

Schneider, Friedrich; Braithwaite, Valerie; Reinhart, Monika

Working Paper

Individual behaviour in the cash/shadow economy in Australia: Facts, empirical findings and some mysteries

Working Paper, No. 0107

Provided in Cooperation with:

Johannes Kepler University of Linz, Department of Economics

Suggested Citation: Schneider, Friedrich; Braithwaite, Valerie; Reinhart, Monika (2001) : Individual behaviour in the cash/shadow economy in Australia: Facts, empirical findings and some mysteries, Working Paper, No. 0107, Johannes Kepler University of Linz, Department of Economics, Linz

This Version is available at:

<https://hdl.handle.net/10419/73305>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

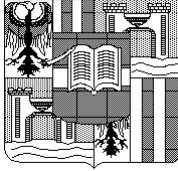
Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



DEPARTMENT OF ECONOMICS

**JOHANNES KEPLER UNIVERSITY OF
LINZ**

**Individual Behavior in the Cash/Shadow Economy in
Australia:**

Facts, Empirical Findings and some Mysteries

by

Friedrich Schneider, Valerie Braithwaite and Monika Reinhart^{*)}

Working Paper No. 0107

March 2001

**Johannes Kepler University of
Linz
Department of Economics
Altenberger Strasse 69
A-4040 Linz - Auhof, Austria**

^{*)} corresponding author:
friedrich.schneider@jk.uni-linz.ac.at
phone +43 (0)70 2468 -8210

**Individual Behaviour in the Cash / Shadow Economy in Australia:
Facts, Empirical Findings and some Mysteries¹⁾**

by

Friedrich Schneider²⁾

Valerie Braithwaite³⁾

and

Monika Reinhart⁴⁾

¹⁾ This paper was written while Friedrich Schneider visited the Australian National University (ANU) in February 2001. We would like to thank Tina Murphy for editing the paper.

²⁾ Professor of Economics, University of Linz, A-4040 Linz, Austria, phone: +43.732.2468.8210, fax: +43.732.2468.8209, e-mail: friedrich.schneider@jk.uni-linz.ac.at

³⁾ Research Fellow at the Centre for Tax System Integrity, Research School of Social Science, ANU, Canberra, ACT 0200 Australia. phone: +61 +2 61254601, fax. +61 +2 61258503, email: Valerie.Braithwaite@anu.edu.au

⁴⁾ Research assistant at the Centre for Tax System Integrity, ANU, Canberra, ACT 0200 Australia. phone: +61 +2 6125860, fax. +61 +2 61258503, email: Monika.Reinhart@anu.edu.au

Abstract:

This paper first gives an explanation of the behaviour which 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 work in the shadow economy and those who earn more money in the 'official' economy will also work less in the shadow economy. The result of a logistic regression shows that if others are seen to be engaged in the shadow economy then this increases subsequent demand for such activities. 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.

JEL-classification: C23, C25, D12, A26.

Index

| | |
|---|----|
| 1. Introduction..... | 5 |
| 2. Some Basic Findings of the Survey with respect to individual attitudes of the cash/shadow economy..... | 7 |
| 3. A Preliminary explanation of the factors which motivate individuals to work in the Shadow (cash) Economy. | 11 |
| 4. A Preliminary attempt to calculate aggregate figures of the Australian shadow economy | 15 |
| 5. Summary and Policy Conclusions | 16 |
| 6. References..... | 32 |

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 literature¹ 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 controversial². 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.³

There appears 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

¹ The literature about the "shadow", "underground", "informal", "second", "cash" or "parallel", economy is strongly increasing. Various topics on how to measure it, its causes and its effect on the official economy are analysed. See for example, the first publications by Tanzi (1982); Frey and Pommerehne (1984), and Feige (1989), survey type 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).

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

³ 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 economy⁴ (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.

⁴ 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 7004 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 which 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 Findings of the Survey with respect to individual attitudes of the cash/shadow economy.

In May 2000, the “Community, Hopes, Fears and Actions Survey” (V. Braithwaite, ANU) was sent to 7004 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.⁵ A response rate of 29% was achieved, 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 worked regularly in the shadow economy and hired shadow economy workers.⁶

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

⁵ In this paper we will only present the empirical finds with respect to cash/shadow economy attitudes; for other findings compare Braithwaite (2001).

⁶ 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 Schneider (1999)).

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 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 great 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 great 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 in the house and garden”, “service outside the house” 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. However, the results in both tables differ: Shadow economy workers in the area of “service outside the house” earn on average AUS\$2,370.91 per year, while demanders 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”, demanders 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 which investigated whether households that are engaged in the shadow economy have different attitudes to those who are not engaged in the shadow economy. These attitudes were assessed 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, it can be clearly seen that people (both suppliers and demanders) 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 32.9% 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 demanders. 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 demanders.

Turning to question 2 responses, one 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 (demanders) 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 demanders.

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 (roughly 10% more than the others) and conflict with the ATO. In addition, compared to non-shadow economy workers, shadow economy workers think that they and other shadow economy workers should be much less honest in declaring cash earnings. A similar result was found when measuring the attitude: "It is smart to work in the shadow economy". Shadow economy workers expressed 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 and seeks out tax loopholes and the grey areas of tax, etc. 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 that do not. It can be seen that results of these two groups are very similar. When examining the age variable, it can be seen that there is no significant difference between those who demand shadow economy work and those that do not (48.45 years versus 47.82 years respectively). Interestingly, there was no difference between the two groups when answering 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 that was found between these two groups of people was that those people who demand shadow economy work had considerably higher incomes than those who do not demand shadow economy work (on average 50.6% higher).

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 demand 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. However, it could be the case that shadow economy suppliers 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.
- 2) People engaged in shadow economy activities know that if they are caught by the tax authorities they will be punished; hence people who feel that the likelihood of being detected is high will be less likely to be engaged in shadow economy activities, *ceteris paribus*.
- 3) 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*.
- 4) If people feel overburdened by state activities (e.g., high income tax) they will be more likely to be engaged in shadow economy activities, *ceteris paribus*.

- 5) Those people who need more disposable income for use on a special situation (e.g., construction of a house, second holiday, etc) will be more likely to be engaged in shadow economy activities, ceteris paribus.
- 6) Those people who are in conflict with the ATO 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 ATO.
- 7) 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 feel that all other people should honestly declare all shadow economy activities will be less likely to be engaged in shadow economy activities.
- 8) 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.
- 9) Those people who disapprove of others working in the shadow economy will be less likely to be engaged in the shadow economy activities.

While the variables presented in points 1 to 9 above have been specifically proposed, other factors such as 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 individual be engaged in the shadow economy or not. The dependent variables are as follows:

- 0 work/supply shadow economy activities (n=76)
- 1 do not work/supply shadow economy activities (n=1150)

and

- 0 demand shadow economy activities (n=197)
- 1 do not demand shadow economy activities (n=1024)

The independent variables are the factors mentioned in hypotheses (1) to (9) 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 $R^2 = 0.289$ for shadow economy demand and $R^2 = 0.229$ for shadow economy supply; i.e. 0.289 and 22.9 % of the variance of the dependant variable is explained, respectively. For those who work in the shadow economy (results for those who request work are in brackets) we can correctly predict 14.7% (15.8%) of all cases; i.e., 12 versus 64 (29 versus 168). For those who do not work in the shadow economy (request work) we can correctly explain 99.3% (98.9%), i.e., 1142 versus 8 (1013 versus 11). Overall, for shadow economy suppliers we can predict 94.1% of all cases correctly, and 85.3% for shadow economy demanders. While these results are quite promising, the regressions have to be improved to raise the predictive role for the shadow economy workers (suppliers) and those who demand services.

If we now turn to the independent variables and their relationship to the dependent variable of interest, some results are quite interesting in that they confirm most of the hypotheses provided earlier. The variable “moral obligation to pay taxes” had no statistically significant influence on shadow economy supply or demand, whereas the variable “chances of getting caught” did have a statistically significant influence on shadow economy workers and those who demand shadow economy work. The results also show that the higher the perceived chance of getting caught, the less likely people will be engaged in the shadow economy, and the higher the income tax, the more likely it is that people will be engaged in shadow economy activities. If people need more disposable income they will demand more shadow economy activities. 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. In addition, whether people disapproved or not of others working in the shadow economy had no influence on whether they were engaged in shadow economy activity themselves. Results also show that the more honest people are at declaring their cash earnings, the less likely they were to be engaged in shadow economy activities. In addition, if people believed it was “smart” to work in the cash economy this increased their shadow economy activities.

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). The number of children one had and whether one had to pay child support had no influence on shadow economy activities and people working for the government worked less in the shadow economy (statistically significant) and demanded less shadow economy work compared to those working in the private sector.

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. Only the official income variable and the variable “choose an honest accountant” were found to predict the amount of cashed earned in the shadow economy. As predicted, the income variable was negatively correlated with the amount of cash money earned in the shadow economy. When all variables were entered into the regression analysis, the overall F-test was statistically significant, $F=2.69$, $p < 0.05$. However, only 18% ($R^2 = 0.18$) 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. Unexpectedly, official income has a positive influence on the amount of money spent on shadow economy activities and this influence was significant. The variable “taxes are too high – I have income loss” significantly predicts the amount of money spent on shadow economy activities and influences in the direction expected (i.e., positive influence). This suggests that the more money one loses through their tax burden, the more likely they are to work in the shadow economy. Again, only 8% ($R^2 = 0.08$) of the variation (see Table 10) in the amount of money spent in the shadow economy could be explained when all of the variables were entered into the regression ($F = 2.70$, $p < 0.05$). 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

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 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 that those officially employed, we get an aggregate figure of AUS\$53.601 billion (or 8.75% of official GNI) being earned in the shadow economy. 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. For example, people who fear being caught by tax authorities will be less likely to work in the shadow economy and those who earn more money also appear to work less in the shadow economy. The results also show that if others are seen to be engaged in the shadow economy then this will subsequently increase the demand for such activities (i.e., “if everyone one else does it, I might as well do it too”).

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 are convinced that the probability of being caught is considerably lower than those not engaged in such activities. In addition, shadow economy workers believe more so that the tax burden is too high. This variable appears to a strong predictor for why people become involved in the cash economy. Further, people who work in the cash economy are less honest when declaring their cash earnings and believe it is ‘smart’ to work in the cash economy. These results can

also be confirmed empirically with a logistic regression analysis when using the dichotomous dependent variable (to be engaged (=0) or not 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 the shadow economy activities and the “official” income for both shadow economy suppliers and demanders.

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

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 of 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 |
| Total | 92 | 2,249.41 | 4,822.40 | 70 | 30,000 |

Analysis of variance

| | Sum of Squares | df | Mean Square | F | Sig. |
|-----------------------|-----------------|-----------|---------------------|-------------|-------------|
| Between Groups | 1.43E+08 | 7 | 20398008.450 | .868 | .535 |
| Within Groups | 1.97E+09 | 84 | 23493633.561 | | |
| Total | 2.12E+09 | 91 | | | |

Table 3: Services ordered by those who demand shadow economy work

| Work Area | Sample (N) | Annual income spent in the shadow economy AUS\$ | | | |
|--|---------------|--|--------------------|--------------|------------------|
| | | Mean | Std. Deviation | Minimum | Maximum |
| 1). Repair House and Garden | 84 | 1,648.0952 | 5,369.6141 | 20.00 | 48,000.00 |
| 2). Garden work | 48 | 3,692.2500 | 21,588.0467 | 15.00 | 15,000.00 |
| 3). House Services | 67 | 1,874.2687 | 4,005.0296 | 20.00 | 30,800.00 |
| 4). Service outside house | 12 | 5,370.4167 | 15,188.2060 | 90.00 | 53,500.00 |
| 5). Car delivery services | 6 | 7,498.6667 | 13,847.9282 | 112.00 | 35,000.00 |
| 6). Teaching, Training and Entertainment | 6 | 516.6667 | 304.4120 | 150.00 | 950.00 |
| 7). Farm and other Services | 12 | 7,72.4167 | 1,685.4417 | 70.00 | 6,000.00 |
| 8). Miscellaneous | 13 | 1,067.3077 | 1,158.0670 | 25.00 | 4,000.00 |
| Total | 248 | 2,326.3105 | 10,906.8184 | 15.00 | 15,000.00 |

Analysis of variance

| | Sum of Squares | df | Mean Square | F | Sig. |
|-----------------------|-----------------|------------|---------------------|-------------|-------------|
| Between Groups | 4.83E+08 | 7 | 68976496.632 | .573 | .778 |
| Within Groups | 2.89E+10 | 240 | 120416502.28 | | |
| Total | 2.94E+10 | 247 | | | |

Table 4: Attitudes to Tax related questions of 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 ¹⁾ | Shadow Economy workers /suppliers | | | Shadow Economy work demanders | | | Income Tax too high ²⁾ | Shadow Economy workers/suppliers | | | Shadow Economy work demanders | | |
|--|-----------------------------------|----------------|----------------|-------------------------------|----------------|----------------|-----------------------------------|----------------------------------|----------------|----------------|-------------------------------|----------------|----------------|
| | Yes | No | Sum | Yes | No | Sum | | Yes | No | Sum | Yes | No | Sum |
| About 0% ³⁾ | 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 | | |

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: Significance test of continuous variables between shadow economy supply and the others.

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

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

Table 6: Significance test of continuous variables between shadow economy demanders and the others.

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

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

Table 7: Explanations of the meaning of the attitude variables used in Tables 5 and 6.

| Variable | Explanation |
|---|---|
| In conflict with ATO (Australian Tax Office) | 1 = never in conflict 2 = once in conflict 3 = mostly in conflict |
| Has had contact with ATO | 1 = little contact 2 3 4 5 = most contact |
| I should honestly declare cash earnings | 1 = NO! 2 = no 3 = don't know 4 = yes 5 = YES! |
| Others should honestly declare cash earnings | 1 = NO! 2 = no 3 = don't know 4 = yes 5 = YES! |
| It is smart to work in the cash economy | I think people working in the cash economy are smart 1 = highly unlikely 2 3 4 5 = highly likely |
| Disapproves of working in the cash economy | I disapprove of people working in the shadow economy 1 = highly unlikely 2 3 4 5 = highly likely |
| Has a smart tax agent | 1 = strongly disagree 2 = disagree 3 = neither 4 = agree 5 = strongly agree |

Table 8: Logistic Regression Results (Last category is indicator). People engaged in shadow economy activities Part 1

| Independent Variables | Estimated coefficients b value (Wald test) | |
|--|---|--|
| | Dependent Var: Suppliers of shad.ec.ac. | Dependent Var: Demand of shad.ec.ac. |
| Moral obligation to pay tax | 0.70 | 1.62 |
| 1. Strongly disagree | 0.47 (0.23) | 0.90 (0.92) |
| 2. Disagree | 0.44 (0.53) | 0.11 (0.07) |
| 3. Neither | 0.23 (0.18) | 0.34 (0.80) |
| 4. Agree | 0.10 (0.09) | 0.04 (0.03) |
| Chances to get caught | 6.91 | 22.94** |
| 1. About zero % | -1.14 (4.21)* | -1.43 (15.54)** |
| 2. About 25% | -0.51 (0.74) | -1.03 (7.45)** |
| 3. About 50% | -0.45 (0.70) | -0.52 (2.10) |
| 4. About 75 % | -0.28 (0.19) | -0.88 (5.24)* |
| Income tax too high | 9.86* | 5.32 |
| 1. Definitely not | 7.45 (0.08) | 1.45 (2.98) |
| 2. Unlikely | 0.32 (0.52) | -0.19 (0.41) |
| 3. Unsure | 0.37 (0.66) | -0.09 (0.08) |
| 4. Probably | 1.02 (9.23)** | 0.16 (0.51) |
| Want to have more disposable income | 3.03 | 5.92 |
| 5. Definitely not | -0.84 (0.51) | -1.13 (1.39) |
| 6. Unlikely | 0.06 (0.01) | -0.07 (0.02) |
| 7. Unsure | 0.51 (0.53) | 1.04 (4.04)* |
| 8. Probably | -0.36 (1.37) | 0.16 (0.74) |
| In conflict with the ATO 1 = never in conflict 3 = mostly in conflict | 0.09 (0.18) | -0.06 (0.24) |
| Has had contact with the ATO 1 = little contact 3 = most contact | -0.40 (2.19) | -0.08 (0.21) |
| I should honestly declare cash earnings 1 = NO!! 5 = YES!! | 0.70 (9.05)** | 0.08 (0.31) |
| Others should honestly declare cash earnings 1 = NO!! 5 = YES!! | 0.48 (3.71)* | 0.14 (0.88) |
| It is smart to work in the cash economy 1 = highly unlikely 5 = highly likely | -0.05 (0.08) | -0.44 (11.92)** |
| Disapproves to work in the cash economy 1 = highly unlikely 5 = highly likely | 0.10 (0.25) | 0.04 (0.11) |

Table 8: Logistic Regression Results (Last category is indicator). People engaged in shadow economy activities Part 2

| Independent Variables | Estimated coefficients b value (Wald test) | |
|--|---|--|
| | Dependent Var: Suppliers of shad.ec.ac. | Dependent Var: Demand of shad.ec.ac. |
| Income and Socio-demographics | | |
| Personal income per thousand AUS\$ | .03 (9.33)** | -0.01 (9.43)** |
| Age | .03 (6.10)* | -0.01 (0.15) |
| Education | 6.63 | 7.40 |
| 1. No schooling | 6.22 (0.02) | 3.85 (0.30) |
| 2. Primary school | 7.19 (0.08) | 0.27 (0.13) |
| 3. Intermediate, year 10 | 1.19 (2.10) | 0.73 (2.98) |
| 4. Leaving, year 12 | 0.36 (0.23) | 0.34 (0.80) |
| 5. Trade Nursing Diploma | 0.28 (0.13) | 0.24 (0.40) |
| 6. Diploma Course | 0.03 (0.01) | -0.15 (0.17) |
| 7. Uni, Tertiary | -0.12 (0.03) | -0.03 (0.01) |
| Occupation | 9.09 | 8.79 |
| 1. Managers | 0.13 (0.01) | -0.58 (0.89) |
| 2. Professionals | -0.07 (0.01) | -0.81 (1.82) |
| 3. Ass.Professionals | 0.06 (0.01) | -0.65 (1.19) |
| 4. Trade Clerical | -1.01 (2.02) | -0.79 (1.75) |
| 5. Interm. Trade Clerical | -0.36 (0.24) | -0.40 (0.44) |
| 6. Interm. Production, Transport | -0.22 (0.07) | -0.05 (0.01) |
| 7. Elem. Clerical | -0.95 (1.43) | 0.92 (1.00) |
| Gender (Male) | -0.80 (6.26)* | 0.44 (4.95)* |
| Marital Status | 0.80 | 11.64** |
| 1. Never married | 0.43 (0.44) | 0.42 (0.75) |
| 2. Now married, de facto | 0.09 (0.03) | -0.62 (2.82)* |
| 3. Widowed | 6.26 (0.06) | -0.52 (0.70) |
| For whom are you working | 5.72* | 6.39* |
| 1. Private company | 0.53 (1.98) | 0.63 (6.13)* |
| 2. University, Government | 1.05 (5.70)* | 0.53 (4.15)* |
| How many children do you have living with you at home | 1.79 | 1.90 |
| 1. None | -0.32 (0.13) | -0.77 (1.30) |
| 2. One | -0.23 (0.06) | -0.70 (1.04) |
| 3. Two | -0.09 (0.01) | -0.84 (1.52) |
| 4. Three | 0.41 (0.16) | -0.91 (1.64) |
| Child support | -0.05 (0.01) | 0.66 (1.27) |

*p<0.05; **p<0.01.

Table 8: Logistic Regression Results**Part 3****Classification Table for Shadow Economy Supply Activities**

| Observed | Predicted | | |
|---------------------------|-------------------------|------|--------------------|
| | Supply economy activity | | Percentage Correct |
| | Yes | No | |
| Shadow. ec. Yes | 12 | 64 | 15.8 |
| No | 8 | 1142 | 99.3 |
| Overall Percentage | | | 94.1 |

Nagelkerke R = .289

Chi-square = 139.15**

Classification Table for Shadow Economy Demand Activities

| Observed | Predicted | | |
|---------------------------|-------------------------|------|--------------------|
| | Demand economy activity | | Percentage Correct |
| | Yes | No | |
| Shadow ec. Yes | 29 | 168 | 14.7 |
| No | 11 | 1013 | 98.9 |
| Overall Percentage | | | 85.3 |

Nagelkerke R = .229

Chi-square = 175.78**

Logit Regression - Dependent variables:

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

Table 9: Regression (OLS) result for Cash Income from Shadow Economy Supply.

| Independent Variables | b value | beta value | t value |
|---|------------------|-------------------|----------------|
| Official income | 63.971 | .260 | 2.52* |
| Sex | -459.315 | -.052 | -0.53 |
| Age | 29.728 | .093 | 0.86 |
| Marital status | 18.351 | .003 | 0.03 |
| How many children | 650.815 | .176 | 1.83 |
| Education | -338.298 | -.114 | -1.13 |
| Child support | 3145.500 | .148 | 1.71 |
| I should honestly declare cash earnings | 747.883 | .128 | 1.19 |
| Others should honestly declare cash earnings | 176.150 | .022 | 0.23 |
| High tax leads to loss of income | 486.221 | .105 | 1.01 |
| Occupation | -19.386 | -.008 | -0.08 |
| Jobs for shadow economy activities | 52.329 | .030 | 0.33 |
| Work status | 95.255 | .019 | 0.19 |
| Are you paid fairly | -209.149 | -.056 | -0.60 |
| Choose an honest accountant | -2159.541 | -.382 | -4.30** |

Adjusted R² = .18. F = 2.69**.

¹ The b and beta coefficients from an ordinary least squares regression model (enter procedure). Dependent variable: Cash income from Shadow Economy Supply - Total Sample (118 = Shad. Ec. Suppliers; Non-shad. Suppliers = 1822).

Table 10: Regression result for money spent for Shadow Economy Demand.

| Independent Variables | b value | beta value | t value |
|---|------------------|-------------------|----------------|
| Official income | 74.130 | .240 | 3.43** |
| Sex | 862.452 | .042 | 0.89 |
| Age | 25.007 | .033 | 0.47 |
| Marital status | -277.984 | -.017 | -0.26 |
| How many children | 1038.653 | .118 | 1.89 |
| Education | -627.267 | -.102 | -1.56 |
| Child support | -1150.489 | -.019 | -0.31 |
| I should honestly declare cash earnings | -304.158 | -.023 | -0.36 |
| Others should honestly declare cash earnings | 51.848 | .003 | 0.05 |
| High tax leads to loss of income | 1739.676 | .160 | 2.68** |
| Occupation | -88.982 | -.013 | -0.21 |
| Jobs for shadow economy activities | -216.595 | -.041 | -0.71 |
| Work status | 689.695 | .059 | 0.88 |
| Are you paid fairly | 240.432 | .026 | 0.42 |
| Choose an honest accountant | -2130.900 | -.131 | -2.15* |

Adjusted $R^2 = .08$. $F = 2.70^{**}$.

¹The b and beta coefficients from an ordinary least squares regression model (enter procedure). Dependent variable: Cash Economy Demand (283 persons who demand, 1757 who do not-demand).

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

| Occupation | Number of people working in the Shadow Economy (1) | Q'naire Sample | | Mean income earned in the Shadow Economy (AUS\$) | Number of officially employed people (,000s) | Total amount of Shadow Income earned in '000 (AUS\$) | Total Shadow economy income (%) |
|------------------------------|---|--|--------------|--|---|--|---------------------------------|
| | | Number of people <i>not</i> working in the shadow economy (2) | (1)/(2) in % | | | | |
| 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 | |
| Ass. 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 | |
| Interm. Trade, Clerical | 12 | 278 | 0.04 | 1,360.00 | 1,599.90 | 2,175,864.00 | |
| Interm. Production Transport | 4 | 123 | 0.03 | 1,937.50 | 776.70 | 1,504,856.25 | |
| Elem. Clerical | 8 | 108 | 0.07 | 931.25 | 911.20 | 848,555.00 | |
| Labourers | 4 | 94 | 0.04 | 424.75 | 846.10 | 359,380.98 | |
| | | | | | | | |
| Total | | | | 14,603.77 | 9,049.50 | 17,563,341.26 | 2.86% |
| Average | | | | 1,825.47 | | | |

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

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

¹⁾ Value from table 1 was taken, because it represents a bigger sample of shadow economy supplies (101 versus 87 from table 11 part 1).

6. References

- Feige, Edgar L. (1989) (ed.): *The underground economies. Tax evasion and information distortion*. Cambridge, New York, Melbourne, Cambridge University Press.
- Frey, Bruno S. and Werner Pommerehne (1984): The hidden economy: State and prospect for measurement, *Review of Income and Wealth*, 30/1, pp. 1-23.
- Giles, David, E.A. (1999a): Measuring the hidden economy: Implications for econometric modelling, *The Economic Journal*, 109/456, pp.370-380.
- Giles, David, E.A. (1999b): Modelling the hidden economy in the tax-gap in New Zealand, *Working paper*, Department of Economics, University of Victoria, Canada.
- Johnson, Simon; Kaufmann, Daniel; and Andrei Shleifer (1997): *The unofficial economy in transition*, Brookings Papers on Economic Activity, Fall, Washington D.C.
- Johnson, Simon; Kaufmann, Daniel and Pablo Zoido-Lobaton (1998a): Regulatory discretion and the unofficial economy. *The American Economic Review*, 88/ 2, pp. 387-392.
- Lippert, Owen and Michael Walker (eds.) (1997): *The underground economy: Global evidences of its size and impact*, Vancouver, B.C.: The Frazer Institute.
- Loayza, Norman V. (1996): The economics of the informal sector: a simple model and some empirical evidence from Latin America. *Carnegie-Rochester Conference Series on Public Policy* 45, pp. 129-162.
- Pozo, Susan (ed.) (1996): *Exploring the underground economy: Studies of illegal and unreported activity*, Michigan: W.E. Upjohn, Institute for Employment Research.
- Schneider, Friedrich (1994a): Measuring the size and development of the shadow economy. Can the causes be found and the obstacles be overcome? In: Brandstaetter, Hermann, and Güth, Werner (eds.): *Essays on Economic Psychology*, Berlin, Heidelberg, Springer Publishing Company, pp. 193-212.
- Schneider, Friedrich (1994b): Can the shadow economy be reduced through major tax reforms? An empirical investigation for Austria, *Supplement to Public Finance/ Finances Publiques*, 49, pp. 137-152.
- Schneider, Friedrich (1997): The shadow economies of Western Europe, *Journal of the Institute of Economic Affairs*, 17/3, pp. 42-48.
- Schneider, Friedrich (1998a): Further empirical results of the size of the shadow economy of 17 OECD-countries over time, *Paper to be presented at the 54. Congress of the IIPF*

Cordowa, Argentina and discussion paper, Department of Economics, University of Linz, Linz, Austria.

Schneider, Friedrich (1998b): Stellt das Anwachsen der Schwarzarbeit eine wirtschaftspolitische Herausforderung dar? Einige Gedanken aus volkswirtschaftlicher Sicht. Linz, *Mitteilungen des Instituts für angewandte Wirtschaftsforschung (IAW)*, I/98, S. 4-13.

Schneider, Friedrich (1999): Ist Schwarzarbeit ein Volkssport geworden? Ein internationaler Vergleich des Ausmaßes der Schwarzarbeit von 1970-97, In: Lamnek, Siegfried and Luedtke, Jens (eds.) "*Der Sozialstaat zwischen Markt und Hedonismus*", Opladen (West-Germany): Leske und Budrich publishing company, pp.293-318.

Schneider, Friedrich and Dominik Enste (2000): Shadow Economies: Size, Causes, and Consequences, *The Journal of Economic Literature*, 38/1, pp. 77-114.

Tanzi, Vito (1982) (ed.): *The underground economy in the United States and abroad*, Lexington (Mass.), Lexington.

Tanzi, Vito (1982): A second (and more skeptical) look at the underground economy in the United States; in: Tanzi, Vito (1982) (ed.): *The underground economy in the United States and abroad*, Lexington (Mass.), Lexington, pp. 38-56.

Tanzi, Vito (1999): Uses and Abuses of Estimates of the Underground Economy, *The Economic Journal* 109/456, pp.338-340.

Thomas, Jim J. (1992): *Informal economic activity*, LSE, Handbooks in Economics, London: Harvester Wheatsheaf.

Thomas, Jim J. (1999): Quantifying the Black Economy: 'Measurement without Theory' Yet Again?, *The Economic Journal* 109/456, pp. 381-389.

ARBEITSPAPIERE 1991-2001

des Instituts für Volkswirtschaftslehre, Johannes Kepler Universität Linz

- 9101 WEISS, Christoph: Price inertia and market structure under incomplete information. Jänner 1991. in: *Applied Economics*, 1992.
- 9102 BARTEL, Rainer: Grundlagen der Wirtschaftspolitik und ihre Problematik. Ein ein führender Leit faden zur Theorie der Wirtschaftspolitik. Jänner 1991; Kurzfassung erschienen unter: Wirtschaftspolitik in der Marktwirtschaft, in: *Wirtschaft und Gesellschaft*, 17. 1991,2, S. 229-249
- 9103 FALKINGER, Josef: External effects of information. Jänner 1991
- 9104 SCHNEIDER, Friedrich: Mechanik und Ökonomie: Keplers Traum und die Zukunft. Jänner 1991, in: R. Sandgruber und F. Schneider (Hrsg.), "Interdisziplinarität Heute", Linz, Trauner, 1991
- 9105 ZWEIMÜLLER, Josef, WINTER-EBMER, Rudolf: Manpower training programs and employment stability, in: *Economica*, 63. 1995, S. 128-130
- 9106 ZWEIMÜLLER, Josef: Partial retirement and the earnings test. Februar 1991, in: *Zeitschrift für Nationalökonomie / Journal of Economics*, 57. 1993,3, S. 295-303
- 9107 FALKINGER, Josef: The impacts of policy on quality and price in a vertically integrated sector. März 1991. Revidierte Fassung: On the effects of price or quality regulations in a monopoly market, in: *Jahrbuch für Sozialwissenschaft*.
- 9108 PFAFFERMAYR, Michael, WEISS, Christoph R., ZWEIMÜLLER, Josef: Farm income, market wages, and off-farm labour supply, in: *Empirica*, 18, 2, 1991, S. 221-235
- 9109 BARTEL, Rainer, van RIETSCHOTEN, Kees: A perspective of modern public auditing. Pleading for more science and less pressure-group policy in public sector policies. Juni 1991, dt. Fassung: Eine Vision von moderner öffentlicher Finanzkontrolle, in: *Das öffentliche Haushaltswesen in Österreich*, 32. 1991,3-4, S. 151-187
- 9110 SCHNEIDER, Friedrich and LENZELBAUER, Werner: An inverse relationship between efficiency and profitability according to the size of Upper-Austrian firms? Some further tentative results, in: *Small Business Economics*, 5. 1993,1, S. 1-22
- 9111 SCHNEIDER, Friedrich: Wirtschaftspolitische Maßnahmen zur Steigerung der Effizienz der österreichischen Gemeinwirtschaft: Ein Plädoyer für eine aktivere Industrie- und Wettbewerbspolitik, Juli 1991, in: *Öffentliche Wirtschaft und Gemeinwirtschaft in Österreich*, Wien, Manz, 1992, S. 90-114
- 9112 WINTER-EBMER, Rudolf, ZWEIMÜLLER, Josef: Unequal promotion on job ladders, in: *Journal of Labor Economics*, 15. 1997,1,1, S. 70-71
- 9113 BRUNNER, Johann K.: Bargaining with reasonable aspirations. Oktober 1991, in: *Theory and Decision*, 37, 1994, S. 311-321.
- 9114 ZWEIMÜLLER, Josef, WINTER-EBMER, Rudolf: Gender wage differentials and private and public sector jobs. Oktober 1991, in: *Journal of Population Economics*, 7. 1994, S. 271-285
- 9115 BRUNNER, Johann K., WICKSTRÖM, Bengt-Arne: Politically stable pay-as-you-go pension systems: Why the social-insurance budget is too small in a democracy. November 1991, in: *Zeitschrift für Nationalökonomie = Journal of Economics*, 7. 1993, S. 177-190.
- 9116 WINTER-EBMER, Rudolf, ZWEIMÜLLER, Josef: Occupational segregation and career advancement. Dezember 1991, in: *Economics Letters*, 39. 1992, S. 229-234
- ***
- 9201 SCHNEIDER, Friedrich: Ecological objectives in a market economy: Three simple questions, but no simple answers? Jänner 1992, in: Giersch, H. (Hrsg.), *Environmental economics*, Heide lberg, Springer-Verl., 1993
- 9202 SCHNEIDER, Friedrich: The federal and fiscal structures of representative and direct democracies as models for a European federal union: Some preliminary ideas using the public-choice approach, in: *Journal des Economistes et des Etudes Humaines*, 3. 1993,2
- 9203 SCHNEIDER, Friedrich: The development of the shadow economy under changing economic conditions: Some tentative empirical results for Austria. Revised version. März 1992.
- 9204 HACKL, Franz, SCHNEIDER, Friedrich, WITHERS, Glenn: The public sector in Australia: A quantitative analysis. März 1992, in: Gemmell, N. (ed), *The growth of the public sector*, Aldershot, Elgar, 1993, S. 212-231
- 9205 SCHNEIDER, Friedrich: The federal and fiscal structures of western democracies as models for a federal union in for mer communist countries? Some thoughts using the public-choice approach. April 1992, in: Wagner, H.-J. (ed), *On the theory and policy of systematic change*, Heidelberg, Springer-Verl., 1993, S. 135-154
- 9206 WINTER-EBMER, Rudolf: Endogenous growth, human capital, and industry wages. in: *Bulletin of Economic Research*, 4/1994, 289-314.
- 9207 BARTEL, Rainer: Gleichgewicht, Ungleichgewicht und Anpassung in der komparativen Statik. August 1992; 1. Teil erschienen unter: Auf welchen Grundlagen beruhen unsere ökonomischen Aussagen? in: *Wirtschaft und Gesellschaft*, 19, 2, 1993, S. 153-170; 2. Teil erschienen unter: Neoklassische Ratio nierung, in: *WiSt*, 23, 3, 1993, S. 151-154
- 9208 WEISS, Christoph R.: Market structure and pricing behaviour in Austrian manufacturing. August 1992. in: *Empirica*, 21. 1994, S. 115-131.
- 9209 WINTER-EBMER, Rudolf: Unemployment and individual pay: Wage curve or compensating differentials? erscheint u.d.T.: Wage Curve, Unemployment Duration and Compensating Differentials, in: *Labour Economics*, 3/1996,4, S. 425-434
- 9210 SCHUSTER, Helmut: Chaostheorie und Verkehrswissenschaft? September 1992, in: *Österreichische Zeitschrift für Verkehrswissenschaft*, 1-2, 38. 1992, S. 48-51
- 9211 BARTEL, Rainer, PRUCKNER, Gerald: Strukturelle und konjunkturelle Charakteristika der Budgetpolitik von Bund und Gesamtstaat in Österreich. Oktober 1992, in: *Wirtschaftspolitische Blätter*, 40. 1993,2, S. 134-154
- 9212 PFAFFERMAYR, Michael: Foreign direct investment and exports: A time series approach. Oktober 1992
- 9213 HACKL, Franz, SCHNEIDER, Friedrich: Austrian economic policy since 1945: An exploratory analysis. Oktober 1992, in: Paldam, M. (ed.), *Economic development of small open economies in Europe and South America*, Basingstoke, Macmillan, forthcoming 1994
- 9214 SCHNEIDER, Friedrich: Die Kunst als Wirtschaftsfaktor-vernachlässigbar oder beachtenswert? Oktober 1992, in: *Musikologica Austriaca*, 11. 1993,1, S. 19-29
- 9215 SCHNEIDER, Friedrich: Measuring the size and the development of the shadow economy: Can the causes be found and the obstacles be overcome? November 1992, in: Brandstätter, Hermann and Güth, W. (eds.), *Essays on Economic Psychology*, Heidelberg Springer-Verl., 1994, S. 208-211

4/4/01 12:48 Shadow_Australia 4 1.doc

- 9216 SCHNEIDER, Friedrich: Public choice - economic theory of politics: A survey in selected areas. Dezember 1992, in: Brandstätter, Hermann and Güth, W. (eds.), *Essays on Economic Psychology*, Heidelberg, Springer-Verl., 1994, S. 188-192
- ***
- 9301 SCHUSTER, Helmut: Energiepolitik im Spannungsfeld zwischen Wirtschaft und Umwelt. Jänner 1993, in: Friedrich Schneider (Hrsg.), *Energiepolitik in Österreich*, Linz, Trauner, 1993
- 9302 WINTER-EBMER, Rudolf: Motivation to migrate and economic success. März 1993, erscheint u.d.T.: Motivation for Migration and Economic Success, in: *Journal of Economic Psychology*, 15. 1994, S. 282-284
- 9303 LANDESMANN, Michael and GOODWIN, Richard: Productivity growth, structural change and macroeconomic stability. März 1993
- 9304 PFAFFERMAYR, Michael: Foreign outward direct investment and exports in Austrian manufacturing. März 1993
- 9305 BARTEL, Rainer: Zur Ökonomie der öffentlichen Finanzkontrolle. April 1993, erschienen unter: Öffentliche Finanzkontrolle als politische Machtkontrolle. Eine ökonomische Fundierung, in: *Politische Vierteljahresschrift*, 34. 1993, S. 613-639
- 9306 HACKL, Franz: Die Internalisierung von überbetrieblichen Leistungen der Landwirtschaft aus allokationstheoretischer Sicht. April 1993.
- 9307 ZWEIMÜLLER, Josef, WINTER-EBMER, Rudolf, FALKINGER, Josef: Retirement of spouses and social security reform, in: *European Economic Review*, 40/1996, S. 471-472
- 9308 BRUNNER, Johann K.: Abilities, needs, and the size of the cake: an axiomatic bargaining approach to redistributive taxation. Juli 1993.
- 9309 HACKL, Franz, PRUCKNER, Gerald: Touristische Präferenzen für den ländlichen Raum: Die Problematik ihrer empirischen Erfassung und Internalisierung. Juli 1993. Ersch. in: Gesellschaftliche Forderungen an die Landwirtschaft / Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues (GEWISOLA), hrsg. von Konrad Hagedorn ... 1994, Schriften der GEWISOLA, Bd. 30
- 9310 NECK, Reinhard, SCHNEIDER, Friedrich: Steuersystem und Schattenwirtschaft. Juli 1993.
- 9311 POINTNER, Johannes und SCHNEIDER, Friedrich: Österreich im internationalen Wirtschaftssystem. August 1993, in: Ewald Nowotny und Günther Winckler (Hrsg.), *Grundzüge der Wirtschaftspolitik Österreichs*, 1994.
- 9312 SCHNEIDER, Friedrich: The Relationship between efficiency and profitability with respect to the size of firms: an empirical investigation for Austria. September 1993.
- 9313 ÖTSCH, Walter: Die mechanistische Metapher in der Theoriengeschichte der Nationalökonomie. September 1993.
- 9314 BARTEL, Rainer: Wirtschaftspolitische Kontrolle und Beratung: Grundlagen, Probleme, Erfordernisse. September 1993, erschienen als: Kontrolle und Beratung in der Wirtschaftspolitik, in: *Wirtschaftspolitische Blätter*, 41. 1994, S. 442-462
- 9315 BARTH, Erling and ZWEIMÜLLER, Josef: Relative wages under decentralized and under corporatist bargaining systems, in: *Scandinavian Journal of Economics*, 97. 1995, S. 369-384
- 9316 FALKINGER, Josef and ZWEIMÜLLER, Josef: The impact of income inequality on product diversity and economic growth. Oktober 1993.
- 9317 SCHNEIDER, Friedrich: Anreizorientierte Systeme im Gesundheitswesen unter besonderer Berücksichtigung des stationären Sektors. Oktober 1993.
- 9318 HORSTMANN, Winfried and SCHNEIDER, Friedrich: Deficits, bailout and free riders: Fiscal elements of European constitution. Oktober 1993.
- 9319 BARTEL, Rainer: Egoismus, Altruismus, Ineffizienz und Kontrolle im öffentlichen Bereich: Ein kurzer Blick auf die Argumente und ihre Implikationen. November 1993, in: *Wirtschaft und Gesellschaft*, 20. 1994, S. 231-246
- 9320 BURGER, Christina: Theorien der Koalitionsbildung und ihre Anwendbarkeit auf österreichische Regierungen. November 1993.
- 9321 BARTEL, Rainer: Konjunkturelle Selbststabilisierung oder kompensatorische Nachfragepolitik? Ein Leitfaden für Studenten. Dezember 1993, tw. erschienen unter: Konjunkturprobleme - Selbstheilung oder Staatseingriffe?, in: *WiSt*, 17. 1994, S. 111-39, erscheint tw. unter: Lohnindexierung - Effiziente Institution zur Stabilisierung der Wirtschaft?, in: *WiSt*, 26. 1997, S. 154-156
- ***
- 9401 WINTER-EBMER, Rudolf, ZWEIMÜLLER, Josef: Immigration and the Earnings of Young Native Workers. Jänner 1994, in: *Oxford Economic Papers*, 48. 1996, S. 473-491
- 9402 KUNST, Robert, HAUSER, Michael: Fractionally Integrated Models With ARCH Errors. Jänner 1994.
- 9403 ZWEIMÜLLER, Josef, WINTER-EBMER, Rudolf: Internal Markets and Firm-Specific Determination of Earnings in the Presence of Immigrant Labor, in: *Economics Letters*, 48. 1995, S. 185-191
- 9404 SCHUSTER, Helmut: Energie und Umwelt. März 1994.
- 9405 PFAFFERMAYR, Michael: Testing for Ownership Advantages of Direct Investing Firms. März 1994.
- 9406 SCHNEIDER, Friedrich: Determinanten der Steuerhinterziehung und der Schwarzarbeit im internationalen Vergleich. März 1994.
- 9407 FALKINGER, Josef: Social Stability and the Equity-Efficiency Trade-off. April 1994.
- 9408 WINTER-EBMER, Rudolf, ZWEIMÜLLER, Josef: Do Immigrants Displace Native Workers? Mai 1994, erscheint in: *Journal of Population Economics*, 1998.
- 9409 FALKINGER, Josef: How to overcome free-riding: Rewarding deviations from average. Mai 1994. Revidierte Fassung: Efficient Private Provision of Public Goods by Rewarding Deviations from Average, in: *Journal of Public Economics*, 62. 1996, S. 413-422
- 9410 ZWEIMÜLLER, Josef: Wealth distribution, innovations, and economic growth. Mai 1994.
- 9411 GANTNER, Manfred, SCHNEIDER, Friedrich: Budgetausgliederungen - eine polit-ökonomische Analyse. Juni 1994.
- 9412 AIGINGER, Karl: The use of game theoretical models for empirical research - A survey of testing non-cooperative game theory with real world data in recent industrial organization literature. Juni 1994.
- 9413 FALKINGER, Josef: The private provision of public goods when the relative size of contribution matters. Juli 1994, in: *Finanzarchiv*, 51, 1994, S. 358 - 371.
- 9414 WINTER-EBMER, Rudolf: Sex discrimination and competition in product and labour markets in: *Applied Economics*, 27. 1995, S. 849-857
- 9415 FALKINGER, Josef, ZWEIMÜLLER, Josef: The cross-country Engel curve for product diversification, August 1994, in: *Structural Change and Economic Dynamics*, 7. 1996, S. 79-97
- 9416 FALKINGER, Josef: Tax evasion, consumption of public goods and fairness, August 1994, in: *Journal of Economic Psychology*, 16, 1995, S. 63 - 72.
- 9417 SCHNEIDER, Friedrich: Einige Gedanken zur Harmonisierung indirekter Steuern in der Europäischen Union, September 1994.
- 9418 WINTER-EBMER, Rudolf: Firm size, earnings and displacement risk, Oktober 1994, erscheint in: *Economic Inquiry*, 2000.
- 9419 WEISS, Christoph: Labour market adjustment in U.S. manufacturing: Does market structure matter? Oktober 1994.
- 9420 WEISS, Christoph: State dependence, symmetry and reversibility of off-farm employment, November 1994.
- 9421 SCHNEIDER, Friedrich: Is there a European public choice perspective?, Dezember 1994.
- ***
- 9501 BARTEL, Rainer: Reform des öffentlichen Sektors - Grundlagen und Grundsätze, Jänner 1995.

4/4/01 12:48 Shadow_Australia 4 1.doc

- 9502 RIESE, Martin: The GINI-index as a measure of the goodness of prediction, Jänner 1995, in: *Bulletin of Economic Research*, 49, 1997,2, S. 127-135.
- 9503 AIGINGER, Karl, WINTER-EBMER, Rudolf und ZWEIMÜLLER, Josef: Eastern European Trade and the Austrian Labour Market, in: *Weltwirtschaftliches Archiv*, 132, 1996,3, S. 476-500
- 9504 WEISS, Christoph: Size, Growth, and Survival of Upper Austrian Farms in the 1980s, Februar 1995. in: Sotte, F. and Zanoli, R.: "The Regional Dimension of Agricultural Economics and Politics", forthcoming (1995).
- 9505 BARTEL, Rainer: Umweltpolitik in den Reformländern Europas. Voraussetzungen und Erfordernisse, Februar 1995.
- 9506 PFAFFERMAYR, Michael: Foreign Outward Direct Investment and Exports in Austrian Manufacturing: Substitutes or Complements?, March 1995.
- 9507 BURGER, Christina, SCHNEIDER, Friedrich: How Valuable is the Health of the Elderly - Evaluation of the Treatment of Alzheimer's Disease, April 1995.
- 9508 BRUNNER, Johann, RIESE, Martin: Measuring the Severity of Unemployment, April 1995.
- 9509 SCHNEIDER, Friedrich: Volkswirtschaftliche Aspekte der Mitarbeiterbeteiligung, Mai 1995.
- 9510 ÖTSCH, Walter: Erwartungen und Framing. Keynes und die "Anomalien" der Erwartungsnutzentheorie, Mai 1995.
- 9511 ÖTSCH, Walter: Die Herausforderung des Konstruktivismus für die ökonomische Theorie, Mai 1995, in: Birger P. Priddat und Gerhard Wegner, Hrsg., Zwischen Evolution und Institution, Metropolis-Verl., Marburg, 1996, S. 35 - 55
- 9512 ÖTSCH, Walter: Kreativität und Logik im ökonomischen Handlungsmodell, Mai 1995.
- 9513 WEISS, Christoph: Determinants of Farm Survival and Growth, Mai 1995.
- 9514 BARTEL, Rainer: Zum Verhältnis von Ökonomie und Politik des öffentlichen Sektors. Einige kurze Anmerkungen, Juni 1995.
- 9515 KUNST, Robert M.: The Myth of Misspecification. Some Metaphors, Juni 1995.
- 9516 VAN DER BURG, Brigitte, SIEGERS, Jacques, WINTER-EBMER, Rudolf: Gender and Promotion in the Academic Labour Market. Juli 1995.
- 9517 FALKINGER, Josef, FEHR, Ernst, GÄCHTER, Simon, WINTER-EBMER, Rudolf: A simple mechanism for the efficient private provision of public goods -experimental evidence, August 1995, erscheint in: *American Economic Review*, 1999.
- 9518 SCHNEIDER, Friedrich: Some Elements of a European Federal Union: A Public Choice Approach, September 1995.
- 9519 BRUNNER, Johann, FALKINGER, Josef: Nonneutrality of taxes and subsidies for the private provision of public goods, September 1995.
- 9520 WEISS, Christoph: Product Market Power and Dynamic Labour Demand, September 1995.
- 9521 LANDESMANN, Michael, PFAFFERMAYR, Michael: Technological Competition and Trade Performance, October, 1995.
- ***
- 9601 WEISS, Christoph: Exits From a Declining Sector: Econometric Evidence From a Panel of Upper-Austrian Farms 1980-90., Jänner 1996.
- 9602 BÖS, Dieter und SCHNEIDER, Friedrich: Private-public partnership: Gemeinschaftsunternehmen zwischen Privaten und der öffentlichen Hand, Februar 1996.
- 9603 GÄCHTER, Simon, FEHR, Ernst, KMENT, Christiane: Does Social Exchange Increase Voluntary Cooperation?, Februar 1996.
- 9604 ZWEIMÜLLER, Josef, BRUNNER, Johann: Heterogeneous consumers, vertical product differentiation and the rate of innovation, März 1996.
- 9605 SCHNEIDER, Friedrich: The Contributions of Werner W. Pommerehne to Public Choice, März 1996.
- 9606 SEDJAV, Tsagaan-Uvgun: Wissenschaftlich-technologische Entwicklungsfragen der Mongolei, April 1996, Wissenschaftlicher Betreuer: o.Univ. -Prof. Dr. Helmut Schuster, B.Com.
- 9607 KEUSCHNIGG, Christian u. KOHLER Wilhelm: Innovation, Capital Accumulation and Economic Transition, revised version April 1996.
- 9608 AIGINGER, Karl: Beyond Trade Balances: the competitive race between the US, Japan and Europe, Juni 1996.
- 9609 POMMEREHNE, Werner W., HART, Albert und SCHNEIDER, Friedrich: Tragic Choices and Collective Decision-Making: An Empirical Study of Voter Preferences for Alternative Collective Decision-Making Mechanisms, Juli 1996.
- 9610 BARTEL, Rainer, POINTNER, Johannes, SCHNEIDER, Friedrich: Österreich im internationalen Wirtschaftssystem, Juli 1996, erschienen in: E.Nowotny und G. Winckler (Hg.), Grundzüge der Wirtschaftspolitik Österreichs, 2. Aufl., Manz-Verlag, Wien 1997, S. 49-98.
- 9611 SCHNEIDER, Friedrich, VOLKERT, Jürgen: Die Realisierung ökologisch-orientierter Wirtschaftspolitik - eine Unmöglichkeit? Überlegungen aus Sicht der Neuen Politischen Ökonomie, Juli 1996.
- 9612 AIGINGER, Karl, WEISS, Christoph R.: Does it Pay to be Flexible? Empirical Evidence on the Relationship between Labour Demand Flexibility and Profit Margins, Juli 1996.
- 9613 WEISS, Christoph R.: Beneficial Concentration in a Menu Cost Model: A Note, August 1996.
- 9614 GUSENLEITNER, Markus, WINTER-EBMER, Rudolf, ZWEIMÜLLER, Josef: The Distribution of Earnings in Austria, 1972-1991, *Allgemeines Statistisches Archiv*, 398.
- 9615 WINTER-EBMER, Rudolf.: Benefit Duration and Unemployment Entry: Quasi-Experimental Evidence for Austria, Oktober 1996.
- 9616 WINTER-EBMER, Rudolf: Potential Unemployment Benefit Duration and Spell Length: Lessons from a Quasi-Experiment in Austria, in: *Oxford Bulletin of Economics and Statistics*, 60, 1998,1, S. 33-45
- 9617 SCHNEIDER, Friedrich, FREY, Bruno S.: Warum wird die Umweltökonomik kaum angewendet?, November 1996.
- 9618 SCHNEIDER, Friedrich: Aktuelle Ergebnisse über die Schattenwirtschaft (Pfus) in Österreich, November 1996.
- 9619 KOHLER, Wilhelm: Die langfristige Entwicklung der Transformationsländer Osteuropas: Welche Rolle spielt die Integration der Märkte?, Dezember 1996.
- 9620 BRUNNER, Johann K., PRINZ, Christopher, WIRTH, Friedrich: Die Zukunft der gesetzlichen Pensionsversicherung, Dezember 1996.
- 9621 SCHNEIDER, Friedrich, GAWEL, Erik: Umsetzungsprobleme ökologisch orientierter Steuerpolitik: Eine polit-ökonomische Analyse, Dezember 1996.
- ***
- 9701 SCHNEIDER, Friedrich: Hält der EURO, was er verspricht? Ökonomische Überlegungen zur Stabilität und zur Einführung des EURO, Jänner 1997.
- 9702 SCHNEIDER, Friedrich: Welche Chancen hat Österreich als Wirtschaftsstandort im EU- und Globalisierungskontext derzeit und in Zukunft?, Jänner 1997.
- 9703 BRUNNER, Johann K.: Ökonomische Analyse des umlagefinanzierten Pensionsversicherungssystems, Jänner 1997.
- 9704 PFAFFERMAYR, Michael, WEISS, Christoph R.: On Market Power and Investment Behaviour, January 1997.
- 9705 LANDESMANN, Michael A., STEHRER, Robert: Industrial Specialisation, Catching-up and Labour Market Dynamics, January 1997.
- 9706 BARTEL, Rainer: Taking even introductory textbooks seriously. A note on the importance of a usual neglect, February 1997.
- 9707 KUNST, Robert M.: Decision bounds for data-admissible seasonal models, March 1997.
- 9708 WINTER-EBMER, Rudolf, ZWEIMÜLLER, Josef: Intra-firm Wage Dispersion and Firm Performance, *Kyklos*, 1999.
- 9709 PRITZL, F. J. Rupert und SCHNEIDER, Friedrich: Korruption, März 1997.

4/4/01 12:48 Shadow_Australia 4 1.doc

- 9710 SCHNEIDER, Friedrich: Empirical Results for the Size of the Shadow Economy of Western European Countries Over Time, März 1997.
- 9711 SCHNEIDER, Friedrich und VOLKERT, Jürgen: No Chance for Incentive-orientated Environmental Policies in Representative Democracies? A Public Choice Approach, März 1997.
- 9712 FALKINGER, Josef: Wachstum, Verteilung und Beschäftigung, März 1997.
- 9713 PRITZL, F. J. Rupert und SCHNEIDER, Friedrich: Zur Polit ischen Ökonomie autokratischer politischer Systeme- Ein theoretischer und empirischer Ansatz, April 1997.
- 9714 SCHUSTER, Helmut: Das Phänomen der strukturellen Arbeitslosigkeit und Maßnahmen zu seiner Bekämpfung,, Mai 1997.
- 9715 BARTEL, Rainer: Paradigmatik versus Pragmatik in der (Umwelt-)Ökonomie. Eine epistemologische Sicht, Mai 1997.
- 9716 BERGER, Helge und SCHNEIDER, Friedrich: Does the Bundesbank Yield in Conflicts? Frey and Schneider Revisited, Juni 1997.
- 9717 RIESE, Martin und BRUNNER, Johann K.: Interpreting risk with demographic statistics, Juni 1997.
- 9718 KUNST, Robert M.: Asymptotics for Unit-Root Processes with Underspecified Deterministic Structures, Juni 1997.
- 9719 GAWEL, Erik und SCHNEIDER, Friedrich: Implementation Problems of Eco-Taxation: A Political-Economy Analysis, Juli 1997
- 9720 PRITZL, Rupert und SCHNEIDER, Friedrich: Political Economy of Autocratic Political Regimes: A Theoretical and Empirical Approach, Juli 1997
- 9721 WINTER-EBMER, Rudolf: Unknown Wage Offer Distribution and Job Search Duration, *Economics Letters*, 1998.
- 9722 BRUNNER, Johann K.: Optimal Taxation of Income and Bequests, August 1997
- 9723 KEUSCHNIGG, Christian und KOHLER, Wilhelm: Eastern Enlargement of the EU: How Much is it Worth for Austria?, November 1997
- 9724 HOFER, Helmut, KEUSCHNIGG, Christian und Wilhelm KOHLER, A Dynamic Applied General Equilibrium Model for the Austrian Economy With Special Emphasis on the Eastern EU Enlargement, November 1997.
- ***
- 9801 WINTER-EBMER, Rudolf und Klaus F. ZIMMERMANN: East-West Trade and Migration: The Austro-German Case, Jänner 1998, erscheint in: Jaime de Melo, Riccardo Faini und Klaus F. Zimmermann (eds.): Trade and Factor Mobility, Cambridge (CUP).
- 9802 ICHINO, Andrea und Rudolf WINTER-EBMER: The Long-Run Educational Cost of World War 2: An Application of Local Average Treatment Effect Estimation, Jänner 1998.
- 9803 SCHNEIDER, Friedrich: Deregulierung und Privatisierung als Allheilmittel gegen ineffiziente Produktion von öffentlichen Unternehmen? Ein Erklärungsversuch mit Hilfe der ökonomischen Theorie der Politik, Jänner 1998.
- 9804 SCHNEIDER, Friedrich: Märkte, Moral und Umwelt: Was sagt die Ökonomie dazu?, Jänner 1998.
- 9805 LENK, Thomas, FUGE, Heidi und SCHNEIDER, Friedrich: Zurück zu mehr Föderalismus: Ein Vorschlag zur Neugestaltung des Finanzausgleichs in der BRD unter besonderer Berücksichtigung der ökonomischen Theorie der Politik, Jänner 1998.
- 9806 SCHNEIDER, Friedrich: Stellt das starke Anwachsen der Schwarzarbeit eine wirtschaftspolitische Herausforderung dar? Einige Gedanken aus volkswirtschaftlicher Sicht, Jänner 1998.
- 9807 SCHNEIDER, Friedrich: Einige grundlegende Elemente einer europäisch-föderalen Verfassung unter Zuhilfenahme der konstitutionellen ökonomischen Theorie, Jänner 1998.
- 9808 LANDESMANN, Michael: Vertical produkt differentiation and international trade: an econometric analysis, März 1998.
- 9808a BARTEL, Rainer: Öffentliche Finanzen, Finanzkontrolle und gesellschaftliche Wohlfahrt. Volkswirtschaftliche Thesen, Antithesen und mögliche Synthesen, März 1998. Erschienen in überarbeiteter Version in: F. Klug (Hrsg.), Wesen und staatspolitische Funktion der öffentlichen Finanzkontrolle, Schriftenreihe des Instituts für Kommunalwissenschaften an der Universität Linz, Bd. 107, S. 85-127.
- 9809 AIGINGER, Karl und PFAFFERMAYR, Michael: Product quality, cost asymmetry and the welfare loss of oligopoly, Februar 1998.
- 9810 KOHLER, Wilhelm: Die Ost-Erweiterung der EU: Eine österreichische Perspektive, April 1998.
- 9811 BERGER, Mathias und SCHNEIDER, Friedrich: Schattenwirtschaft und Steuerhinterziehung: Ökonomische und psychologische Aspekte, April 1998.
- 9812 SCHNEIDER, Friedrich und STIEGLER, Harald: Controlling als effizienzsteigerndes Instrument der Universitätsführung-Zauber- oder Leerformel?, April 1998.
- 9813 KUNST, Robert M.: Some aspects of modeling seasonality in economic time series, Juni 1998.
- 9814 KOHLER, Wilhelm: Fifty Years Later: A New Marshall Plan for Eastern Europe?, Juli 1998.
- 9815 RAPHAEL, Steven und WINTER-EBMER, Rudolf: Identifying the Effect of Unemployment on Crime, September 1998.
- 9816 ICHINO, Andrea und WINTER-EBMER, Rudolf: Lower and Upper Bounds of Returns to Schooling: An Exercise in IV Estimation with Different Instruments, September 1998, erscheint in: *European Economic Review*, 1999.
- 9817 PÖLL, Günther und SCHNEIDER, Friedrich: Schattenwirtschaft, Juli 1998.
- 9818 BRUNNER, Johann K.: Kapitaldeckungsverfahren versus Umlageverfahren: Grundsätzliches zur Systemdiskussion, August 1998.
- 9819 SCHNEIDER, Friedrich und ENSTE, Dominik: Increasing Shadow Economies all over the world - Fiction or Reality? A Survey of the Global Evidence of its Size and of its Impact from 1970 to 1995, November 1998.
- 9820 LENK, Thomas und SCHNEIDER, Friedrich: Zurück zu mehr Föderalismus: Ein Vorschlag zur Neugestaltung des Finanzausgleichs in der Bundesrepublik Deutschland unter besonderer Berücksichtigung der neuen Bundesländer, November 1998.
- 9821 KOHLER, Wilhelm: Die Bedeutung der EU-Osterweiterung für verschiedene Sektoren der österreichischen Wirtschaft, November 1998.
- 9822 KOHLER, Wilhelm: Die pan-europäische Integration: Herausforderungen für die Wirtschaftswissenschaft, November 1998.
- 9823 ATKINSON, Anthony B.: The Changing Distribution of Income: Evidence and Explanations (1. K.W. Rothschild Vorlesung), November 1998.
- 9824 PECH, Susanne und PFAFFERMAYR, Michael: Strategic Environmental Taxation in the Presence of Involuntary Unemployment and Endogenous Location Choice, November 1998.
- 9825 BARTEL, Rainer: Reform und Öffnung Osteuropas, November 1998.
- 9826 ÖTSCH, Walter: Zur Geschichte und Zukunft von Grundkategorien des ökonomischen Denkens: Raum, Zeit, Objekt und Ich, November 1998.
- 9827 ÖTSCH, Walter: „Äußere“ und „Innere“ Glücksmodelle in der Theoriegeschichte der Ökonomie, November 1998, erscheint in: Zinn, Bellebaum und Schaaf: Ökonomie und Glück, Frühjahr 1999.
- 9828 ÖTSCH, Walter: Konstruktivismus und ökonomische Theorie, November 1999, erscheint in: Lehmann und Pillath: Handbuch der Evolutorischen Ökonomik, Springer Verlag, 1999.
- ***
- 9901 WINTER-EBMER, Rudolf and ZWEIMÜLLER, Josef: Firm Size Wage Differentials in Switzerland: Evidence from Job Changers, Jänner 1999, erscheint in: *American Economic Review, Papers & Proceedings*, 1999.
- 9902 BRANDSTÄTTER, Eduard, KÜHBERGER, Anton und SCHNEIDER, Friedrich: "Surprise in Decision making under Uncertainty, Jänner 1999.

4/4/01 12:48 Shadow_Australia 4 1.doc

- 9903 SCHNEIDER, Friedrich und WAGNER, Alexander: "The Role of International Monetary Institutions after the EMU and after the Asian Crises: Some Preliminary Ideas Using Constitutional Economics", Februar 1999
- 9904 BRUNNER, Johann K.: Transfers zwischen den Generationen, Februar 1999.
- 9905 LACKÓ, Mária: Hidden Economy – An Unknown Quantity? Comparative Analysis of Hidden Economies in Transition Countries in 1989-1995, Februar 1999
- 9906 KOHLER, Wilhelm: Trade and Wages: What Can Factor Contents Tell Us? Februar 1999.
- 9907 LANDESMANN, Michael und ST EHRER Robert: The European Unemployment Problem: A Structural Approach, März 1999.
- 9908 SCHNEIDER, Friedrich: Das Verhältnis von Innovation und Beschäftigung aus wirtschaftlicher Sicht – Jobkiller oder Jobwunder?, Mai 1999.
- 9909 SCHNEIDER, Friedrich und LENK, Thomas: Zurück zum Trennsystem als Königsweg zu mehr Föderalismus in Zeiten des „Aufbau Ost“, Juni 1999.
- 9910 SCHNEIDER, Friedrich: Die Entwicklung der Sozialpolitik in repräsentativen und in direkten Demokratien: Königsweg oder Sackgasse? Einige Bemerkungen aus der „Public Choice“-Perspektive, Juni 1999.
- 9911 SCHNEIDER, Friedrich: Ist Schwarzarbeit ein Volkssport geworden? Ein internationaler Vergleich des Ausmaßes der Schwarzarbeit von 1970 bis 1997, Juni 1999.
- 9912 FELBERMAYR, Gabriel, und KOHLER, Wilhelm: Zur ökonomischen Logik spekulativer Attacken, Juli 1999.
- 9913 FERSTERER, Josef und WINTER-EBMER, Rudolf: Returns to Education - Evidence for Austria, August 1999.
- 9914 BARTEL, Rainer: Social economic issues in sexual orientation – Where do we stand?, September 1999.
- 9915 SCHNEIDER, Friedrich und ENSTE, Dominik: Shadow Economies: Sizes, Causes, and Consequences, September 1999.
- 9916 BARTEL, Rainer: Ökonomische Rationalität im System der öffentlichen Finanzkontrolle. Die Funktionalität des neuen Oö. Landesrechnungshofs. September 1999.
- 9917 FERSTERER, Josef und Rudolf WINTER-EBMER: Are Austrian Returns to Education Falling Over Time?, Oktober 1999.
- 9918 SCHNEIDER, Friedrich und WINNER, Hannes: Ein Vorschlag zur Reform der österreichischen Unternehmensbesteuerung, November 1999.
- 9919 SCHNEIDER, Friedrich: Induzieren ökologische Steuerreformen einen Lenkungseffekt oder nur volle Staatskassen? Einige volkswirtschaftliche Überlegungen, November 1999.
- 9920 KOHLER, Wilhelm: Wer gewinnt, wer verliert durch die Osterweiterung der EU?, November 1999.
- 9921 DREZE, Jacques: On the Macroeconomics of Uncertainty and Incomplete Markets, November 1999.
- 9922 STIGLBAUER, Alfred M. und WEISS, Christoph R.: Family and Non-Family Succession in the Upper-Austrian Farm Sector, Dezember 1999.
- 9923 HOLZLEITNER, Christian: Linear Profit-Sharing in Regulatory Contracts, Dezember 1999.
- 9924 ÖTSCH, Walter: Objekt, Subjekt und Wert. Zur Kulturgeschichte in Georg Simmels "Philosophie des Geldes", Dezember 1999.
- ***
- 0001 KOHLER, Wilhelm: Die Osterweiterung der EU aus der Sicht bestehender Mitgliedsländer: Was lehrt uns die Theorie der ökonomischen Integration?, Jänner 2000.
- 0002 FERSTERER, Josef und WINTER-EBMER, Rudolf: Smoking, Discount Rates, and Returns to Education, Jänner 2000.
- 0003 BARTEL, Rainer: Quo vadimus. Grundgedanken zum Verhältnis von Wirtschaft, Staat und Gesellschaft, Februar 2000.
- 0004 SCHNEIDER, Friedrich und FREY, Bruno S.: Informal and Underground Economy, Februar 2000.
- 0005 SCHNEIDER, Friedrich und FELD, Lars P.: State and Local Taxation, Februar 2000.
- 0006 ZWEIMÜLLER, Josef und WINTER-EBMER, Rudolf: Firm-specific Training - Consequences for Job Mobility, März 2000.
- 0007 SCHNEIDER, Friedrich: Schattenwirtschaft – Tatbestand, Ursachen, Auswirkungen, April 2000
- 0008 SCHNEIDER, Friedrich: The Increase of the Size of the Shadow Economy of 18 OECD Countries: Some Preliminary Explanations, April 2000.
- 0009 SCHNEIDER, Friedrich und AHLHEIM, Michael: Allowing for Household Preferences in Emission Trading – A Contribution to the Climate Policy Debate, Mai 2000
- 0010 SCHNEIDER, Friedrich: Illegal Activities, but still value added ones (?): Size, Causes, and Measurement of the Shadow Economies all over the World, Mai 2000.
- 0011 WEICHSELBAUMER, Doris: Is it Sex or Personality? The Impact of Sex-Stereotypes on Discrimination in Applicant Selection, Mai 2000.
- 0012 FELBERMAYR, Gabriel, und KOHLER, Wilhelm: Effizienz- und Verteilungswirkungen der Handelsliberalisierung, Juni 2000.
- 0013 EGGER, Peter und PFAFFERMAYR, Michael: Trade, Multinational Sales, and FDI in a Three-Factors Model, Juni 2000.
- 0014 LANDESMANN, Michael und STEHRER, Robert: Potential Switchovers in Comparative Advantage: Patterns of Industrial Convergence, Juni 2000.
- 0015 SCHNEIDER, Friedrich und WAGNER, Alexander: Korporatismus im europäischen Vergleich: Förderung makroökonomischer Rahmenbedingungen?, Juli 2000.
- 0016 SCHNEIDER, Friedrich und LENK, Thomas: Grundzüge der föderalen Finanzverfassung aus ökonomischer Perspektive: Trennsystem vs. Verbundsystem, Juli 2000.
- 0017 HOLZLEITNER, Christian: Efficient Cost Passthrough, August 2000.
- 0018 HOLZLEITNER, Christian: Evolution of Regulatory Contracts in the Real World - A Change for Good?, August 2000.
- 0019 KOHLER, Wilhelm: International Fragmentation: A Policy Perspective, August 2000.
- 0020 KOHLER, Wilhelm: A Specific-Factors View on Outsourcing, August 2000.
- 0021 WEICHSELBAUMER, Doris: Sexual Orientation Discrimination in Hiring, September 2000.
- 0022 KOHLER, Wilhelm: Internationale Migration: Anmerkungen aus der Sicht der Außenwirtschaftstheorie, Oktober 2000.
- 0023 AIGINGER, Karl und DAVIES, S.W.: Industrial Specialisation and geographic Concentration: Two sides of the same coin? Not for the European Union, Oktober 2000.
- 0024 EGGER, Hartmut und EGGER, Peter: Outsourcing and Skill-Specific Employment in a Small Economy: Austria and the Fall of the Iron Curtain, Oktober 2000.
- 0025 KOHLER, Wilhelm: An Incumbent Country View on Eastern Enlargement of the EU - Part I: A General Treatment, November 2000.
- 0026 KOHLER, Wilhelm: An Incumbent Country View on Eastern Enlargement of the EU - Part II: The Austrian Case, November 2000.
- 0027 FREY, Bruno S.: What are the sources of happiness?, November 2000
- 0028 RIESE, Martin: Weakening the SALANT-condition for the Comparison of mean durations, Dezember 2000
- 0029 WINTER-EBMER, Rudolf: Long-term consequences of an innovative redundancy-retraining project: The Austrian Steel Foundation, Dezember 2000.
- 0030 BRUNNER, Johann K. und PECH, Susanne: Adverse Selection in the annuity market when payoffs vary over the time of retirement, Dezember 2000.
- ***

4/4/01 12:48 Shadow_Australia 4 1.doc

- 0101 KOHLER, Wilhelm: Osterweiterung der EU: Die Mitgliedschaft wird teurer – Wird sie auch wertvoller?, Jänner 2001.
- 0102 STEHRER, Robert: Industrial specialisation, trade, and labour market dynamics in a multisectoral model of technological progress, Jänner 2001.
- 0103 SCHNEIDER, Friedrich; SALHOFER, Klaus; SCHMID, Erwin, und STREICHER, Gerhard: Was the Austrian Agricultural Policy Least Cost Efficient?, März 2001.
- 0104 SCHNEIDER, Friedrich; KIRCHLER, Erich und MACIEJOVSKY, Boris: Social Representations on Tax Avoidance, Tax Evasion, and Tax Flight: Do Legal Differences Matter?, März 2001.
- 0105 SCHNEIDER, Friedrich; PITLIK, Hans, und STROTSMANN, Harald: On the Politicization of Intergovernmental Fiscal Relations in Germany after Unification, März 2001.
- 0106 SCHNEIDER, Friedrich: Privatisierung und Deregulierung in Österreich in den 90er Jahren: Einige Anmerkungen aus Sicht der Neuen Politischen Ökonomie, März 2001.
- 0107 SCHNEIDER, Friedrich; BRAITHWAITE, Valerie, and REINHART, Monika: Individual Behavior in the Cash / Shadow Economy in Australia: Facts, Empirical Findings and some Mysteries, März 2001.