THE EFFECTS OF REGULATORY CHANGE ON TAXPAYER COMPLIANCE BEHAVIOUR IN THE BUILDING AND CONSTRUCTION INDUSTRY

Christopher Bajada* and Mikhail Shashnov#

Abstract

Using the results from a comprehensive telephone survey of home builders during 2007-8 and 2014-15, we provide an analysis of the behaviour, characteristics and perceptions of cash economy activity in the building and construction sector in Australia. In 2012-13, the ATO introduced the Taxable Payment Reporting System which yielded an additional compliance dividend. By comparing responses of builders before and after the introduction of this reporting system, we evaluate the impact of this regulatory change on grassroots activity in the cash economy. Although this regulatory change has impacted on certain cash economy activities, more targeted strategies are still required.

I. INTRODUCTION

Times may be tough, but many ordinary citizens are doing it better than they will admit. Estimates of the cash economy around the world suggest that these activities operate in parallel with legitimate economic activities and for a number of countries the cash economy comprises a relative large component of overall economic activity (for example, see Buehn and Schneider, 2012). This is particularly so for the less developed economies where regulatory measures to ensure tax compliance are weak or insufficient (for the OECD: see Feld and Schneider (2010); for Asia see: Bajada and Schneider (2005a), and Africa see: Kodila-Tedika and Mutascu (2014). In other studies (see for example, Bajada, 2005 and Bajada and Schneider, 2009) the cash economy is also found to harbor the unemployed who choose to actively participating in the cash economy while receiving unemployment benefits.

The cash economy encapsulates activities that ought to be recorded in the national accounts but is not because of taxpayers' failure to report income in whole or in part. For others, the cash economy includes not only activities that fall within national accounting boundaries but also illegal activities such as prostitution and drug trafficking. In some countries certain activities, which are illegal by one country's standards, are not illegal in another and so the

* Associate Professor, UTS Business School, University of Technology Sydney (corresponding author Chris.bajada@uts.edu.au +612 9514 9746.

UTS Business School, University of Technology Sydney.

boundary between what is and is not in the national accounts will vary. In the broader national economic context, the cash economy consists of activities that would normally be captured in the national accounts, but because of the failure to report income in-whole or in-part, is neither measured nor taxed. All forms of criminal activities, such as theft, drug trafficking and prostitution, are not measured in the national accounts and therefore not included in the definition of the cash economy. For the same reason, all types of do-it-yourself activities, such as household repairs and maintenance by homeowners as well as other non-market activities do not form part of the cash economy. Because we are interested only in the extent by which the national accounts are under-estimated and tax is evaded, these activities are not typically included in the estimates of the cash economy (see Bajada and Schneider, 2005b).

Much has been written on the size and the socio-economic effects of the cash economy worldwide. These effects include amongst others, a decline in tax revenue (e.g., Vlachaki, 2015; Schneider, 2012.), distortions in economic and social data (e.g., Houston, 1990), unfair price competition, a worsening of tax morality (e.g., Frey, Weck and Pommerehne, 1982) and an increasing skewness in the income distribution towards those who go undetected in receipt of cash payments (e.g., Houston, 1987). Much of this literature has focused on producing national estimates of the cash economy (i.e. aggregated across all industry sectors) with the objective of examining the likely effects and public policy implications from significant non-compliance. There are a number of broad methodologies into which attempts to measure the cash economy fall and although each method may differ from application to application, the underlying conclusions from these studies are that the cash economy in many countries is quite large and growing overtime. Although these national estimates of the cash economy tell us something about the tax gap and the overall adverse economic and social implications that such activities may have on society, they tell us very little on the distribution of these activities across the various industries in each of these countries. It may very well be that the cash economy is dominant in just a few industries, with only minor levels of non-compliant activities in others. Without such disaggregated measures of the cash economy, it is difficult for policymakers to formulate industry strategies to eliminate these illicit activities. Having information on the cash economy at the industry level not only supports targeted strategies, it also allows for appropriate benchmarking of compliance outcomes to gauge the success of the strategy. A regulatory change that improves compliance outcomes is positive but it does not indicate how close to target the compliance measure has come in identifying and discouraging non-compliant behavior.

There are only few studies that have produced estimates of the cash economy at the sector or industry level, and even fewer still for the building and construction industry. Those estimates of the cash economy at the level of the building and construction industry which are most relevant here include: *for Australia*: CETF, 1998, 2003; ABS, 2004; and various Australian Taxation Office (ATO) publications such as (ATO (2015); *for Canada*: KPMG, et.al. 1997; O'Grady and Lampert, 1998; O'Grady, 1998, 2001; Statistics Canada, 1994; AHBR, 2004; NSDF, 1997; Zanasi, 1996; *for the UK*: DTI, 2002 and 2003). The Ontario Construction Secretariat estimates the cash economy in the building construction industry in Nova Scotia, Canada, to be 26% of the sector's overall GDP (see O'Grady, 1998, 2001 and AHBR, 2004).

Statistics Canada on the other hand, estimates the size of the shadow economy in the building construction industry to be 10% of the sector's GDP, while the Atlantic Home Building and Renovation Sector Council (AHBR, 2004) estimates the shadow economy in Nova Scotia to be 25% of the sector's GDP, similar in size to the estimates by the Ontario Constriction Secretariat.

The Australian Bureau of Statistics (2004) embarked on an exercise to evaluate the accuracy and reliability of the Australian national accounts, in which they evaluated the maximum likelihood of under-reporting in each of the broad industry sectors (including construction). This study however did not directly produce an estimate of the cash economy for the building and construction industry. Neither has the Australian Taxation Office (ATO) produced any specific estimates of the size of the cash economy, although they indirectly provide evidence of its significant size through their reports on tax compliance outcomes. The most recent of these (see ATO, 2015) suggests that following a new regulatory reporting requirement (Taxable Payments Reporting System) introduced in July 2012, an additional $2 billion of income tax and GST revenue for the financial year 2012-13 was extracted from the building and construction industry.

The objective of this paper is to undertake an analysis of data collected from two surveys of businesses in the home building sector in (Sydney) Australia to elicit information on cash economy activities. This information will shed light on the types of cash economy activities taking place, the profile of these cash economy participants, the likely regions of greater cash economy intensity and the perceptions on how effective government are in dealing with the cash economy. The first of these surveys was conducted during December 2007 to February 2008; and the second during December 2014 to February 2015. The two surveys will help gauge changes in cash economy activity over this period of time. In particular it will also facilitate an evaluation of a regulatory change in reporting requirements for businesses operating in the building and construction industry. The regulatory change involved the introduction of the Taxable Payments Reporting system (TPRS) brought into force in July 2012 requiring builders to report the specific payments made to each contractor during the financial year. This information is then used by the ATO to data match income reported (or under-reported) by these contractors in the industry.

The remainder of this paper is organised as follows. In Section 2 we outline the economic and social consequences of a significant cash economy and in Section 3 we provide an overview of the Australian building and construction industry with a focus on the characteristics of the sector that increase the risk of workers participating in the cash economy. In Section 4 we discuss the survey instrument used, including the methodology and profile of the various builder respondents to the surveys. In Section 5 we consider the effects of non-compliance from the change in regulatory reporting on cash economy activity between 2007 and 2014 - including how perceptions on the cash economy changed following the introduction of the Taxable Payments Reporting System. In Section 6 we conclude.

A *The Economics and Social Consequences of the Cash Economy?*

For our purposes we define the cash economy as consisting of activities which would normally be measured in the national accounts, but because of the failure to report income in whole or in-part is neither measured nor taxed. All forms of criminal activities, such as theft, drug trafficking and prostitution, are generally not part of the cash economy as these are not typically measured as part of GDP. All types of do-it-your-self activities, such as household repairs, maintenance by the homeowner and other non-market activities, do not form part of the cash economy because neither of these activities are measured in the national accounts.

Why is reducing the size of the cash economy so important? When an individual participates in the cash economy and does not pay their fair share of tax, the rest of the community must bear the burden of higher taxes that may be needed to continue funding government expenditure. If there are only a small number of participants in these clandestine activities, the burden may be spread thinly on the community, diluting significantly any adverse effects on those complying with their tax obligations. If on the other hand, the numbers of participants are large and the extent of evasion is significant, the compliant community suffers. The implications of a sizeable cash economy include:

i. *Declining tax revenue* - whenever participation in the cash economy expands, tax revenue losses add to the financial pressures of government to satisfy the service needs of the community. A significant cash economy deprives the government of much needed tax revenue to fund public works.
ii. *Distortions of Economic and Social Data* - unreliable data affects the credibility of any statistical estimates attempting to model an economic phenomenon. This may give rise to inefficient policy prescriptions particularly if it is driven by changes in the published data. The gauge most commonly used to measure the functioning of the economy, namely the behaviour of economic variables, can be significantly distorted by the existence of a non-negligible cash economy and undoubtedly this has a serious implication for the business cycle in general;
iii. *Tax Morality* - If the community acknowledges that the cash economy is growing and not being detected, there is an incentive to encourage a more active involvement or motivate new participants to join.
iv. *Unfair Price Competition* - Honest businesses face the threat of closure with unfair price competition coming from businesses that actively participate in the cash economy in an attempt to cut costs.
v. *Welfare Effects* - Those who participate in the cash economy may be contributing far less than honest taxpayers for the rights to use government goods and services, therefore creating a distortion on the distribution of welfare, particularly if the unemployed are surreptitiously also working in the cash economy while receiving unemployment benefits.
vi. *Implications for Efficiency* - The cash economy may distort the allocation of economic resources particularly if it channels them into sectors of the economy where tax evasion is more pronounced.
vii. *Unregulated Activities* – the cash economy may result in poor work place practices that ultimately do not offer the same guarantees of workmanship as one would expect of goods and services provided in the legitimate sector.

Across many countries, taxation offices have initiated tax compliance programs and enforcement processes to mitigate against growing pressures of cash economy activity. In the Australian context, the Australian Taxation Office (ATO) has over many years devoted resources and implementing policies to tackle evidence of a growing cash economy, particularly in specific industries where cash is used more extensively. In 1996 the Australian Commissioner for Taxation established a Cash Economy Task Force (CETF) to address what appeared to be a growing community perception that the cash economy was growing which in the process much has been learnt on what motivates the participants in the cash economy. More recently in 2012-13, the ATO has introduced the Taxable Payment Reporting System in the building industry, requiring organisations to report specific payments to contractors and sub-contractors in attempt to data-match and uncover surreptitious economic activity in the building industry.

II THE HOME BUILDING INDUSTRY IN AUSTRALIA

The home building industry is part of the broader building and construction sector that in 2014 contributed to approximately 8% of GDP (see ABS, Australian National Accounts: National Income, Expenditure and Product). The home building industry ranks second in size to engineering construction and is larger than all the non-residential building and construction activities combined. On the employment front, the building and construction industry is the third largest employer in Australia, behind health and retail services. The majority of workers in the building and construction industry are employed in trade services – the component of the sector that most likely poses the greatest risk for cash economy activity.

The data presented in this section provides some key indicators of the likelihood that there exists a cash economy in the home building industry. These indicators, along with the findings from the survey results reported in Section 4 provide an insight into the dynamics of this surreptitious sector of the economy. The key indicators from the home building industry data include: (i) the size and mix of residential building construction activity; and (ii) the employment profile of people working in this sector. The emphasis on point (i) will be on the mix between renovations and repairs versus new dwelling construction, as the former is more likely to involve cash and contribute to the overall size of the cash economy. The emphasis on point (ii) will be on the nature and profile of employment (e.g. employees versus self-employed) and earning differentials between those working in the home building industry compared to the earnings of those working in the other sectors of the economy.

The focus of this paper is on the Sydney home building industry as the surveys are drawn from the businesses in the Sydney residential construction sector. In Table 1 we illustrate the size of the Sydney market as of August 2016 to coincide with the time period in this analysis. In the first row of Table 1 we find that the state of NSW contributed to one-third of Australia's total residential construction value, while in the second row of Table 1 we see that Sydney contributes to approximately 62% of the value of new home construction and 76% of the value of alternations/additions that occur in NSW. The results are also reflected in the physical number of dwellings given in column 3 of Table 1. This suggests that the cash economy in

NSW is most likely to be dominated by activities in the Sydney region. As a percentage of all Australian residential construction, the Sydney market comprises approximately 16% of all new house constructions and 25% of alterations and additions to residential dwellings.

Table 1 – *Sydney and NSW Residential Construction market- August 2016*

	Number			Value ($'000)				
	New houses	New other residential building	Total dwellings	Value of new houses	Value of new other residential building	Value of alterations & additions to residential building	Value of total residential building	Value of total building
NSW (% of Aust)	24.3	36.6	30.5	25.5	39.6	32.9	32.3	31.3
Sydney (% of NSW)	59.4	88.9	76.8	61.5	91.5	76.3	78.7	76.4
Sydney (% of Aust)	14.4	32.5	23.4	15.7	36.2	25.1	25.4	23.9

Source: 87310DO002_201608 Building Approvals, Australia, Aug 2016.

In Table 2 the greatest proportion of registered businesses are in the south and west of Sydney, with the smallest proportions in the East and Inner Sydney. This particular result may be due to the cost of housing, where housing is relatively cheaper in the west and south than it is in the north and east of Sydney. This result also suggests that business activity isn't typically concentrated within regions and that builders will travel across the Sydney region to find work. This hypothesis is consistent with the data collected from the two surveys (to be discussed in Section 3).

Table 2 - *Business Owners (Construction) by Sydney Region*

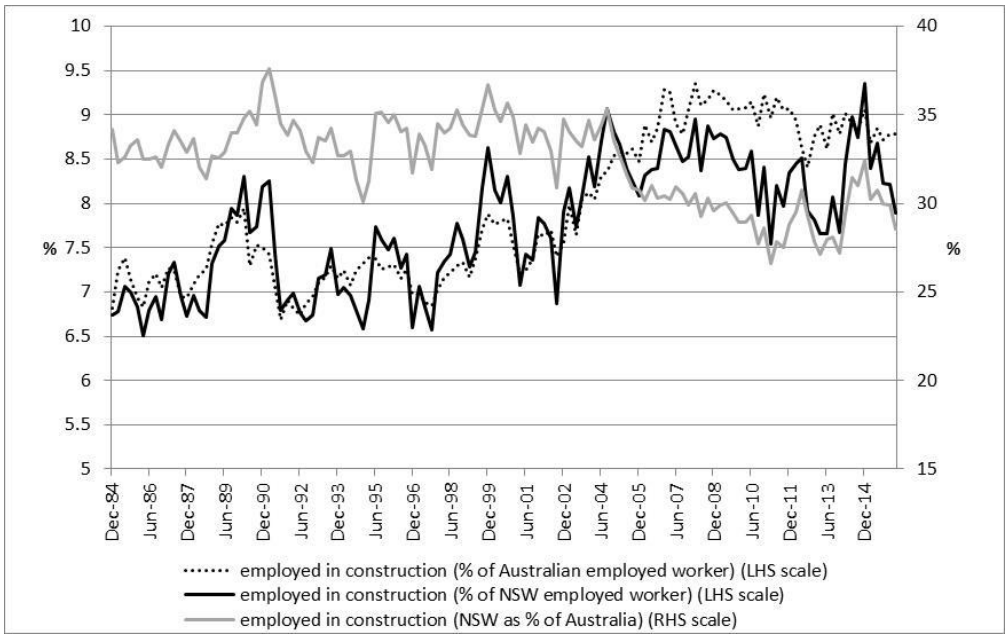
	Business Owners (No)	Business Owners (% of Total)
Inner Sydney	816	3.4
East	1261	5.3
South	8135	34.0
West	7236	30.2
North	6495	27.1
Total	**23943**	**100**

Source: ABS - 1380.0.55.008 - Perspectives on Regional Australia: Business Owners in Regions Table 2: Business Owners (a), Industry of Employment, by Statistical Area Level 4.

In Figure 1 we plot the number of employed people in the construction sector as a percentage of total employment across all industries leading up to the last survey conducted. From 1985 until 2014, the percentage of individuals employed in the construction sector has risen from

approximately 7% in 1985 to 9%. In NSW, the percentage of people employed in construction as a percentage of Australian workers has been relatively stable until 2005 but on a steady decline since. However, the percentage of all NSW workers employed in the construction industry has been on the rise, with the obvious slowdown in employment during the Global Financial Crisis.

Figure 1 – *Employment in the Building and Construction Industry*



Source: DXdata: (1) Seas adj: CP: Commenced: Residential building: New: Houses: Total (CKRQ.AC__ZN#A#01); (2) Seas adj: CP: Commenced: Residential building: Alterations & additions: Total (CKRQ.AC__ZA#A#RL); (3) Seas adj: CP: Commenced: Residential building: Total: Total (CKRQ.AC__Z##A#RL).

A *Change in Tax Reporting Requirements*

One of the most commonly cited drivers for participating in the cash economy, second only to the tax burden, is the effectiveness of the tax authorities to tackle illicit economic activities when they occur. The fact that the cash economy exists and is significant in size throughout many countries, would suggest that the effectiveness of the tax authorities to stem the tide of these activities in those countries has been rather limited. Improving and innovating the processes to 'track' the flow of funds would ultimately prove to be a game-changer for those participating in these illicit activities. During the 2012-13 financial year, the ATO implemented a change in its expenditure reporting requirements for businesses in the building and construction industry, namely that they would be required to report all individual payments made to their contractors. This change, known as the Taxable Payments Reporting System, requires businesses to report the total amount of the payment made to individual contractors including the amount of Goods and Services Tax (GST) paid as well as other information including the contractor's business name, address and Australian Business Number (ABN). This information allows the ATO to data match the information provided by the same

contractors. Equipped with such information, the ATO is in a position to identify contractors who chose to selectively under-report or not report at all. The post-implementation results produced a significant compliance dividend. For the period 2012-2013, the ATO collected an additional $2 billion in revenue comprising of $0.265 billion in lodgement of returns; $0.506 billion in Goods and Services Tax (GST); $1.128 billion in pay-as-you-go withholding tax; and $0.357 billion in pay-as-you-go instalment payments (see ATO, 2015). The ATO has also reported that 'the total value of obligations reported on these activity statements has also increased. Net GST increased by 6.1% and Pay-As-You-Go (PAYG) withholdings has grown by 7.9% from 2011-12 to 2012-13.' (ATO, 2015). At the organisational level, the ATO identified that a total of 53,089 businesses in the building and construction industry under-reported income (of $1000 or less) and 33,312 businesses did not report any income at all in the 2012-13 financial year.

This simple but effective regulatory change has had a measureable impact on the compliance dividend. But how significant an impact did this have on the overall size of the cash economy? If direct estimates of the cash economy in the building and construction industry were available, the overall impact of this regulatory change could be evaluated. It would then be possible to determine the next strategy to further narrow the tax gap if the estimates of the cash economy still proved to be too high. In this paper we evaluate the effects of this regulatory change by comparing survey responses of builders on cash economy activity before and after this regulatory change. We compare builder's observations on the behaviour of contractors and sub-contractors, those supplying materials in the building and construction industry, the effects (adverse or otherwise) of the cash economy on legitimate business activity, perceived estimates of the cash economy including effects on prices and business income, and the effectiveness of government agencies to deal with the cash economy. We first turn our attention to the survey instrument in Section 4and compare the effects of the regulatory change in Section 5.

III SURVEY DATA

Surveys have on occasions been used as indirect methods of estimating the size of the cash economy. The more direct methods include the use of the monetary method (see Tanzi, 1983), the MIMIC approach (see Giles, 1999), physical input method (see Kaufmann and Kaliberda, 1996; and Kaufmann, Johnson and Shleifer; 1997) and the RESET approach (see Bhattacharyya, 1990) amongst others. The use of surveys typically involves asking the individuals whether they have actively participated in the cash economy. Some surveys take the form of direct contact between the interviewer and the respondent. In other surveys, the respondents are required to complete a questionnaire and submit or mail back their responses. Other surveys use the combinations of these two methods for eliciting information. Typically the questions require the respondents to answer whether they are a buyer or seller in the cash economy. Others may use more indirect questioning in an attempt to uncover the bias in responses that result from directly asking the respondent whether they have failed to meet their tax obligations.

Although susceptible to some bias from the sensitive nature of the topic (see Hansson, 1989), surveys have typically been favoured by government departments interested to know the extent of illicit economic behaviour. Typically surveys are in the form of interviews in which a representative sample of the population is asked whether they have participated as buyers or sellers of labour and/or goods in the cash economy. Surveys from Italy (Censis, 1976), United States (Ross, 1978) Britain (Dilnot and Morris, 1981), Belgium (Pestiau, 1983), Norway (Isachsen and Strom, 1989), Netherlands (Van Eck and Kazemier, 1988) and Germany (Frey, Weck and Pommerehne, 1982) each reached the conclusion that despite the sensitive nature of this topic, it was possible to deduce that the extent of illicit behaviour had been growing over the period covered by the surveys. The direct methods of estimating the cash economy for these countries also confirm these findings, although the estimates vary considerably from country to country. Unlike the indirect methods, surveys have the potential to undercover a considerable amount of information about the quality of work and the characteristics of employment (see Frey and Pommerehne, 1984).

In almost all cases the interviewer assures the prospective respondent that the information they provide will not be disclosed and that their identity will be removed from the survey record to guarantee their anonymity. As one might expect, because of the nature of the topic, most respondents are likely to deny being involved in the cash economy because of fear of being detected and punished despite the promises that might be made by the interviewer. Isachsen, Klovland and Strom (1982) found that more people admitted to paying for irregular services than actually participating in the cash economy. It might also be the case that some individuals claim to be participating in the cash economy when in fact they may not. They may also choose to do so simply to sensationalise the discussion with the interviewer. For these reasons alone, the results from such surveys are likely to downward bias the true extent of participation in the cash economy and so it is also possible in this study that the estimates of the cash economy are understated. Nevertheless every effort has been made to ensure that the extent of the potential bias is as small as possible.

The survey questions were framed in a way that the respondents were not asked to provide their own personal experiences but rather what they observed in the course of their activities in the building industry. By framing the questions in this particular way, an individual can report their own or what they see occurring in the sector in the context of a 'third party' and in so doing provide a more reasonable estimate of the activities in the cash economy. By taking this approach we did observe that the majority of the builders were quite willing to engage in detailed discussion on the nature and methods by which individual builders operate in the cash economy.

The survey instrument used in this paper combines the author's own questions with those used by the Atlantic Home Building and Renovation Sector Council.[1] The survey was implemented over two periods: during December 2007 – February 2008 and again in December 2014 –

[1] Permission was sought and granted for the use of these questions.

February 2015[2], during which time the ATO introduced a regulatory reporting change (Taxable Payments Reporting System in July 2012) for the building and construction industry. Although the introduction of this regulatory change in reporting requirements appears to have been quite successful from a compliance dividend perspective, it is still unknown what the impact has been on the overall size, perceptions, observations and motivations of those working the building and construction industry. The use of a survey instrument before and after the introduction of this change in the reporting requirements will shed light on the dynamics of the inner-workings of the cash economy. The remainder of this section provides details of the target population, the methodology used and the characteristics of the respondents who completed the two surveys. The anonymous nature of the surveys and the process of separating the respondent's details from their survey response imply that it is not possible to identify how many builders in the first survey were also participants in the second survey and how their responses changed following the introduction on the ATO's reporting change requirements[3]. Despite this, the two survey waves facilitate a comparison on general attitudinal and observational changes on cash economy activity in the building industry; particularly the impact the change in reporting requirements has on the perceptions that governments are effective in addressing tax evasion.

A *Target population and methodology*

The target population for this survey were professional builders involved in the construction of new dwellings and those involved in renovations and repairs in the residential construction sector. The sample of builders for this survey was drawn from the list of names and contact telephone numbers publicly available on the Master Builders Association website. The Master Builders Association is the major building and construction industry association in Australia. In addition, other builders' contact details were also sourced from advertisements in the Sydney local area newspapers (also published online). The survey was conducted by telephone and each builder was invited to participate in the survey. If any builder was unable to answer the questions at the time when they were initially contacted, they were asked if there was a suitable time for them to be contacted again. In the few instances when this occurred, the majority of the builders requested that they be contacted in the evening and with the exception of a few builders, they all participated in the surveys. Each telephone interview lasted between 25 to 30 minutes. Given the nature of the survey questions and the duration of time (which each respondent was advised in advance), the response rates (see below) was higher that initially expected and above the usual response rates observed for similar surveys conducted elsewhere on this topic. What were noticeably different in each survey were the low response rates from

[2] The first survey commenced during the early part of December 2007 and again during February 2008, allowing time for the builders to return from their holidays over the January period. The second survey was undertaken during a similar period: December 2014 and continued during February 2015.

[3] The university's ethics approval granted for this project required strict anonymity, such that a cohort analysis of the data was not possible.

builders not belonging to a building association whose names and contact details were sourced from local advertisements.

B *Profile of Respondents*

A total of 112 builders participated in the first survey which represents an overall response rate of 58.9%; while a total of 94 builders participated in the second survey, representing an overall response rate of 53.1%.[4] Of those builders that responded to the first survey, 92.8% belonged to a professional association, while for Survey 2, 95.7% belonged to a professional association. Of all those builders belonging to a professional association in the target population, 74.3% agreed to participate in Survey 1 and 68.2% in Survey 2. Of all the builders who did not belong to a professional association, only 16% agreed to participate in Survey 1 and 8.9% in Survey 2. The non-members, all of whom were sourced for newspaper and online advertisements in the Sydney local area newspapers, were generally more reluctant to participate in the survey. On the other hand, those respondents belonging to a professional association were more willing to engage in discussions during the telephone interview. This finding is consistent in both survey periods. In Table 3 we report the survey response rates for member and non-members across the two surveys.

Table 3 – *Membership of Professional Association*

	Survey 1 (2007-08)			Survey 2 (2014-15)		
	Members	Non-members	Total	Members	Non-members	Total
Sample size	140	50	190	132	45	177
Respondents	104	8	112	90	4	94
Response rate	74.3%	16%	58.9%	68.2%	8.9%	53.1%

In Table 4 we disaggregate the results in Table 3 according to the mix of activities in the residential construction industry. Of all the respondents in Survey 1, 17% were engaged, for the majority of the time in the construction of new dwellings while the remaining 83% were engaged in renovations & repairs. A total of 48 (or 42.9%) of respondents reported to be involved in both the construction of new dwellings and the renovations & repairs sector, of which 44 (or 91.7%) of these respondents were members of at least one professional building association. Of all the respondents in Survey 2, 37.2% was also engaged, for the majority of the time in the construction of new dwellings while the remaining 62.8% was engaged in renovations & repairs. A total of 57 (or 60.6%) of respondents reported to be involved in both the construction of new dwellings and the renovations & repairs sector, of which all but one these respondents were members of at least one professional building association.

[4] In the first survey, a total of seven respondents did not provide an answer to the question on the size of the cash economy. When this information is required in the analysis, the sample size is reduced from 112 to 105.

Table 4 – *Survey Results: Type of Residential Construction and Building Membership*

Type of Residential Construction	Survey Respondents	%	Number of members (%)	Survey Respondents	%	Number of members (%)
New Construction (Majority)	19	17%	16, (84.2%)	35	37.2%	34, (97.1%)
Alternations and Additions (Majority)	93	83%	88, (94.6%)	59	62.8%	57, (96.6%)
New Constructions and Alterations and Additions Combined	48	42.9%	44, (91.7%)	57	60.6%	56, (98.2%)

IV EFFECTS OF REGULATORY CHANGE ON CASH ECONOMY ACTIVITY

Each year the ATO announces a select number of industries along with various types of personal and professional tax deductions that it will subject to scrutiny in its annual audit activities. The cash economy is without doubt the activity that receives most attention however specific sectors of the cash economy are often the focus of these targeted audits. The building and construction industry often faces the line-up as one of the risky industries, along with cafes, restaurants and the trades.

During the intervening period between the first and second builder's survey, the ATO implemented its Taxable Payment Reporting System in the building and construction industry. This reporting requirement has, as we have indicated earlier, generated a large compliance dividend for the government. What is not clear despite these windfall gains is the extent by which the cash economy in the building industry has reduced in size. The use of surveys to gauge whether these activities are still likely to be taking place provides an alternative means to determine the likely impact on these surreptitious activities following the introduction of a regulatory change targeting the cash economy.

Has the introduction of the TPRS in the building and construction industry reduced the size of the cash economy? In this section we will consider whether this regulatory change in reporting has had an effect on the cash economy by examining whether builders' perceptions across a range of issues including their views on the size of the cash economy, the trends in cash economy activities, and the effects the cash economy has on legitimate prices and incomes, have changed since the introduction of the TPRS. It is to these specific issues that we now turn to evaluate the impact of TPRS.

A *Size of the cash economy*

Has the introduction of the TPRS reduced the size of the cash economy? The majority of the builders surveyed before and after the introduction of the TPRS consistently reported that a

significant part of the cash economy takes place at the lower value segment of the market, where traditionally a higher percentage of payments are made in cash. These typically involve renovation more so than in the construction of new dwellings, although evidence exists for both. New dwelling construction is unlikely to attract the same volume of cash payments given that transactions in this market would typically involve larger volumes of cash that is difficult to conceal or spend without detection. Needless to say, the existence of the cash economy across the whole of the building and construction industry was confirmed in both surveys.

Prior to the introduction of the TPRS, the builders surveyed indicated that on average approximately 14.5% of transactions in the home building industry are likely to go unreported while builders post- TPRS indicated that the average unreported income was likely to be higher at 15.5% of transactions, although the increase was found to be statistically insignificantly (Δ= 1.0, p=0.531). This finding suggests that despite the introduction of the TPRS, there does not appear to have been a significant reduction in the overall size of cash economy activity in the building and construction industry. This overall increase in the size of the cash economy is being driven by strong level of activities across two regions (East and West Sydney) while the other regions of the Sydney housing market experienced some falls.

Table 5 – *Percentage of Total Business Activity in the Cash Economy by Region*

	Pre-TPRS (% of business activity)	Post-TPRS (% of business activity)
Inner Sydney	17.57%	14.83%
East	10.47%	15.15%
South	13.02%	11.00%
West	13.29%	15.63%
North	13.74%	12.33%

B *Trends in cash economy activity*

Has the introduction of the TPRS affected the level of participation in the cash economy over time? The results in Table 6 (a, b, c) provide builders' perceptions on how the cash economy has changed in the two years leading up to each of the two surveys. For the second wave of the survey, two years prior marks the introduction of the TPRS. Builders interviewed in both surveys reported a mix of opinion on how the cash economy had changed in size. In Table 6a we report the overall perceptions on the size of the cash economy - whether it has increased, decreased, stayed the same or not sure. Tables 6b and 6c report similar results but for those respondents that indicated in their view that the cash economy was less-than or equal-to 10% of total transactions in the industry (Table 6b) and more than 10% of total transactions (Table 6c).

Table 6a – *Perceptions of how the Cash Economy has changed over the previous two years*: *Overall respondents (%)*

	Pre-TPRS	Post-TPRS
Increased	26.67	20.21
Decreased	11.43	27.66
Stayed the same	37.14	32.98
Don't know	24.76	19.15

Table 6b – *Perceptions of how the Cash Economy has changed over the previous two* years: Respondents (%) reporting a cash economy ≤10%

	Pre-TPRS	Post-TPRS
Increased	18.03	9.76
Decreased	14.75	36.59
Stayed the same	37.70	34.15
Don't know	29.51	19.51

Table 6c – *Perceptions of how the Cash Economy has changed over the previous two years: Respondents (%) reporting a cash economy >10%*

	Pre-TPRS	Post-TPRS
Increased	38.64	23.30
Decreased	6.82	20.75
Stayed the same	36.36	32.08
Don't know	18.18	18.87

Prior to the introduction of the TPRS, approximately 26.7% of builder indicated that the cash economy had increased in the two years prior to the survey, while only 20.2% of builders post-TPRS reported an increase in the prior two years (see Table 6a). In contrast, only 11.4% of builders reported a decline in the cash economy in the two years prior to the first survey (pre-TPRS) while 27.7% of builders reported a decline in these activities in the two years after the introduction of TPRS (see Table 6a). When we consider the responses of builders who indicated that the cash economy was less than 10% of total transactions in the period prior to the introduction of the TPRS, 18% of these builders believed the cash economy increased in size in the lead up to the first survey while only 9.8% of respondents indicated the cash economy increased since the introduction of TPRS (see Table 6b). When we consider the responses of builders who indicated that the cash economy was greater than 10% of total transactions in the period prior to the introduction of the TPRS, 38.6% of these builders believed the cash economy increased in size in the lead up to the first survey while only 23.3% of respondents indicated the cash economy increased since the introduction of TPRS (see Table 6c). A total of 6.8% of builders pre-TPRS reported declines in the cash economy while a total of 20.8% of builders reported a decrease in cash economy activity in the two years since the introduction of the TPRS.

Across both surveys, approximately one-third of builders believed that cash economy had not changed in size in the two years prior to the first survey and in the two years since the introduction of the TPRS. On the other hand, approximately 18-29% of builders were not sure

(see Tables 6a-6c). The results in Table 6a suggest that approximately 64% of builders in the period prior to the introduction of TPRS thought the cash economy increased or stayed the same in the two years prior to the survey, while only 53% of builders thought it had increased or stayed the same post-TPRS. The findings appear to suggest that the size of the cash economy may have declined after the introduction of TPRS, albeit from a higher level than that reported in the first survey to be approximately 15.5% of total transactions as reported earlier. Therefore despite some evidence of a decline in the overall size of the cash economy since the introduction of the TPRS (which explains the large compliance dividend post implementation), the size of the cash economy is still significantly large and more needs to be done to stem the tide of these illicit activities.

C *Cash economy effects on legitimate prices and income*

Has the introduction of the TPRS helped alleviate the unfair competitive pressures on legitimate business operators that frequently pressure them to lower their price quotations and consequently experience reductions in their business income? Each of the two surveys asked builders to report on the impact that the cash economy had on their earnings (Table 7) and price quotes (Table 8) over the previous year. During the pre-TPRS period, builders were roughly split in their reporting of whether their income was affected by the cash economy (47.6% said 'Yes', it affected them while 52.4% said 'No', it did not affect them). However, in the post-TPRS period, a greater proportion of builders (approximately 61%) reported no negative effect on their income from the cash economy while the remaining 39% stated that it did impact them adversely. This may be explained by the reported decrease in cash economy post-TPRS, particularly in those areas of Sydney where the cash economy appeared to have declined (see Table 5). Those who reported reductions in income as a result of the cash economy during the pre-TPRS period indicated that it had fallen by 6.5% while respondents in the post-TPRS period reported that their income fell by 6.8%. This difference in the effect on income between the two survey periods was found to be statistically insignificant (Δ= 0.3, p=0.850), suggesting that the change in the size of cash economy activities has been marginal at best since the introduction of the TPRS.

Table 7 – *Impact on Income from Cash Economy Operators in the Building Industry*

	Pre-TPRS			**Post-**TPRS		
	overall	**CE ≤10%**	**CE >10%**	**overall**	**CE ≤10%**	**CE >10%**
Yes	47.62%	42.62%	54.55%	39.36%	36.59%	41.51%
No	52.38%	57.38%	45.45%	60.64%	63.41%	58.49%
Reduction in income [a]	6.53%	3.51%	10.80%	6.83%	6.27%	7.26%

Notes: Question: Did your income fall as a result of competition from cash operators in the building industry (%)
(a) Reduction in total income as a result of competition from cash operators (%)

We find an interesting result when we consider these responses according to builder's estimates of income that goes unreported. We have chosen 10% unreported income as the threshold cut-off point on the basis that this is the current goods and services (GST) tax rate, which anecdotally is also the price discount offered to those customers who pay cash for their goods and services. Approximately 43% of builders (pre-TPRS) who indicated that the cash economy was no more than 10% of all transactions, reported declines in their income by 3.5% as a result of the cash economy. On the other hand, those builders who indicated that the cash economy is greater than 10% of all transactions, reported reductions in their income by 10.8% - a statistically significant difference between the two groups (Δ= 7.28, p=0.001). The result for the post-TPRS produced only slightly different results. Approximately 37% of builders (post-TPRS) period who indicated that the cash economy was no more than 10% of all transactions, reported a fall in their income by 6.3% while those builders who believed it to be greater than 10%, reported falls in their income by approximately 7.3%. The reported difference in the fall in income between these two groups was insignificant (Δ= 0.99, p=0.677).

The extent by which prices fell varied somewhat across the two surveys. These results are reported in Table 8. Both surveys found that builders predominantly reported that the cash economy did not significantly impact on their price quotes. One of the cited reasons for this is that pricing low in order to compete with a 'cash price' makes it difficult to be profitable and so price quotes generally remained unchanged. The consequence of this is that those builders found it difficult to secure a job when competing with cash economy operators. This would explain why income reductions reported in Table 7 are still consistent with the results reported in Table 8. In the pre-TPRS period, a total of 20% of builders reported a fall in their price quotes as a result of the cash economy while in the post-TPRS period, 34% of builders reported having had to reduce their price quotes to remain competitive - a result consistent with the reported increase in the average size of the cash economy noted earlier. Across the two survey periods (pre- and post-TPRS), those builders who reported reductions in their price quotes as a result of competition from the cash economy suggested that they had been reduced by an amount between 2.6% and 5.9%, a difference that is statistically significant between the two periods (Δ= 3.3, p=0.004).

Table 8 – Impact on Prices from Cash Economy Operators in the Building Industry

	Pre-TPRS			**Post**-TPRS		
	overall	**CE ≤10%**	**CE >10%**	**overall**	**CE ≤10%**	**CE >10%**
Yes	20.00%	16.39%	25.00%	34.04%	24.39%	41.51%
No	80.00%	83.61%	75%	65.96%	75.61%	58.49%
Reduction in price [a]	2.56%	1.86%	3.52%	5.93%	3.46%	7.83%

Notes: Question - Did your price quotes fall as a result of competition from cash operators in the building industry (%); **(a)** Reduction in total income as a result of competition from cash operators (%)

We find an interesting result when we consider these responses according to builder's estimates of income that goes unreported. In the pre-TPRS period, those builders who indicated that the

cash economy was no greater than 10% of all transactions, reported a reduction in their pricing by 1.9% on average while those who believed the cash economy exceed 10% of all transactions, reported a reduction in their prices by 3.5% (Δ= 1.6, p=0.171). During the post-TPRS period, approximately 24% of builders who indicated that the cash economy was no more than 10% of all transactions reported reductions in their pricing by 3.5% while 42% of builders who believed the cash economy to be greater than 10%, reported falls in their price quotations by approximately 7.8% - a difference that is statistically significant (Δ= 4.3, p=0.036).

The combination of a need to continue with reductions in price quotations and a consequential fall in business income even after the introduction of the TPRS, suggests that cash economy activity in the housing market is still substantial enough to produce effective price-competitive pressures on legitimate business operators. On the basis of these findings, the introduction of the TPRS has at best had only a marginal impact on reducing the overall size of the cash economy in the two years leading up to the survey.

D *Perceptions on the effects of a cash economy*

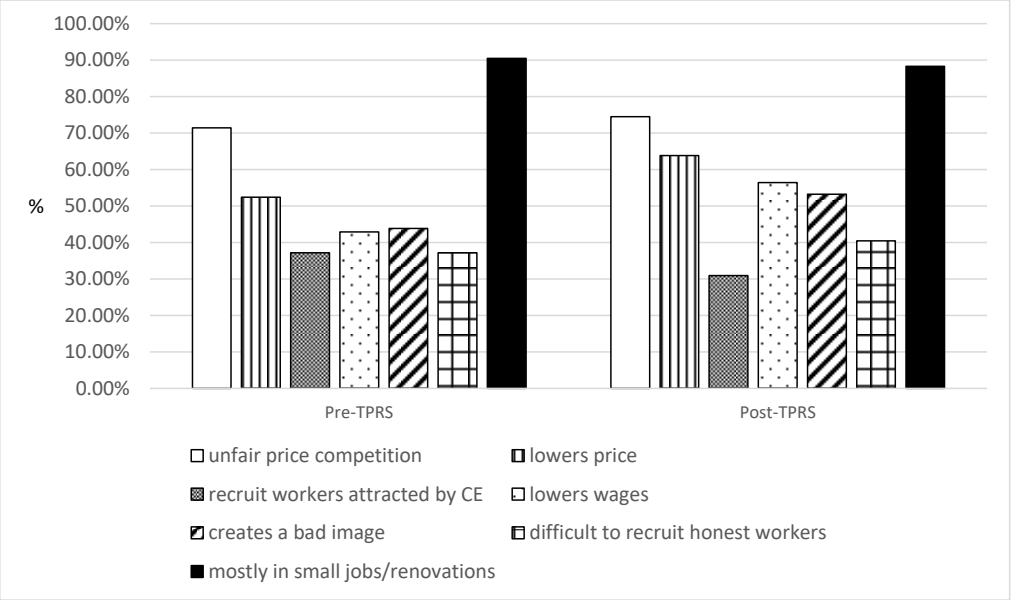
Have more builders become aware of the adverse consequences of the cash economy on legitimate business following the introduction of the TPRS? The ATO goes to considerable length to educate the public not only on good record keeping and changes in compliance requirements but also on the risks and implications of engaging in the cash economy either as a buyer or a seller. The effect of the former shows up in compliance data or from audit initiatives but the latter is more difficult to quantify because it is not directly observable. A consumer is attracted to a cheaper price when given the option between two alternatives – one price that includes the tax (i.e., the goods and services tax) and the other which does not. This is not to say that the cash economy price is always a direct function of the tax but it is easier to discount a tax component when the tax is highly visible in the quoted price. Prior to the introduction of the GST in Australia, it is highly likely that cash economy pricing was subject to arbitrary discounting set by the builder since then the norm appears to be a discount equivalent to the GST. When builders were asked who in the deliberations initiates the discussion of cash payments, the builders reported that the consumer did so approximately 70% of the time. This finding (see Table 9) marginally increased (but not significantly) after the introduction of the TPRS (Δ= 1.29, p=0.612).

Table 9 – *Offers and Requests for Cash (instances of consumers and builders requesting cash in return for lower prices - %)*

Survey period	Builder	Consumer
Pre-TPRS	32.01%	67.99%
Post-TPRS	30.00%	70.00%

How then does this predominantly consumer-driven request for cash, combined with these regulatory changes, affect the perceptions of cash economy activity? In Figure 2, we report how builders' views on the consequences of the cash economy have changed since the introduction of TPRS, specifically on competition, prices, wages, recruitment of workers and the image the cash economy portrays of those working in the building and construction industry.

Figure 2 – *Respondent's views on the impact of the cash economy in the residential construction sector (% agreeing to each of the 7 statements)*



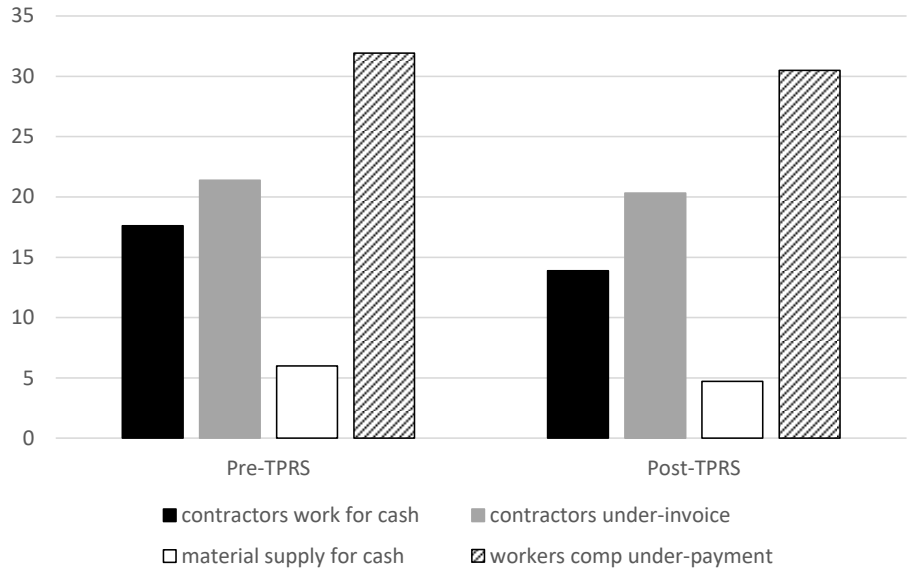
The results in Figure 2 suggest that the perceptions of the adverse effects of the cash economy have remained consistent pre- and post-TPRS. Following the introduction of the TPRS, a greater proportion of builders identified that the cash economy has a range of adverse consequences on the legitimate economy, citing in particular that it creates unfair price competition, forces legitimate businesses to lower prices, lowers wages in the building industry, makes it less attractive to recruit workers because of the bad image these activities portray. This increase in the proportion of builders identifying the adverse consequences may be the result of the education campaign that accompanied the introduction of the TPRS. It is difficult to know from these survey results whether this was the case.

E *Contractors*

Builders reporting on the percentage of time contractors and sub-contractors supply services for cash declined from an average of 17.6% to 13.8% between 2009 and 2014 (a statistically significant difference; $\Delta = 3.8$, $p=0.02$). In contrast, the perceptions of contractors and sub-contractors under-invoicing ($\Delta = 1.08$, $p=0.65$) and supplying materials for cash ($\Delta = 1.29$, $p=0.34$) showed only marginal declines that were not statistically significant. Builder's responses as to whether the correct worker's compensation insurance coverage was taken out

by builders also fell marginally (statistically insignificant) between the pre- and post-TPRS periods. On this point, builders on average reported that close to one-third of those in the home building industry were most likely not to be paying the correct worker's compensation insurance and this view did not change post-TPRS (Δ= 1.43, p=0.62). Most of the concerns expressed by builders on workers compensation insurance were motivated by the complexity and the 'confusing nature' of the legislation. A comparison of the responses across the two surveys on each of these points is presented in Figure 3.

Figure 3- *Respondent's views on illicit activities in the residential construction sector (% agreeing to each of the 4 statements)*



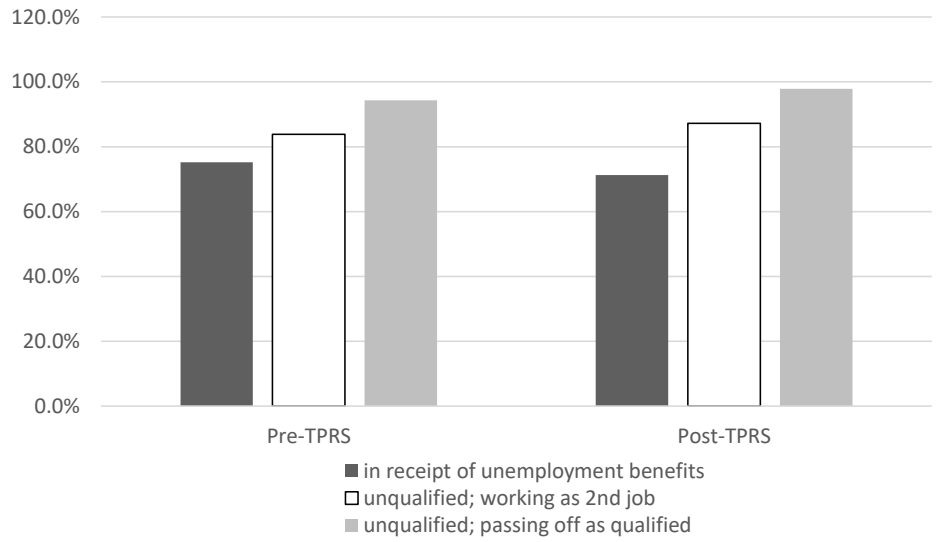
The results in Figure 3 suggest a marginal change in cash economy activity following the introduction of the TPRS, despite the fall in contractors working for cash since the introduction of the TPRS. There may be various reasons for this: (i) there are those who work completely surreptitiously with no intentions of working legitimately; (ii) those unemployed who choose to participate in the cash economy to supplement their unemployment benefits; and (iii) those contractors who negotiate with builders to supply trade services for heavily discounted prices in return for being kept off the books and their identities not disclosed. These complicit arrangements make it difficult to undercover such activities despite the introduction of this reporting system that requests records of each specific supplier transactions.

F *Unqualified builders*

The percentage of builders who were aware of people working in the construction industry that also received unemployment benefits decreased only marginally from 75.2% to 71.3% after the introduction of the TPRS. On the other hand, the percentage of builders reporting on those who are unqualified but take on work in the sector as a second job increased to 87.2% post-TPRS (up from 83.8% pre- TPRS) and for those workers pretending to pass themselves off as qualified, increased to 97.9% of builders (up from 94.3% pre-TPRS). The comparison across

responses between the pre- and post-TPRS is illustrated in Figure 4. The introduction of the TPRS appears to have again only marginally affected builder's perceptions of cash economy activity in the building and construction industry. These findings mirror the results presented in Figure 3.

Figure 4 – *Unemployed and unqualified cash economy participants*



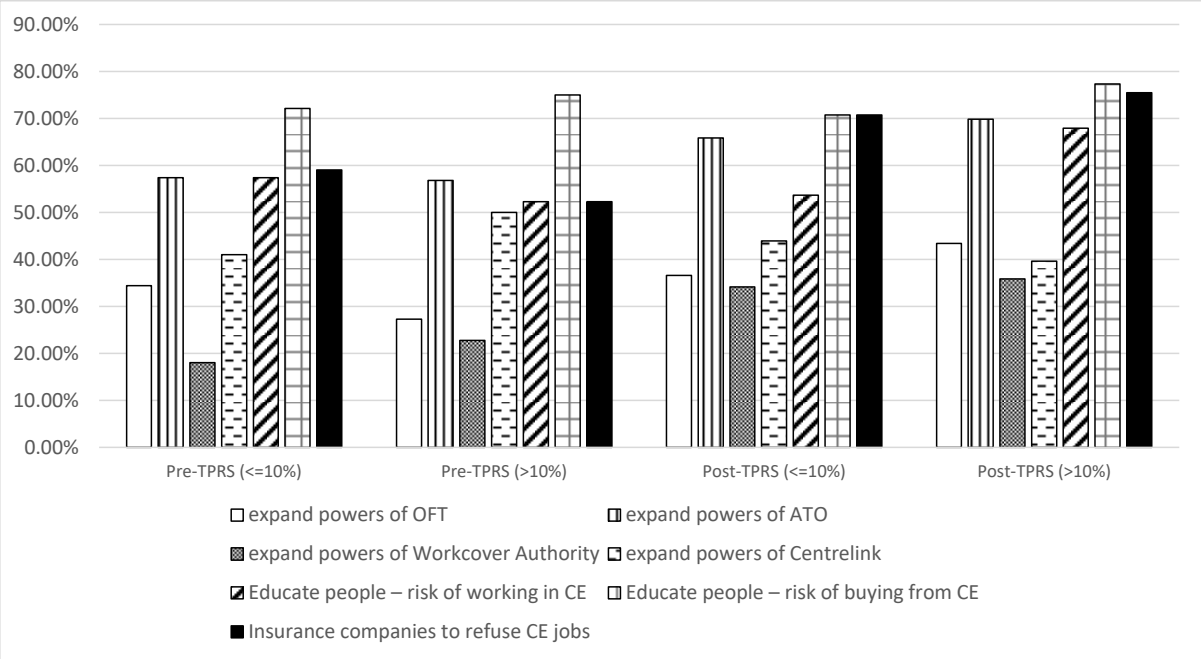
G *Tackling the Cash Economy*

In both surveys, builders were asked to comment on the various government agencies and their strategies to tackle cash economy activity. Each builder was read a number of statements and asked to respond on whether they thought the strategy would be effective or not and then to provide some general comments on their responses. Figure 5 presents the overall results for all builders combined and those grouped by their perception of how large is the cash economy – those who believe it is less than or equal to 10% and those who believe it is greater than 10%. The combined results for all builders (not shown here) suggest an increase in the number of respondents agreeing to the effectiveness of the Office of Fair Trading (OFT) (responsible for safeguarding the rights of all consumers), the Australian Taxation Office (ATO), Centrelink (responsible for social security payments) and the WorkCover Authority of NSW (responsible for ensuring the health, safety and welfare of workers) in dealing with the cash economy. For example, approximately 57% of builders in the pre-TPRS period believed that expanding the surveillance and enforcement efforts by the ATO could reduce the cash economy, while this number increased to 68% of builders post-TPRS.

On the effectiveness of the Office of Fair Trading, 31% of builders in the period pre-TPRS indicated that increasing the surveillance and enforcement efforts would help tackle the cash economy, while this increased to 40% of builders post-TPRS. A similar result was found for the WorkCover Authority of NSW. A total of 20% of builders responded favorably prior to the

introduction of TPRS, which increased to 35% post-TPRS. The results were somewhat different for Centrelink. Approximately 45% of builders reported that expanding the surveillance and enforcement efforts of Centrelink would reduce the cash economy but this number declined only to 41.5% post-TPRS. The results in Figure 5 for the two cohorts of builders in each of the two surveys portray a similar finding.

Figure 5 – *Respondent's view on strategies to reduce the cash economy in the residential construction sector (% agreeing to each of the 7 statements that the strategy is effective)*



The respondents also indicated that education is an effective tool in combatting the cash economy. Prior to TPRS, approximately 73.3% of builders indicated that educating consumers about the risks of having work completed by cash economy operators would be effective. In the period after the introduction of TPRS, this number increased to 74.5%. The results were somewhat different when asked if educating people about the risks of *working* in the cash economy would be effective. Prior to the TPRS, approximately 55% of builders agreed that this would be effective and while 61.7% of builders agreed to the statement post-TPRS. Although the percentage of respondents increased, the overall level of agreement is much lower for educating prospective cash economy workers than it is for educating consumers. A more punitive measure was deemed by builders to be more effective for dealing with workers in the cash economy. The results in Figure 5 suggest that these findings are also consistent when controlling for the reported size of the cash economy (i.e. $\leq 10\%$ and $>10\%$).

V CONCLUSION

A growing body of literature on the cash economy has focused on the aggregate country-level estimates but little is known of the industry level measures that comprise the aggregate size of the cash economy. Using the results from a comprehensive telephone survey of home builders in 2007-8 and 2014-15, we provide the first known analysis of the behaviour, characteristics and perceptions of cash economy activity in the residential building and construction sector in Australia – a sector which has been under significant scrutiny by the ATO in recent years. In 2012-13, the ATO introduced the Taxable Payment Reporting System which yielded the government a significant compliance dividend. By comparing the survey responses of builders before and after the introduction of this reporting system, we are able to gauge the impact this has had on grassroots activity in the cash economy. Despite the compliance dividend and the additional number of businesses that have been found to under-report or not report at all, the survey findings indicate that the cash economy in the building industry is still thriving. The introduction of the Taxable Payments Reporting System appears to have had some impact on the cash economy, most notably on the reported cash activities of contractors. This is a positive result given that the new reporting system was designed specifically to identify contractors participating in the cash economy. By requesting builders to report on each individual contractor they have engaged in a given financial year, the taxation office is able to data match the reported income by those same contractors. Any discrepancies would alert the taxation office to investigate further. The results also suggested that a considerable number of cash economy operators are also likely to be in receipt of unemployment benefits or passing themselves off to be qualified builders when in fact they are not.

Since the introduction of these new reporting requirements, builder's perception on the effectiveness of increased surveillance powers by the appropriate government authorities (ATO, Centrelink, Office of Fair Trading and WorkCover Authority) over the two survey periods have improved. The same is true for builder's perceptions on the effectiveness of education campaigns, although the effects on convincing cash economy operators of the legal risks of doing so were not seen as effective as an education campaign for consumers.

The marginal differences in responses across the two surveys suggest that much more targeted strategies are necessary to curb cash economy activity. Initiatives such as the introduction of the Taxable Payments Reporting System are a step in the right direction but more focused approaches may be required to tackle specific areas of the cash economy activity where the tentacles of such policies do not reach. These are important actions if the adverse economic and social consequences of the cash economy are to be significantly dampened. Surveys such as these are important instruments to uncover the types of activities taking place in the cash economy however it is also necessary to accommodate different strategies across industries if these are to have any significant impact on the overall size of the cash economy.

REFERENCES

Atlantic Home Building and Renovations Sector Council (ABHR) and Praxis Research Consulting , (2004), *Current Impact of the Underground Economy: Residential Construction Sector in Nova Scotia*, March, Nova Scotia, Canada.

Australian Bureau of Statistics (ABS), (2004), The Underground Economy and Australia's GDP, National Accounts, Feature Article, October. (http://www.abs.gov.au/ausstats/abs@.nsf/featurearticlesbytitle/B129068549B24F82CA257694001290C1?OpenDocument , accessed 15 September2016).

Bajada, C. (2005) Unemployment and the Underground Economy in Australia. Applied Economics. 37, 2, 177-189, Feb. 2005.

Bajada, C. and Schneider, F. (2005a),The shadow economies of the Asia-Pacific , Pacific Economic Review, 10: 379–401.

Bajada, C. and Schneider, F. (2005b). *Size, Causes and Consequences of the Underground Economy*, Aldershot: Ashgate Publishing, United Kingdom.

Bajada, C. and Schneider, F. (2009) Unemployment and the Shadow Economy in the OECD. Revue Economique. 60, 5, 1033-1067.

Bhattacharyya, D.K. (1990), 'An Econometric Method of Estimating the Hidden Economy, United Kingdom (1960-1984): Estimates and Tests', The Economic Journal, vol. 100, September, pp. 703-17.

Buehn, A. and Schneider, F., (2012) Shadow Economies around the World: Novel Insights, Accepted Knowledge, and New Estimates. International Tax and Public Finance. 19, 1, 139-171.

Cash Economy Task Force (CETF), (1998), *Improving Tax Compliance in the Cash Economy*, Australian Taxation Office, April, Australia.

Cash Economy Task Force (CETF), (2003), *The Cash Economy under the New Tax System*, Australian Taxation Office, September, Australia.

Department of Trade and Industry (DTI), (2002), *Combating Cowboy Builders: Consultation Paper*, December, United Kingdom.

Department of Trade and Industry (DTI), (2003), *Constriction Statistics Annual 2003 Edition*, September, United Kingdom.

Feld, L.P and Schneider, F., (2010), Survey on the Shadow Economy and Undeclared Earnings in OECD Countries. German Economic Review. 11, 2, 109-149.

Frey, B.S. and Pommerehne, W.W. (1982), 'Measuring the Hidden Economy: Though This Be Madness, There is a Method in it', in Tanzi (1982), pp. 3-27.

Giles, D.E.A. (1999c), 'Measuring the Hidden Economy: Implications for Econometric Modelling', Economic Journal, vol. 109, pp. F370-F380.

Houston, J.F. (1990), 'The Policy Implications of the Underground Economy', Journal of Economics and Business, Vol. 40, pp. 27-37.

Houston, J.F. (1987), 'The Underground Economy: A Troubling Issue for Policymakers', Business Review, Federal Reserve Bank of Philadelphia, Working Paper 89, pp. 3-12.

Kaufmann, D., Johnson, S. and Shleifer, A. (1997), 'The Unofficial Economy in Transition', Brooking Papers in Economic Activity, vol. 2, pp. 159-221.

Kaufmann, D. and Kaliberda, A. (1996), 'Integrating the Unofficial Economy into the Dynamics of Post Socialist Economies: A Framework of Analyses and Evidence', World Bank Policy Research Working Paper, no. 1691.

Kodila-Tedika, O. and Mutascu, M., (2014), Shadow Economy and Tax Revenue in Africa. Economics Bulletin. 34, 1, 469-479.

KPMG, Revay and Associates, Marc Denhez and Bridges/A.G.T. Consulting, (1997), *Strategic Analysis of Underground Employment in the Construction Industry*, December.

Mirus, R., and Smith, R.W. (1997), 'Self Employment, Tax Evasion and the Underground Economy: Micro based Estimates for Canada', Working Paper No.1002, Harvard Law School, International Tax Program, October, Cambridge.

Nova Scotia Department of Finance (NSDF), (1997), *The Underground Economy in Residential Constriction*, October, Canada.

O'Grady, J. and Lampert, G., (1998), *The Underground Economy in Ontario's Construction Industry: Estimates of its Size and the Revenue Losses to Government and the WISB*, The Ontario Construction Secretariat, November, Canada.

O'Grady, J. (1998), *Estimates of Revenue Losses to Government as a Result of Underground Practices in the Ontario Construction Industry: 1995-1997*, Prism Economics and Analysis, Ontario Construction Secretariat.

O'Grady, J. (2001), *Estimates of Revenue Losses to Government as a Result of Underground Practices in the Ontario Construction Industry: 1998-2000* Updated Estimates, Prism Economics and Analysis, August, Ontario Construction Secretariat.

Pissarides, C and Weber, G., (1989), 'An Expenditure Based Estimate of Britain's Black Economy, *Journal of Public Economics*, Vol.39, No.17, pp17-32.

Vlachaki, K., (2015),. The Impact of the Shadow Economy on Indirect Tax Revenues. Economics and Politics. 27, 2, 234-265.

Schneider, F. & Bajada, C. (2005). An International Comparison of Underground Economic Activity, in Bajada and Schneider (2005b).

Schneider, F. (2012) The Shadow Economy and Tax Evasion: What Do We (Not) Know?. CESifo Forum. 13, 2, 3-12, 2012.

Statistics Canada, (1994), The Size of the Underground Economy in Canada, Catalogue 13-603E, No. 2 – Occasional, June, Canada.

Tanzi, V. (1982), *The Underground Economy in the Unites States and Abroad*, Massachusetts, Lexington Books.

Tanzi, V. (1983), 'The Underground Economy in the United States: Annual Estimates, 1930-1980', International Monetary Fund Staff Papers, No. 30, 283-305.

Zanasi, L. (1996), The Underground Economy in Construction in Saskatchewan United Brotherhood of carpenters and Joiners, June, Canada.