the year 2000, and households spent AUS\$2,293.00 for these services. Using micro-data to calculate an overall aggregate figure for the estimated size of the shadow economy in Australia during the year 2000, it was found that between 4.81% and 8.8% of the gross national income (GNI) was earned in the cash economy.

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## 1. Introduction

As crime and other underground economic activities (including the shadow economy) are a fact of life around the world, most societies attempt to control these activities through various measures such as punishment, prosecution, economic growth or education. Gathering statistics about who is engaged in underground (or criminal) activities, the frequency with which these activities occur, and the magnitude of such activities, is crucial for making effective and efficient decisions regarding the allocation of a country's resources. Given that the individuals who are engaged in these activities do not want to be identified, it is very difficult to get accurate information about these underground activities. Hence, the estimation of shadow economy activities can be considered a scientific passion for knowing the unknown. Moreover, little is known about what motivates individuals to work in the shadow economy or request such work.

Although quite a large amount of literature<sup>1</sup> has been published on single aspects of the hidden economy, and a comprehensive survey has been written by Schneider and Enste, the subject is still quite controversial<sup>2</sup>. There are disagreements about the definition of what constitutes a shadow economic activity, there are disagreements about the estimation procedures used to estimate the size of the shadow economy and there is also disagreement of the use of these estimates in economic analysis and policy aspects.<sup>3</sup>

There appear to be strong indications that the shadow economy is increasing around the world. The size, the causes and the consequences of this increase are different for different countries, but there are some comparisons which can be made between them that might be of interest to social scientists, the public in general, and also might be helpful to politicians who need to deal with this phenomenon. There are several important reasons

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<sup>1</sup> The literature about the "shadow", "underground", "informal", "second", "cash" or "parallel" economy is rapidly increasing. Various topics on how to measure it, its causes and its effect on the official economy have been analysed. See for example, the first publications by Tanzi (1982), Frey and Pommerehne (1984), and Feige (1989); survey related publications by Thomas (1992), Loayza (1996), Pozo (1996), Lippert and Walker (1997), Schneider (1994a, 1994b, 1997, 1998a), Johnson, Kaufmann and Shleifer (1997), and Johnson, Kaufmann and Zoido-Lobaton (1998a); and for an overall survey of the global evidence of its size, Schneider and Enste (2000).

<sup>2</sup> Compare e.g. in the Economic Journal, vol. 109, nr. 456, June 1999 the feature "controversy: on the hidden economy".

<sup>3</sup> Compare the opinions of Tanzi (1999), Thomas (1999) and Giles (1999).

why politicians and public sector officials should be especially worried about the size and growth of the shadow economy. Amongst the most important of these are:

- (1) If an increase in the shadow economy is caused mainly by a rise in the overall tax and social security burden, then this may lead to an erosion of the tax and social security bases and finally to a decrease in tax receipts. This will subsequently lead to a further increase in the budget deficit or to a further increase of tax rates with the consequence of an additional increase in the shadow economy and so on. Therefore an increase in the shadow economy can be seen as a reaction by individuals who feel overburdened by state activities.
- (2) As the shadow economy increases, economic policy will be based on erroneous “official” indicators (e.g., unemployment, official labour force, income, consumption), or at least indicators that are “inaccurate” in their magnitude. In such a situation a prospering shadow economy may lead to severe difficulties for politicians because it “causes” or “provides” unreliable official indicators, and the direction of the intended policy measures may therefore be questionable.
- (3) While an increase in the shadow economy provides strong incentives to domestic and foreign workers and draws resources away from the official economy, it should be mentioned that two-thirds of the income earned in the shadow economy is subsequently returned to the official economy<sup>4</sup> (e.g., retail spending) resulting in a considerable positive effect on the official economy.

These concerns and the scientific fascination of the underground economy has inspired us to tackle this difficult question and undertake the challenging task of providing some empirical knowledge and insights about why people work in the shadow economy or why people request such work.

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<sup>4</sup> This figure has been derived from polls of the German and Austrian population about the effects of the shadow economy. For further information see Schneider (1998b). Moreover, the results of these polls show that two-thirds of the value added produced in the shadow economy would not be in the official economy if the shadow economy did not exist.

Section 2 presents some basic findings of a survey which asked 7754 Australian households about their tax paying behaviour, whether they evade their taxes, and whether they work in the cash economy or request such work. Section 3 presents some preliminary findings about the factors that might motivate individuals to work (or request work) in the shadow economy. Finally, section 4 provides a summary of the major empirical findings and the conclusions that can be made from these findings.

## **2. Some basic survey findings on individual attitudes to the cash/shadow economy**

In June 2000, the “Community Hopes, Fears and Actions Survey” (V. Braithwaite, ANU) was sent to 7754 Australian households. In this survey respondents were asked a broad range of questions about their experiences with the Australian Taxation Office, their tax paying behaviour, their cash transaction behaviour, their goals for an Australian society, and whether they believe the tax office acts in accordance with the standards set out in the Taxpayers’ Charter.<sup>5</sup> A response rate of 29% was achieved after adjusting for out of scope responses, with 2040 households returning a completed questionnaire. Of the 2040 respondents, 118 persons (households) admitted that they had received cash-in-hand payments in the last 12 months, suggesting that 6.0% of the investigated households work in the shadow economy. In addition, 283 (or 14.4%) of the respondents said that they demanded shadow economy work (paid cash-in-hand in the last 12 months) and 29 persons (1.4%) said that they both worked regularly in the shadow economy and hired shadow economy workers.<sup>6</sup>

Table 1 presents the income earned in the shadow economy, the money spent on shadow economy activities and the “official” income situation for shadow economy workers and those who demand shadow economy work. On average, shadow economy workers earned AUS\$2135.31 per year which is 8.82% in terms of their official income. Of the households that demanded shadow economy work, an average of AUS\$2,293.5 was spent annually, which is 5.85% of their “official” income. The average hourly wage earned by a

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<sup>5</sup> In this paper we will only present the empirical findings with respect to cash/shadow economy attitudes; for other findings see Braithwaite, Reinhart, Mearns, and Graham (2001).

shadow economy worker was reported to be AUS\$23.29, while the average amount of money spent for this work was reported to be AUS\$48.25 per hour. While unlikely, it appears that those demanding shadow economy work spend 107% more per hour than a shadow economy worker earns. Table 1 also shows that shadow economy workers have considerably lower incomes than those who demand shadow economy activities, with the average “official” income of a shadow economy worker being 61.7% of the average “official” income of a person who demands shadow economy work.

The services provided by shadow economy workers and the services requested by those who demand shadow economy work are shown in Tables 2 and 3 respectively. Not only do both tables show differences in the average amount of income earned in the various jobs and the average amount of money spent in the various work areas, but also there are differences in the frequencies of the different work/job fields. Shadow economy workers are mostly engaged to do “repair work in the house and garden” and also in the area of “teaching, training and entertainment”, whereas shadow economy work is mostly demanded in the sectors of “repair work in the house and garden”, “house services” and “garden work”. Both Tables 2 and 3 show that on average the highest income earned per year is in the “car delivery service sector”, with AUS\$6,089.80 being earned by a shadow economy worker and AUS\$7,498.67 being spent for this service. In other areas, differences emerge between the estimates in Tables 2 and 3: Shadow economy workers in the area of “service outside the house” earn on average AUS\$2,370.91 per year, while purchasers of this work spend AUS\$5,370.42 on average. This finding suggests that those who work in this area fail to declare the majority of their earnings. In the area of “teaching, training and entertainment”, purchasers spend on average AUS\$516.66 per year, whereas workers in the same area earn AUS\$2,381.00. Besides car delivery services, shadow economy workers earn most in the area of “repair in house and garden” with an average of AUS\$3,226.11 being earned per year. The least amount is earned in the area of “farm and other services” with an average of AUS\$500.00 per year.

Table 4 presents results that investigated whether households that are engaged in the shadow economy have different attitudes to those who are not engaged in the shadow

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<sup>6</sup>These figures of shadow economy activities are quite low compared to European results; e.g. in a survey in Germany 24% of all respondents worked in the shadow economy and 42.5% hired shadow economy workers (compare

economy. Attitudinal research on tax evasion points to the importance of perceptions of the likelihood of getting caught (Andreoni, Erard, and Feinstein, 1998; Jackson and Milliron, 1986) and the defensibility of one's actions to self and others (Thurman, St. John, and Riggs, 1984) as motivating factors. These attitudes were assessed in this paper by the following two questions:

- (1) "Imagine yourself in this situation: You have been paid \$5000 in cash for work that you have done outside your regular job. You don't declare it on your income tax return. What do you think the chances are that you will get caught?"
- (2) Why do you think people work for cash-in hand payments? By cash-in-hand payments we mean cash money that tax is not paid on."

When examining the results to question 1 (see Table 4), it can be clearly seen that people (both suppliers and purchasers) engaged in shadow economy activities think that their chances of getting caught are considerably lower compared to the other respondents. For example, 33.0% of shadow economy suppliers and 32.4% of those who demand shadow economy work think the 'chance of getting caught is about 0%' compared to 15.6% of non-shadow economy workers and 13.9% of non-shadow economy purchasers. Only 9.6% of shadow economy suppliers and 8.4% of those who demand shadow economy work think the 'chance of getting caught is about 100%', in contrast to 20.3% of non-shadow economy workers and 21.5% of non-shadow economy purchasers.

Turning to question 2 responses (see Table 4), one possible explanation given by survey respondents as to why they thought people work for cash-in-hand payments is that income taxes are too high. Systematic differences between people engaged in the shadow economy and those who are not were also found. However, the differences were not as clear-cut as the differences found for question 1. Results showed that 37.7% of the shadow economy workers (suppliers) and 23.4% of those who demand shadow economy work (purchasers) think that people are engaged in the shadow economy because income taxes are too high versus 19.4% of non-shadow economy workers and 19.8% of non-shadow economy purchasers.

In Tables 5 to 7, the findings of other important attitudinal and socio-demographic variables are shown. Table 5 presents the findings from those people who are engaged in shadow economy work and clearly shows that, on average, cash economy workers have considerably lower 'official' incomes than those people not working in the shadow economy (mean difference is AUS\$4,100 or 85% of a non-cash economy worker's income). However, this may be explained by the fact that shadow economy workers are considerably younger than non-shadow economy workers (average age is 38.3 years versus 48.6 years respectively), with an average of 10.4 years separating them.

Not surprisingly, shadow economy workers have had significantly more contact and conflict with the ATO (see Table 7 for description of the measures used). In addition, compared to non-shadow economy workers, shadow economy workers think that they should be much less honest in declaring cash earnings and they are more likely to believe that others agree with them. A similar result was found when measuring the attitude: "It is smart to work in the shadow economy". Shadow economy workers endorsed this attitude more strongly than non-shadow economy workers. Further, in contrast to non-shadow economy workers, shadow economy workers disapprove much less of others working in the shadow economy. Interestingly, those involved in the cash economy are also more likely to have a "smart" tax agent. A smart tax agent is one who is creative, seeks out tax loopholes and exploits the grey areas of the law. Thus, in more ways than one, these people seek to reduce their tax obligations.

Table 6 presents the results for those who demand shadow economy activities compared to those who do not. It can be seen that results of these two groups are similar in some respects. When examining the age variable, no significant difference is found between those who demand shadow economy work and those who do not (48.45 years versus 47.82 years respectively). Interestingly, no difference emerged between the two groups in answer to the attitude question "I should honestly declare cash earnings". This is in contrast to the finding for the shadow economy suppliers (see Table 5). There was also no difference between people demanding shadow economy work and those who do not in relation to the variable "has a smart tax agent". One difference of importance that was found between these two groups of people was that those demanding shadow economy

work had considerably higher incomes than those not demanding shadow economy work (on average 50.6% higher). Moreover, people demanding shadow economy work differed from those not demanding such work with respect to three attitudes: Purchasers of shadow economy work were more likely to think that other people believed it was acceptable to earn money in the shadow economy, they themselves saw shadow economy workers as smart, and they were not about to criticize shadow economy workers for their activities.

In general, the results demonstrate that there are significant differences between the attitudes of people engaged in the shadow economy and those who are not. The next section will attempt to explain what influences people to become engaged in the shadow economy.

### **3. A preliminary explanation of the factors which motivate individuals to work in the shadow (cash) economy**

For an individual to be engaged in shadow economy activities (either on the purchase or supply side), several factors play a role. Below, a number of variables have been hypothesized to play a role in influencing people to become involved in the cash economy. They are:

- 1) The income situation. *Ceteris paribus*, it would be expected that as income increased, people would demand and supply less shadow economy activities; hence a negative correlation would be expected. This hypothesis is based on an assumption that as income increases, need to operate in the shadow economy decreases. However, human aspiration may drive this relationship more than income adequacy. It could be the case that shadow economy workers compare their income situation with their neighbours, want to have a better life, and hence increase their shadow economy activities. Thus a positive correlation would also seem plausible if this were the case.

Research findings on tax evasion more generally reflect the ambiguity conveyed in Hypothesis 1 (Andreoni, Erard, and Feinstein, 1998; Jackson and Milliron, 1986). Mixed results have led some researchers to turn their attention to subjective assessments of income adequacy and compliance costs as captured below in Hypothesis 2.

- 2) If people feel burdened by the demands of the state (e.g., high income tax, red tape, other costs, lack of disposable income) they will be more likely to be engaged in shadow economy activities, ceteris paribus.

The burden of taxation has been a standard explanation for the rise of the shadow economy (Alm, Sanchez, and de Juan, 1995), but the empirical findings in support of this assertion are far from conclusive (Jackson and Milliron, 1986). Often this hypothesis has been tested using objective indicators such as marginal tax rates without considering the importance of taxpayer perception in understanding taxpayer motives. Behaviour is more likely to be affected if taxpayers perceive themselves as carrying a burden, that is, through an awareness that they have insufficient disposable income, that they are paying a lot of tax and that they have extra costs associated with meeting their tax obligation. The attitudinal measure of perceptions of tax burden is described in Table 7.

- 3) People engaged in shadow economy activities know that if they are caught by the tax authorities they will be punished; hence people who believe that the likelihood of being detected is high will be less likely to be engaged in shadow economy activities, ceteris paribus.

Perception of the likelihood of detection has been one of the most consistent predictors of tax evasion (Andreoni, Erard, and Feinstein, 1998; Jackson and Milliron, 1986).

- 4) If people feel a high moral obligation to pay their taxes, they will be less likely to be engaged in shadow economy activities, ceteris paribus.

Along with perception of the likelihood of detection, feeling a moral obligation to pay tax has emerged as a major factor in understanding tax compliance (Grasmick and Bursik, 1990; Scholz and Pinney, 1995; Schwartz and Orleans, 1967). Having internalised the belief that paying tax is the right thing to do, a person can be said to have a conscience about paying tax. Once activated, conscience serves as a self-regulatory mechanism that delivers voluntary compliance (Ahmed, Harris, Braithwaite, and Braithwaite, 2001).

5) Those people who are in conflict with the Australian Taxation Office are more likely to be engaged in shadow economy activities, *ceteris paribus*. The same holds for those who have a lot of contacts with the Tax Office.

Research findings on contact with a tax enforcement agency have produced mixed results (Andreoni, Erard, and Feinstein, 1998; Jackson and Milliron, 1986). Most of this work is based on the Internal Revenue Service in the United States so that the generalizability of the findings to other tax authorities needs to be approached with caution. Theoretically, one would expect that individuals who had frequent contact with a regulatory agency and who had conflict with that agency were positively disposed toward taking actions that were at the margins of legality. Similarly, from the perspective of effective regulation, one might argue that an effective tax authority should be having more contact and conflict with those at the margins or beyond the bounds of legally sanctioned behavior.

6) Those people who feel they should honestly declare all cash earnings, will be less likely to be engaged in shadow economy activities, *ceteris paribus*. Also, those people who believe that other people feel the same way, that is, that they should honestly declare all shadow economy activities will be less likely to be engaged in shadow economy activities.

Personal and social norms are increasingly being examined as explanatory factors in the context of tax compliance (Alm, Sanchez, and de Juan, 1995). An individual's understanding of what he or she should do in a particular situation, that is, should he or she declare all cash earnings, describes a personal norm. The individual's

understanding of what others believe about this same practice, that is, do others believe they should declare all their cash earnings, represents a social norm. Personal and social norms are expected to positively reinforce each other, but need not be of the same magnitude in a community. In Australia, the personal norm of honestly declaring cash earnings is stronger than the corresponding social norm (see Braithwaite, Reinhart, Mearns, and Graham, 2001). Individuals are most likely to say that they personally believe in being honest about declaring all cash earnings, but they don't think other people share this view. Therefore, both personal and social norms are tested as predictors of cash economy activities.

- 7) Those who think that people engaged in shadow economy activities are smart will be more likely to be engaged in shadow economy activities themselves, *ceteris paribus*.

Personal and social norms represent community perceptions of what is socially acceptable behaviour. They play a central part in shaping an individual's identity. Just as influential are the actions of those groups that the person respect and admire. Such groups may not follow socially accepted customs. Nevertheless, they may offer an identity that appeals to people, particularly those people who are frustrated with more socially accepted ways of operating (Sutherland and Cressey, 1978). Prerequisites for identifying with a group engaged in cash economy activities and subsequently taking part in such activities oneself are likely to be respect for group members and loyalty to that group (Tyler and Blader, 2000). Hypothesis 7 addresses the issue of respect through the belief that cash economy workers are smart. Hypothesis 8 addresses the issue of loyalty through being unwilling to criticize or blow the whistle on those working in the cash economy.

- 8) Those people who disapprove of others working in the shadow economy will be less likely to be engaged in shadow economy activities.

While the variables presented in hypotheses 1 to 8 above have been specifically proposed, other factors such as age, education, occupation, gender, marital status, and number of children may also predict whether people become involved in the shadow economy.

Table 8 presents the results of a logistic regression. With the help of this regression an attempt is made to explain the decision of individuals to engage in the shadow economy or not. The dependent variables are as follows:

- 1 work/supply shadow economy activities (n=78)
- 0 do not work/supply shadow economy activities (n=1159)

and

- 1 demand shadow economy activities (n=201)
- 0 do not demand shadow economy activities (n=1030)

The independent variables are the factors mentioned in Hypotheses (1) to (8) in addition to some socio-demographic variables. If we first turn to the overall explanatory validity of these two logistic regressions, we get a Nagelkerke  $R^2$  of 0.260 for shadow economy supply and  $R^2$  of 0.215 for shadow economy demand; i.e. 26% and 21.5 % of the variance of the dependent variables are explained, respectively, by the predictors. For those who work in the shadow economy, we can correctly predict 5.1% of cases, and 99.6% of cases for those not working in the shadow economy. For those who purchase cash economy work, we can correctly predict 15.9% and 98.6% of those not purchasing cash economy work. Overall, for shadow economy suppliers we can predict 93.6% of all cases correctly, and 85.1% for shadow economy purchasers. While these results are promising, the regression models have to be improved to raise predictive capacity for shadow economy workers and those who demand services.

If we now turn to the independent variables and their relationship to the dependent variable of interest, some hypotheses are confirmed, others not. The variables “moral obligation to pay taxes” and “disapproval of cash economy work” had no statistically significant influence on shadow economy supply or demand. In contrast, the variable “chances of getting caught” did have the expected statistically significant influence on shadow economy workers and those who demand shadow economy work: Those engaged in the shadow economy estimated their chances of being caught as lower than non-participants.

The likelihood of working in the cash economy was also lower if one accepted the personal norm of being honest in declaring cash earnings, as well as the social norm of perceiving others as feeling the same way. Although these variables did not affect demand, it is of interest that purchasers of cash economy work thought of these workers as being smart operators.

Having had conflict with the ATO or having had a lot of contact with the ATO had no influence on peoples' motivation to be engaged in shadow economy activities. Believing that government demands were excessive did play a role, but in an unexpected way. Purchasers were more likely to deny that they demanded cash economy work so that they could reduce costs and avoid government red tape. They were more likely to attribute cash economy activity to workers believing that their tax was too high, that they were lacking disposable income, and wanting to avoid government red tape. By way of contrast, cash economy workers were more likely to claim that it was the purchaser who wanted to cut costs, avoid taxes and red tape. These data suggest that a process of "neutralization" as described by Thurman, St. John, and Riggs (1984) may be in play here, with each group blaming the other for their own participation in illegal activities. Further work is being planned to unravel the social processes leading to these results.

An increase in income, *ceteris paribus*, appeared to reduce shadow economy supply (i.e., work in the shadow economy decreases), but increased the demand for shadow economy activities—a result not consistent with our income hypothesis. The results also show that as people aged, they tended to work less in the shadow economy. Education and occupation appeared to have no influence on shadow economy activities. Men worked more in the shadow economy than women (statistically significant) but women demanded more shadow economy activities (statistically significant). Those who were married were more likely to be purchasers in the shadow economy. The number of children one had and whether one had to pay child support had no influence on shadow economy activities. The self-employed and people with their own businesses were more likely to be purchasers, and to a lesser extent, suppliers in the cash economy.

Table 9 attempts to explain which variables predict the amount of cash money earned in the shadow economy and Table 10 attempts to explain which variables predict the amount of cash money spent in the shadow economy. For these analyses, the same variables were used as in the logistic regressions with four additional variables (see Table 7 for a description of these variables). The first, wanting an honest tax agent, was introduced because tax agents are more likely to be useful to cash economy participants as the amount of money involved increases. The prediction was that engagement in the cash economy would be negatively correlated with wanting an honest tax agent. The second and third variables measured satisfaction with one's material well-being, to complement the objective measure of income that had already been included in previous analyses. Finally, the model included the type of work done in the shadow economy. In each case, for suppliers and purchasers, the ordinary least squares regression analysis was based on the sub-sample who were active in the shadow economy. To preserve degrees of freedom, the final models contained a subset of variables that best contributed to explaining variation in the amount of money earned and spent in the shadow economy.

Five variables were significant in the regression model predicting the amount earned in the cash economy. Higher earnings and having more children were associated with higher official income, less education, and being self-employed and the owner of a business. Those earning more in the cash economy were also wanting a tax agent who was less than honest. When the final set of 11 best predictor variables were entered into the regression model, the overall F-test was statistically significant,  $F=4.52$ ,  $p < 0.001$ . However, only 32% ( $R^2 = 0.319$ ) of the variation in amount of cash money earned could be explained by these variables together.

Table 10 presents the results for the money spent for shadow economy activities. Official income is positively related to the amount of money spent on shadow economy activities, as is feeling materially disadvantaged by the tax system, and having less education. Spending money in the cash economy is also related to not wanting an honest tax agent. Only 15% ( $R^2 = 0.146$ ) of the variation (see Table 10) in the amount of money spent in the shadow economy could be explained when the 11 best predictors were entered into the regression ( $F = 4.21$ ,  $p < 0.001$ ). Given that the overall fit is poor, both regressions need to be improved before any firm conclusions can be made about the results.

#### **4. A preliminary attempt to calculate aggregate figures of the Australian shadow economy<sup>7</sup>**

Section 2 presented income figures of individuals who work in the shadow economy. A preliminary attempt can be made to use these income figures to calculate an aggregated figure of the shadow economy income earned in Australia. The procedure and results of this attempt are shown in Table 11 (part 1 and 2). It should be noted that in order to estimate an aggregated figure of the shadow economy in Australia, a number of assumptions have to be made. These assumptions include how many people are working in the shadow economy, how one treats the unemployed and how one treats those who retire early. Consider the officially employed workforce first. By grouping them using Australian Bureau of Statistics categories (labourers, managers, and administrators, etc), and then assuming that they are engaged in shadow economy work, an overall figure of AUS\$17.563billion or 2.86% of GNI being earned through the shadow economy can be estimated. However, this figure does not include the unemployed or those who have retired early (55-65 years of age).

By combining the unemployed and those who have retired early, there are 5,625,700 people who could potentially work and earn in the shadow economy. This poses a problem when trying to estimate how much these people can work and earn. As these groups of people have much more time on their hands they have the ability to work more. Hence, an absolute minimum figure that they could earn is the same as the shadow economy income earned by those who are officially employed. These two groups of people might also earn double or triple the amount of 'cash' income than the officially employed and these estimates are also presented in Table 11. All three of these possibilities may be plausible. Assuming that the unemployed and those who have retired early have the same shadow economy income as those who are officially employed, an

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<sup>7</sup> One of the few and latest studies estimating the underground economy in Australia has been done by Christopher Bajada (1999). Bajada uses the currency demand approach, over the period 1967 – 1995, not the micro estimates method used here to estimate the Australian shadow economy.

aggregated figure of AUS\$29.575billion (or 4.81% of official GNI) being earned in the shadow economy by these two groups can be obtained. Assuming they earn double the cash income of those officially employed, an aggregate figure of AUS\$41.588billion (or 6.77% of official GNI) being earned in the shadow economy by these two groups can be obtained. Finally, assuming these two groups of people earn triple the amount of cash income of those officially employed, we get an aggregate figure of AUS\$53.601billion (or 8.75% of official GNI) being earned in the shadow economy.<sup>8</sup> To get an overall indication of how much is being earned in the Australian shadow economy, one should also add the amount of shadow economy income earned from small and medium sized enterprises to these aggregated figures. An overall estimate of the shadow economy work being conducted in Australia was calculated using the currency demand approach (see Schneider & Enste, 2000) and it was found that the value is approximately 14.2% of GNI. While the aggregate results presented in this section seem plausible, it should be noted that the assumptions that were made could be criticised and hence the results should be accepted with caution.

## **5. Summary and policy conclusions**

This paper has attempted to provide an explanation of the individual behaviours which motivate people to engage in the cash economy. Socio-demographic variables were important, along with threat of legal sanctions and perceptions of social norms. The findings support the conclusion that Alm, Sanchez, and de Juan (1995) reached on the basis of their experimental work: There is considerable diversity in the behaviour of taxpayers motivated by “myriad factors ... that go much beyond the standard economics-of-crime approach” (p. 15).

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<sup>8</sup> Bajada's estimate of the size of the underground economy in % of GDP for the year 1995 was 15.5% and for the year 1994, 15.2%. His estimates, using a different method, are much larger than the one obtained here for the year 1999/2000.

Overall, the results presented in this paper showed that a shadow economy worker earned, on average, AUS\$2,135.31 in 2000 and households spent AUS\$2,293.00 for shadow economy activities in 2000. Results also showed that people engaged in shadow economy work as a supplier or purchaser are convinced that the probability of being caught is considerably lower than those not engaged in such activities. In addition, involvement in the cash economy is associated with views about tax been too high, and red tape and government charges being cumbersome. Interestingly, purchasers attributed these motives to suppliers and suppliers to purchasers, but neither group owned these attitudes themselves. Purchasers, and to a lesser extent, suppliers were more likely to be found among the self-employed and owners of small businesses. Those working in the shadow economy were less likely to place importance on being honest when declaring their cash earnings, while purchasers thought shadow economy workers were smart and should not be criticized for their activities. The results also showed that if others are seen to be supportive of the shadow economy then this is likely to increase such activities (i.e., “if everyone else does it, I might as well do it too”). The above findings were supported empirically with a logistic regression analysis when using the dichotomous dependent variable (not engaged (=0) or engaged (=1) in the shadow economy).

Finally, by using the data collected in the survey, an overall aggregate figure was calculated to estimate the degree of income earned in the cash economy in Australia for the year 2000. It was estimated that between 4.81% and 8.8% of Gross National Income (GNI) was earned through these illegal activities. Overall, it should be noted that this paper presents preliminary findings from the Community Hopes, Fears and Actions Survey and should only be seen as a first attempt at explaining the motivating factors responsible for why people engage in shadow economy activities.

**Table 1:** Earned income in the shadow economy, money spent for shadow economy activities and the “official” income for both shadow economy suppliers and purchasers

<b>Statistics / Value</b>	<b>Annual income earned by shadow economy workers in AUS\$</b>	<b>Hourly wage of shadow economy workers in AUS-\$</b>	<b>Money spent per year for shadow economy activities in AUS\$</b>	<b>Money spent per hour for shadow economy activities in AUS\$</b>	<b>Annual “official” income of shadow economy workers in AUS\$</b>	<b>Annual “official” income of those who purchase shadow economy work in AUS\$</b>
<b>Mean</b>	<b>2135.31</b>	<b>23.29</b>	<b>2293.50</b>	<b>48.25</b>	<b>24,200.00</b>	<b>39,217.20</b>
<b>Std. Error of Mean</b>	<b>461.23</b>	<b>2.75</b>	<b>697.05</b>	<b>4.14</b>	<b>1,643.00</b>	<b>2,079.20</b>
<b>Median</b>	<b>500.00</b>	<b>15.00</b>	<b>500.00</b>	<b>30.00</b>	<b>20,000.00</b>	<b>35,000.00</b>
<b>Minimum</b>	<b>70.00</b>	<b>3.00</b>	<b>15.00</b>	<b>1.00</b>	<b>0.0</b>	<b>0.0</b>
<b>Maximum</b>	<b>30,000.00</b>	<b>200.00</b>	<b>150,000.00</b>	<b>450.00</b>	<b>100,000.00</b>	<b>250,000.00</b>
<b>Sum</b>	<b>215,666.00</b>	<b>-</b>	<b>580,255.00</b>	<b>-</b>	<b>2,783,000.00</b>	<b>10,471,000.00</b>
<b>Frequency (Sample size)</b>	<b>101</b>	<b>101</b>	<b>253</b>	<b>253</b>	<b>115</b>	<b>267</b>
<b>Shadow economy activity as % of “official” income</b>					<b>8.82%</b>	<b>5.85%</b>

Source: own calculations

**Table 2: Services offered by shadow economy workers**

Service	Sample (N)	Annual income earned in the shadow economy AUS\$			
		Mean	Std. Deviation	Minimum	Maximum
1) Repair work in the house and garden	18	3,226.11	7,140.23	70	30,000
2) Garden work	7	582.14	649.15	100	2,000
3) House services	15	1,123.47	1,877.00	72	6,500
4) Service outside house	11	2,370.91	3,035.34	80	10,000
5) Car delivery services	5	6,089.80	9,634.35	400	23,000
6) Teaching, training and entertainment	20	2,381.00	5,190.63	100	22,000
7) Farm and other services	3	500.00	435.89	200	1,000
8) Miscellaneous	13	1,715.38	2,569.00	100	10,000
<b>Total</b>	<b>92</b>	<b>2,249.41</b>	<b>4,822.40</b>	<b>70</b>	<b>30,000</b>

**Analysis of variance <sup>a</sup>**

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	<b>1.43E+08</b>	<b>7</b>	<b>20398008.45</b>	<b>.868</b>	<b>.535</b>
<b>Within Groups</b>	<b>1.972E+09</b>	<b>84</b>	<b>23493633.56</b>		
<b>Total</b>	<b>2.12E+09</b>	<b>91</b>			

<sup>a</sup>Multiple comparisons were performed comparing each group with all other groups. No significant difference was found at the .05 or .01 level of significance.

**Table 3: Services ordered by those who purchase shadow economy work**

Work Area	Sample (N)	Annual income spent in the shadow economy AUS\$			
		Mean	Std. Deviation	Minimum	Maximum
1) Repair work in the house and garden	84	1,648.09	5,369.61	20.00	48,000.00
2) Garden work	48	3,692.25	21,588.04	15.00	15,0000.00
3) House services	67	1,874.26	4,005.02	20.00	30,800.00
4) Service outside house	12	5,370.41	15,188.20	90.00	53,500.00
5) Car delivery services	6	7,498.66	13,847.92	112.00	35,000.00
6) Teaching, training and entertainment	6	516.66	304.41	150.00	950.00
7) Farm and other services	12	7,72.41	1,685.44	70.00	6,000.00
8) Miscellaneous	13	1,067.30	1,158.06	25.00	4,000.00
<b>Total</b>	<b>248</b>	<b>2,326.31</b>	<b>10,906.81</b>	<b>15.00</b>	<b>15,0000.00</b>

**Analysis of variance<sup>a</sup>**

	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>	<b>4.83E+08</b>	<b>7</b>	<b>68976496.63</b>	<b>.573</b>	<b>.778</b>
<b>Within Groups</b>	<b>2.89E+10</b>	<b>240</b>	<b>120416502.28</b>		
<b>Total</b>	<b>2.94E+10</b>	<b>247</b>			

<sup>a</sup>Multiple comparisons were performed comparing each group with all other groups. No significant difference was found at the .05 or .01 level of significance

**Table 4: Attitudes to getting caught and income tax rates among people engaged in shadow economy activities versus those who are not engaged in shadow economy activities**

What do you think the chances are that you will get caught <sup>1)</sup>	Shadow economy workers /suppliers			Shadow economy work purchasers			Income tax too high <sup>2)</sup>	Shadow economy workers/suppliers			Shadow economy work purchasers		
	Yes	No	Sum	Yes	No	Sum		Yes	No	Sum	Yes	No	Sum
About 0% <sup>3)</sup>	33.0% (38)	15.6% (283)	16.7% (321)	32.4% (89)	13.9% (229)	16.6% (318)	Definitely not	1.8% (2)	3.1% (56)	3.0% (58)	2.6% (7)	3.2% (52)	3.1% (59)
About 25%	20.0% (23)	15.4% (279)	15.7% (302)	17.5% (48)	15.5% (259)	15.7% (302)	Unlikely	11.4% (13)	12.5% (226)	12.5% (239)	16.4% (44)	11.8% (193)	12.4% (237)
About 50/50	28.7% (33)	32.2% (584)	32.0% (617)	28.4% (78)	32.7% (537)	32.1% (615)	Unsure	13.2% (15)	17.4% (313)	17.1% (328)	12.6% (34)	17.8% (292)	17.1% (326)
About 75%	8.7% (10)	16.5% (298)	16.0% (308)	13.5% (37)	16.4% (269)	16.0% (306)	Probably	36.0% (41)	47.6% (859)	46.9% (300)	45.0% (121)	47.5% (779)	47.1% (900)
Almost certain (100%)	9.6% (11)	20.3% (367)	19.6% (378)	8.4% (23)	21.5% (354)	19.7% (377)	Definitely	37.7% (43)	19.4% (349)	20.4% (392)	23.4% (63)	19.8% (325)	20.3% (388)
Total	100% (115)	100% (1811)	100% (1926)	100% (275)	100% (1643)	100% (1918)	Total	100% (114)	100% (1803)	100% (1917)	100% (114)	100% (1803)	100% (1917)
Chi-Square Test (Pearson)	31.941 d.f. =4 Sig: 0.000			72.289 d.f. =4 Sig: 0.000			Chi-Sq.T.(P.)	22.659 d.f. = 4 Sig: 0.000			9.56 d.f. =4 Sig: 0.048		

Source: own calculations

**Explanations:**

- 1) Question: Image yourself in this situation. You have been paid \$5000 in cash for work that you have done outside your regular job. You don't declare it on your income tax return.
- 2) Question: Why do you think people work for cash-in-hand payments? By cash-in-hand we mean cash money that tax is not paid on.
- 3) Figures in brackets represent the number of respondents.

**Table 5: Other significant differences between shadow economy suppliers and non-suppliers**

Variable/ Attitude	Shadow economy supply	Sample (N)	Mean	Standard Deviation	Mean Difference	t-value <sup>1)</sup>
<b>Official income (AUS\$'000)</b>	<b>Supply</b>	<b>115</b>	<b>24.20</b>	<b>17.60</b>	<b>-4.10</b>	<b>-2.29*</b>
	<b>No supply</b>	<b>1724</b>	<b>28.30</b>	<b>27.80</b>		
<b>Age</b>	<b>Supply</b>	<b>117</b>	<b>38.30</b>	<b>13.40</b>	<b>-10.40</b>	<b>-8.02**</b>
	<b>No supply</b>	<b>1838</b>	<b>48.60</b>	<b>15.30</b>		
<b>In conflict with Tax Office</b>	<b>Supply</b>	<b>111</b>	<b>1.41</b>	<b>0.54</b>	<b>0.11</b>	<b>2.04*</b>
	<b>No supply</b>	<b>1796</b>	<b>1.30</b>	<b>0.49</b>		
<b>Has had contact with Tax Office</b>	<b>Supply</b>	<b>114</b>	<b>1.64</b>	<b>0.55</b>	<b>0.19</b>	<b>3.36**</b>
	<b>No supply</b>	<b>1813</b>	<b>1.45</b>	<b>0.50</b>		
<b>I should honestly declare cash earnings</b>	<b>Supply</b>	<b>118</b>	<b>3.11</b>	<b>0.75</b>	<b>-0.48</b>	<b>-6.81**</b>
	<b>No supply</b>	<b>1828</b>	<b>3.59</b>	<b>0.68</b>		
<b>I think others believe they should honestly declare cash earnings</b>	<b>Supply</b>	<b>115</b>	<b>2.45</b>	<b>0.57</b>	<b>-0.21</b>	<b>-4.07**</b>
	<b>No supply</b>	<b>1828</b>	<b>2.66</b>	<b>0.61</b>		
<b>It is smart to work in the cash economy</b>	<b>Supply</b>	<b>118</b>	<b>3.19</b>	<b>0.98</b>	<b>0.58</b>	<b>6.34**</b>
	<b>No supply</b>	<b>1813</b>	<b>2.61</b>	<b>0.85</b>		
<b>Disapproves of working in the cash economy</b>	<b>Supply</b>	<b>118</b>	<b>1.70</b>	<b>0.78</b>	<b>-0.45</b>	<b>-6.08**</b>
	<b>No supply</b>	<b>1808</b>	<b>2.16</b>	<b>1.03</b>		
<b>Has a smart tax agent</b>	<b>Supply</b>	<b>82</b>	<b>3.04</b>	<b>0.74</b>	<b>0.25</b>	<b>2.95**</b>
	<b>No supply</b>	<b>1169</b>	<b>2.79</b>	<b>0.63</b>		

<sup>1)</sup> t-test for equality of means; equal variances not assumed, further explanations see Table 7

**Table 6: Other significant differences between shadow economy purchasers and non-purchasers**

Variable/ Attitude	Shadow economy purchase	Sample N	Mean	Standard Deviation	Mean Difference	t-value <sup>1)</sup>
Official income (AUS\$'000)	Purchase	267	39.21	33.97	13.18	6.05**
	No purchase	1564	26.03	25.48		
Age	Purchase	280	48.45	13.62	0.63	0.69
	No purchase	1664	47.82	15.67		
In conflict with Tax Office	Purchase	272	1.43	0.58	0.14	3.72**
	No purchase	1626	1.29	0.47		
Has had contact with Tax Office	Purchase	277	1.59	0.54	0.15	4.21**
	No purchase	1642	1.44	0.49		
I should honestly declare cash earnings	Purchase	276	3.50	0.77	-0.07	-1.45
	No purchase	1661	3.57	0.67		
I think others believe they should honestly declare cash earnings	Purchase	278	2.50	0.59	-0.16	4.32**
	No purchase	1659	2.66	0.61		
It is smart to work in the cash economy	Purchase	277	2.86	0.87	0.25	4.47**
	No purchase	1646	2.61	0.87		
Disapproves of working in the cash economy	Purchase	276	1.86	0.88	-0.32	-5.47**
	No purchase	1642	2.18	1.03		
Has a smart tax agent	Purchase	210	2.84	0.63	-0.04	0.74
	No purchase	1033	2.80	0.64		

<sup>1)</sup> t-test for equality of means; equal variances not assumed, further explanations see Table 7

**Table 7: Composition of the attitude variables used in Tables 5 and 6 and Tables 8 to 10****Part 1**

<b>Variable</b>	<b>Composition</b>
<b>In conflict with Tax Office</b>	This measure was a composite of responses to a four-item scale asking if respondent had been audited, fined, questioned by the Tax Office, or had contested an assessment by the Tax Office. The response categories were: <b>1 = never in conflict                      2 = once in conflict                      3 = more often</b>
<b>Has had contact with Tax Office</b>	This measure was a composite of responses to a four-item scale asking if respondent or someone close to the respondent had requested information from the Tax Office. The response categories were: <b>1 = no contact                      2                      3                      4                      5 = some contact</b>
<b>I should honestly declare cash earnings</b>	This measure was a composite of responses to a four-item scale labelled a personal ethical norm of honesty in taxpaying. The response categories were: <b>1 = NO!                      2 = no                      3 = don't know                      4 = yes                      5 = YES!</b>
<b>I think others believe they should honestly declare cash earnings</b>	This measure was a composite of responses to a four-item scale labelled a social ethical norm of honesty in taxpaying. The response categories were: <b>1 = NO!                      2 = no                      3 = don't know                      4 = yes                      5 = YES!</b>
<b>It is smart to work in the cash economy</b>	This measure was a composite of responses to a three-item scale labelled admiration of cash-economy tax evasion. The response categories were: <b>1 = highly unlikely                      2                      3                      4                      5 = highly likely</b>
<b>Disapproves of working in the cash economy</b>	This measure was a composite of responses to a two-item scale labelled willingness to criticise cash economy workers. The response categories were: <b>1 = highly unlikely                      2                      3                      4                      5 = highly likely</b>
<b>Has a smart tax agent</b>	This measure was a composite of responses to a three-item scale asking respondents how much priority they would place on finding a tax agent who could use loopholes in the law and schemes to reduce the tax they have to pay. The response categories were: <b>1 = strongly disagree                      2 = disagree                      3 = neither                      4 = agree                      5 = strongly agree</b>

**Table 7: Composition of the attitude variables used in Tables 5 and 6 and Tables 8 to 10****Part 2**

<b>Variable</b>	<b>Composition</b>
<b>Moral obligation to pay tax</b>	This measure was a composite of responses to an eight-item scale asking if respondent feels committed to pay tax. The response categories were: <b>1 = strongly disagree</b> <span style="float: right;"><b>5 = strongly agree</b></span>
<b>Working for cash-in-hand to reduce government costs</b>	This measure was a composite of responses to a three-item scale asking respondent if people work for tax-free cash-in-hand because income tax is too high, because they want to have more disposable income, or because they want to avoid red tape. The response categories were: <b>1 = definitely not</b> <span style="margin-left: 150px;"><b>3 = unsure</b></span> <span style="float: right;"><b>5 = definitely</b></span>
<b>Paying cash-in-hand to reduce government costs</b>	This measure was a composite of responses to a three-item scale asking respondent if people get paid cash-in-hand to reduce costs, to avoid red tape, or because income tax is too high. The response categories were: <b>1 = definitely not</b> <span style="margin-left: 150px;"><b>3 = unsure</b></span> <span style="float: right;"><b>5 = definitely</b></span>
<b>Wanting to have an honest tax agent</b>	This measure was a composite of responses to a two-item scale asking respondent how much of a priority s/he would place on choosing an honest tax agent who would not take any risks. The response categories were: <b>1 = low</b> <span style="margin-left: 150px;"><b>3 = medium</b></span> <span style="float: right;"><b>5 = top</b></span>
<b>Being unable to get ahead because of the tax system</b>	This measure was a composite of responses to a three-item scale asking respondent if s/he would be better off working less, if paying tax removes the incentive to earn more, and if s/he can't get ahead because of the tax system. The response categories were: <b>1 = strongly disagree</b> <span style="float: right;"><b>5 = strongly agree</b></span>

**Table 8:** Results of a logistic regression for people engaged in shadow economy activities  
Part 1

Independent Variables	Estimated coefficients b value (Wald test)	
	Dependent Var: Suppliers of shad.ec.act.	Dependent Var: Purchasers of shad.ec.act.
<b>Moral obligation to pay tax</b> 1=strongly disagree      5=strongly agree	<b>0.12 (0.25)</b>	<b>0.19 (1.43)</b>
<b>Chances to get caught</b> 1=about zero %      5=about 100 %	<b>-0.24 (4.45)*</b>	<b>-0.27 (14.65)**</b>
<b>Working for cash-in-hand to reduce government costs</b> 1=definitely not      5=definitely	<b>-0.29 (1.18)</b>	<b>0.53 (8.20)**</b>
<b>Paying cash-in-hand to reduce government costs</b> 1=definitely not      5=definitely	<b>0.56 (5.30)*</b>	<b>-0.45 (9.41)**</b>
<b>In conflict with the Tax Office</b> 1 = never in conflict      3 = mostly in conflict	<b>-0.01 (0.01)</b>	<b>0.07 (0.32)</b>
<b>Has had contact with the Tax Office</b> 1 = little contact      3 = most contact	<b>0.35 (1.85)</b>	<b>0.07 (0.16)</b>
<b>I should honestly declare cash earnings</b> 1 = NO!!      5 = YES!!	<b>-0.65 (8.38)**</b>	<b>-0.11 (0.60)</b>
<b>I think others believe they should honestly declare cash earnings</b> 1 = NO!!      5 = YES!!	<b>-0.50 (4.17)*</b>	<b>-0.14 (0.90)</b>
<b>It is smart to work in the cash economy</b> 1 = highly unlikely      5 = highly likely	<b>0.09 (0.23)</b>	<b>0.47 (14.25)**</b>
<b>Disapproves of work in the cash economy</b> 1 = highly unlikely      5 = highly likely	<b>-0.14 (0.56)</b>	<b>0.01 (0.01)</b>

\*p&lt;0.05; \*\*p&lt;0.01

**Table 8:** Results of a logistic regression for people engaged in shadow economy activities Part 2

Independent Variables	Estimated coefficients b value (Wald test)	
<b>Income and socio-demographics</b>	<b>Dependent Var: Suppliers of shad.ec.act.</b>	<b>Dependent Var: Purchasers of shad.ec.act.</b>
<b>Personal income per thousand AUS\$</b>	<b>-0.02 (7.83)**</b>	<b>0.01 (7.83)**</b>
<b>Age</b>	<b>-0.02 (4.27)*</b>	<b>0.01 (0.63)</b>
<b>Education<sup>a</sup></b>	<b>8.46</b>	<b>7.65</b>
(1. Leaving, year10)		
2. Matriculation	<b>0.83 (3.12)</b>	<b>0.33 (1.11)</b>
3. Trade, nursing diploma	<b>0.88 (3.16)</b>	<b>0.44 (1.85)</b>
4. Diploma course	<b>1.41 (7.77)**</b>	<b>0.83 (6.59)*</b>
5. University, tertiary	<b>1.29 (5.68)*</b>	<b>0.70 (4.58)*</b>
6. Post graduate	<b>1.19 (2.05)</b>	<b>0.78 (3.65)</b>
<b>Occupation<sup>a</sup></b>	<b>9.12</b>	<b>10.16</b>
(1. Professionals)		
2. Managers	<b>-0.30 (0.25)</b>	<b>-0.37 (1.66)</b>
3. Associate professionals	<b>-0.17 (0.11)</b>	<b>-0.20 (0.49)</b>
4. Trade clerical	<b>0.83 (3.37)</b>	<b>-0.09 (0.09)</b>
5. Intermediate trade clerical	<b>0.21 (0.21)</b>	<b>-0.47 (2.35)</b>
6. Intermediate production, transport	<b>0.06 (0.01)</b>	<b>-0.89 (3.15)</b>
7. Elementary clerical	<b>0.74 (1.54)</b>	<b>-1.81 (5.70)*</b>
8. Labourer	<b>-0.22 (0.09)</b>	<b>-0.66 (1.51)</b>
<b>Gender</b> Female = 0, male = 1	<b>0.86 (7.97)**</b>	<b>-0.40 (4.36)*</b>
<b>Marital status</b> Not married = 0, married = 1	<b>0.33 (1.01)</b>	<b>0.83 (12.22)**</b>
<b>For whom are you working<sup>a</sup></b>	<b>7.29*</b>	<b>5.69*</b>
(1. Private company)		
2. University, government	<b>-0.61 (3.25)</b>	<b>-0.01 (0.01)</b>
3. Own business	<b>0.52 (2.05)</b>	<b>0.54 (4.87)*</b>
<b>How many children do you have living with you at home</b>	<b>-0.11 (0.68)</b>	<b>-0.01 (0.01)</b>
<b>Child support</b> No child support = 0, child support = 1	<b>-0.01 (0.01)</b>	<b>-0.57 (1.26)</b>

\*p&lt;0.05; \*\*p&lt;0.01

<sup>a</sup> The first response category was omitted in the formation and calculation of the dummy variables but can be found in brackets for explanatory purposes.

**Table 8: Logistic regression results****Part 3****Classification table for shadow economy supply activities**

Observed		Predicted		
		Supply economy activity		Percentage Correct
		No	Yes	
Shadow. ec.	No	1154	5	99.6
	Yes	74	4	5.1
Overall Percentage				93.6

Nagelkerke R = .260

Chi-square = 126.55\*\*

**Classification table for shadow economy demand activities**

Observed		Predicted		
		Demand economy activity		Percentage Correct
		No	Yes	
Shadow ec.	No	1016	14	98.6
	Yes	169	32	15.9
Overall Percentage				85.1

Nagelkerke R = .215

Chi-square = 166.54\*\*

**Logistic regression - Dependent variables:**

- 1) People working in the shadow economy (suppliers) = 1  
People not working in the shadow economy (suppliers) = 0
- 2) People demanding shadow economy activities (purchasers) = 1  
People not demanding shadow economy activities (purchasers) = 0

**Table 9: Regression (OLS) results predicting amount of cash income among shadow economy suppliers (N = 118)**

<b>Independent Variables</b>	<b><u>B value</u></b>	<b><u>beta value</u></b>	<b><u>t value</u></b>
<b>Official income</b>	<b>59.92</b>	<b>.24</b>	<b>2.96**</b>
<b>How many children</b>	<b>592.57</b>	<b>.16</b>	<b>1.95*</b>
<b>Education</b>			
<b>(1. Leaving, year10)</b>			
<b>2. Matriculation</b>	<b>-2293.62</b>	<b>-.23</b>	<b>-1.73</b>
<b>3. Trade, nursing diploma</b>	<b>-3396.06</b>	<b>-.30</b>	<b>-2.49*</b>
<b>4. Diploma course</b>	<b>-1827.56</b>	<b>-.18</b>	<b>-1.40</b>
<b>5. University, tertiary</b>	<b>-2508.20</b>	<b>-.24</b>	<b>-1.75</b>
<b>6. Post graduate</b>	<b>-3274.09</b>	<b>-.16</b>	<b>-1.56</b>
<b>For whom are you working</b>			
<b>(1. Private company)</b>			
<b>2. University, government</b>	<b>59.57</b>	<b>.01</b>	<b>0.06</b>
<b>3. Own business</b>	<b>2403.22</b>	<b>.22</b>	<b>2.52*</b>
<b>Wanting to have an honest tax agent</b>	<b>-1840.46</b>	<b>-.33</b>	<b>-3.97**</b>
<b>Being unable to get ahead because of the tax system</b>	<b>66.60</b>	<b>.01</b>	<b>0.16</b>

<sup>a</sup> The first response category was omitted in the formation and calculation of the dummy variables but can be found in brackets for explanatory purposes.

<sup>b</sup> In order to ensure cell sizes large enough to perform regression analysis, categories 'service outside house' and 'car delivery services' were combined into 'service outside house' and categories 'farm and other services' was combined with category 'miscellaneous' into category 'miscellaneous'.

**R<sup>2</sup> = .32; F = 4.52\*\***

**Table 10: Regression (OLS) results predicting amount of cash income among shadow economy purchasers (N = 283)**

<b>Independent Variables</b>	<b><u>B value</u></b>	<b><u>beta value</u></b>	<b><u>t value</u></b>
<b>Official income</b>	<b>69.30</b>	<b>.22</b>	<b>3.71**</b>
<b>How many children</b>	<b>749.37</b>	<b>.09</b>	<b>1.49</b>
<b>Education</b>			
<b>(1. Leaving, year10)</b>			
<b>2. Matriculation</b>	<b>-5042.18</b>	<b>-.19</b>	<b>-2.43*</b>
<b>3. Trade, nursing diploma</b>	<b>-5145.08</b>	<b>-.17</b>	<b>-2.33*</b>
<b>4. Diploma course</b>	<b>-5674.62</b>	<b>-.21</b>	<b>-2.70**</b>
<b>5. University, tertiary</b>	<b>-5329.79</b>	<b>-.23</b>	<b>-2.66**</b>
<b>6. Post Graduate</b>	<b>-4812.43</b>	<b>-.15</b>	<b>-1.99*</b>
<b>For whom are you working</b>			
<b>(1. Private company)</b>			
<b>2. University, government</b>	<b>-1121.82</b>	<b>-.05</b>	<b>-0.77</b>
<b>3. Own business</b>	<b>-1685.29</b>	<b>-.06</b>	<b>-1.01</b>
<b>Wanting to have an honest tax agent</b>	<b>-2056.16</b>	<b>-.13</b>	<b>-2.15*</b>
<b>Being unable to get ahead because of the tax system</b>	<b>1550.49</b>	<b>.14</b>	<b>2.50*</b>

<sup>a</sup> The first response category was omitted in the formation and calculation of the dummy variables but can be found in brackets for explanatory purposes.

<sup>b</sup> In order to ensure cell sizes large enough to perform regression analysis, categories 'service outside house' and 'car delivery services' were combined into 'service outside house' and categories 'farm and other services' was combined with category 'miscellaneous' into category 'miscellaneous'.

**$R^2 = .15$ ;  $F = 4.21^{**}$**

**Table 11:** Some basic calculations of an aggregate figure of the shadow economy in Australia for the year 2000  
Part 1

Occupation	Q'naire Sample				Number of officially employed people (,000s)	Total amount of shadow income earned in '000 (AUS\$)	Total shadow economy income (%)
	Number of people working in the shadow economy (1)	Number of people <i>not</i> working in the shadow economy (2)	(1)/(2) in %	Mean income earned in the shadow economy (AUS\$)			
Managers and administrators	7	185	0.04	1,267.14	643.50	815,404.59	
Professionals	18	363	0.05	1,535.00	1,646.20	2,526,917.00	
Associated professionals	10	206	0.05	3,670.00	1,037.90	3,809,093.00	
Trade, clerical	24	217	0.11	3,478.13	1,588.00	5,523,270.44	
Intermediate trade, clerical	12	278	0.04	1,360.00	1,599.90	2,175,864.00	
Intermediate production transport	4	123	0.03	1,937.50	776.70	1,504,856.25	
Elementary clerical	8	108	0.07	931.25	911.20	848,555.00	
Labourers	4	94	0.04	424.75	846.10	359,380.98	
<b>Total</b>				14,603.77	9,049.50	17,563,341.26	2.86%
<b>Average</b>				1,825.47			

**Table 11: Some basic calculations of an aggregate figure of the shadow economy in Australia for the year 2000****Part 2**

<b>Variable</b>	<b>Number of unemployed and early retired pensioners</b>	<b>Mean Y Shadow Ec. (AUS\$) <sup>1)</sup></b>	<b>Mean Y Shadow Ec. DOUBLE (AUS\$)</b>	<b>Mean Y Shadow Ec. TRIPLE (AUS\$)</b>	<b>Shadow economy income of the unemployed and early retired pensioners (AUS\$)</b>	<b>Shadow economy income of the unemployed and early retired pensioners DOUBLE (AUS\$)</b>	<b>Shadow economy income of the unemployed and early retired pensioners TRIPLE (AUS\$)</b>
	<b>5,625,700.00</b>	<b>2,135.31</b>	<b>4,270.62</b>	<b>6,405.93</b>	<b>12,012,613,000.00</b>	<b>24,025,227,000.00</b>	<b>36,037,840,000.00</b>
<b>Shad. Ec. Y of the workers</b>					<b>+17,563,341000.00</b>	<b>+17,563,341000.00</b>	<b>+17,563,341000.00</b>
<b>Total Shad. Ec. Y</b>					<b>29,575,954,000.00</b>	<b>41,588,568,000.00</b>	<b>53,601,181,000.00</b>
					<b>Shad.Ec.Y in % of GNI</b>	<b>Shad.Ec.Y in % of GNI</b>	<b>Shad.Ec.Y in % of GNI</b>
					<b>4.81%</b>	<b>6.77%</b>	<b>8.73%</b>

<sup>1)</sup> Value from Table 1 was taken, because it represents a bigger sample of shadow economy suppliers (101 versus 87 from Table 11 part 1).

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