# CHAPTER 5

# CHARACTERISTICS OF UNDERGROUND ECONOMY

## Introduction

This chapter discusses the size and characteristics of UE based on the prominent features of direct tax non compliance cases. The aggregate and disaggregated data of unreported direct taxable income were examined whether they associate with states' wealth, economic industries, business sectors, profession, gender and age of individual, as well as their income level. Findings support past studies that put forward the peculiar characteristics of UE (selective to certain economic sectors and skew income distribution) and the, adverse effects on tax burden and income distribution.

## 5.1 Aggregate and disaggregated audit and investigation data

Audit and investigation cases are selected tax files that indicate income discrepancy between voluntary reports and "third party information". Upon detection, tax is raised on the unreported income with fines to penalize for omission of income. In general audit cases consist of unreported income due to minor frauds or technical errors while investigation cases comprise of "serious" fraudulent activities such as forging or falsifying records. Both audit and investigation cases are subject to fines, of which amount is subject to the amount

of tax due and how it is evaded. Account examination would be carried out as desk tax audit in the office or as field tax audit at the tax payers' business premises. This study only examined field audit and investigation cases because a large portion of desk audit involves technical errors. Taxable income discrepancy due to technical errors is likely a re-distributional income while the income discrepancy captured in field audit and investigation cases are more likely the value added income.

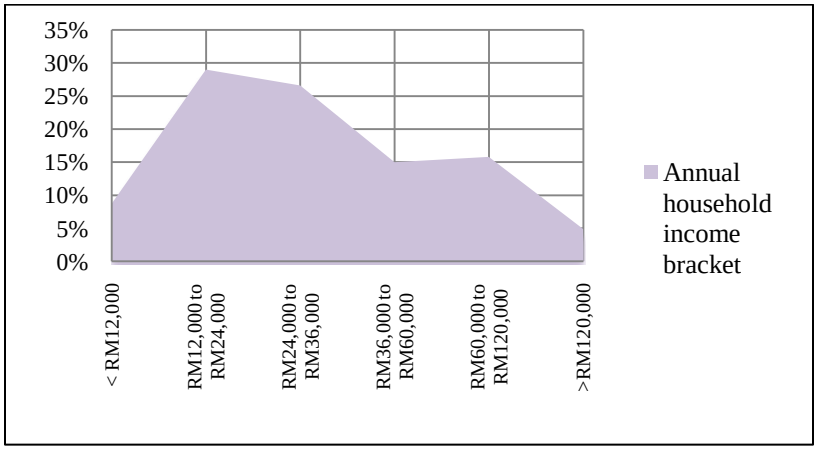
## 5.2 Indicators of unequal income distribution

Malaysia's current economic performance compared with the statistics of 1957, its independence year has tremendously improved; Malaysia's poverty rate has reduced from about 50% to 3.5%; the GDP per-capita income has increased from about USD250 to USD8,100; the economic structure has transformed from resource-based to market-based; and the employment sector has gradually displaced by business sectors. Despite impressive country's economic performance, its income inequality barely improved; the household income distribution is in the extreme left skew; the Gini coefficients barely improved; a small proportion of the population is paying taxes; and the distribution of taxpayers paying taxes is in the extreme left skew, as discussed in Chapter 4.

Figure 5.1 illustrates the distribution of household income obtained from a survey made in 2007. About; 64.3% of the population earned less than MYR 3,000 monthly; 30.8% earned between MYR3,000 and MYR10,000; and 4.9% earned

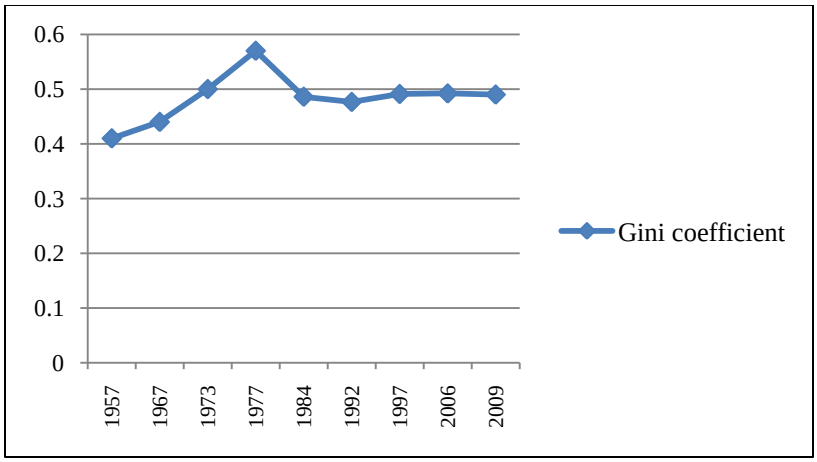
above MYR10,000. Recently in 2010 about 79% of the household earned a monthly income of less than MYR3,000 (Ministry of Finance).

The Gini coefficients denoting statistical income dispersion are often used to compare income distribution over time as the index is anonymous, scale independence, population independence and fits the transfer principle. This index is commonly used to evaluate whether inequality is increasing or decreasing independent of absolute incomes. Figure 5.2 illustrates the trend of Gini coefficients; in 1957 it marked at 0.4, and has never restored to its origin over 6 decades since its independence, instead hovering around 0.5 in the 2000 decade. The distribution of tax payers paying income tax reflects that only individuals in the top 10% household income are paying taxes. Out of this, less than 5% contributed to 70% taxes. For institutional tax payers less than 2% contribute to 80% taxes. The details of analyses are described in paragraph 1 in Appendix of Chapter 5.




Source: Data gathered from Department of Statistic Malaysia

Figure 5.1: Distribution of household income




Source: Data gathered from Department of Statistic Malaysia and Malaysia Economic Report

Figure 5.2: Malaysia's Gini coefficient

## 5.3 Underground economy- tax evasion based on audit cases

Participants of UE, i.e. the tax payers are discussed in two groups, namely institutional and individual tax payers who contribute about 75% and 25% of income tax revenue respectively. The bulk of taxes were raised from voluntary reporting.

### 5.3.1 Tax evaders and non compliant activities

Only a small portion of taxes were raised on unreported income. The portion of tax raised on unreported income only constitute between 3.89% and 7.66% of corporate taxes and, between 0.86% and 4.32% of individual taxes. The non compliant activities of 2000-2009 aggregated data were further examined for any common characteristics to infer the characteristics of UE. They were analysed by categories of tax payers (institutional and individual) and non compliant activities (unreported income and unpaid tax).

The institutional unreported taxable income and unpaid tax is much larger than individuals'. The unreported income mix consists of 66.66% to 78.17%

institutional and 21.83% to 33.34% individuals. In the case of unpaid tax, 88% to 96% are institutional and 4% to 12% are individuals. The larger institutional unreported income than individual unreported incomes is consistent with higher institutional income level; more institutional economic activities; and larger institutional tax revenue. The consistent proportion of larger institutional tax raised in both reported and unreported income compared to individual implies that tax evasion associate positively with income contributing group.

The unreported individual income mix consists of 79.28% business and 21.72% employees. The proportion mix supports the findings of Wong (2000) in his survey on tax evasion behavior among Malaysian taxpayers. He found that the professional groups who are self-employed but not salaried group has significant relationship with tax evasion. He explained the difference as due to the former is not but the latter is subject to a withholding tax system. The employer who pays salary to its employees has to withhold a certain amount of money for tax office according to the salary scheduler deduction scheme in the payroll employees. In addition to "as pay as you earn tax system" and third party deduction for taxes, the business incomes are becoming more complex and more invisible than the employment services.

By comparing the amount of tax raised with the amount of tax paid, about 90% of taxes raised on unreported income by investigation unit were paid. As large proportion of tax raised upon detection complied with tax payment rules, most unpaid taxes are likely due to taxes on reported income. Hence, a large proportion of tax loss of unreported income and tax loss of unpaid tax do not overlap. In

other words, these two types of tax losses are likely to arise from different missing income. This gives some comfort to estimate the tax gap based on the sum of tax evasion and unpaid tax. Should there be any overlapping, it partly compensates for other non compliant activities that are not measured here and the likelihood of under captured non compliant activities by enforcement forces.

### 5.3.2 Tax evasion scheme

Table 5.1: Direct tax evasion scheme of field audit cases

| **Tax evasion scheme (% proportion)** | **Entire individual tax evaders in 2008 (n=2,943)#** | **Entire company tax evaders in 2003 to 2008 (n=11,653)#** |
|---|---|---|
| No findings or technical solution | 12.73% | 20.56% |
| Income omissions* | 55.57% | 24.18% |
| Fictitious expenditure** | 15.38% | 30.17% |
| Omissions and expenditure*** | 11.83% | 18.70% |
| Incentive and allowance | 4.09% | 5.29% |
| Fictitious stocks | 0.40% | 1.10% |
| Total | 100% | 100% |

*, **, *** accounted as missing income. # available data

To determine how tax evaders reduce his tax liability, their business' accounts were first examined as to how they manipulate the taxable income. This is to justify whether unreported taxable income from audit cases are reliable samples to infer the unreported value added economy. Table 5.1 summarises the analyses. Tax evasion schemes are grouped into; income omission; overstating expenses; inflating deduction, allowances and stocks; and the remaining as technical errors. About 55% unreported taxable income of individual and 25% unreported taxable

income of institutional are due to omission of income*. Around 15.38% unreported taxable income of individual and 30.17% unreported taxable income of institutional are due to fictitious expenditure** in an attempt to reduce tax liability. Roughly 11.83% unreported taxable income of individual and 18.70% unreported taxable income of institutional are manipulated in both ways***. In total*,**,***, about 82.78% and 73.05% unreported taxable income of individual and of institutional are either due to income omission or claiming fictitious expenditure or both respectively. While the remaining unreported taxable income is mainly due to technical errors and manipulation of tax grants.

The unreported taxable income is an empirical understatement of federal taxable income. It is not synonymous to country's unreported income which is an underestimation of total economic income. Nevertheless, it is assumed to represent the value of goods and services that elude official measurement. In other words, the estimated unreported taxable income may consists of some re-distributional income, but for estimation purpose it is assumed to represent the unreported value added income.

Any argument against over estimation is assumed partly encountered by the narrow coverage of this study. Samples are taken from tax non compliance but there are other non compliant activities not measured here. There is also a limitation of enforcement statistics (enforcement success rate). For estimating purposes, both discrepancies are taken evasion because they "concealed income" (income omission) and "converted income" (over stating expenses and inflating deduction/allowances) led to a common output namely a lower tax liability. As

whatever tax scheme employed is for the purpose of reducing taxes, the missing taxable income inferred as the country's "missing income" is assumed the country's unreported income. This gives some comforts to infer the unreported taxable income as the unreported value added economy.

### 5.3.3 UE by GDP level

The number of tax evaders and amount of unreported taxable income are examined by states or zones of states categorized according to GDP contribution level to determine whether UE is influenced by states' wealth. The middle zone comprises Selangor and WPKL, as the highest populated states, and constitutes the highest GDP contribution, followed by South and North zones.

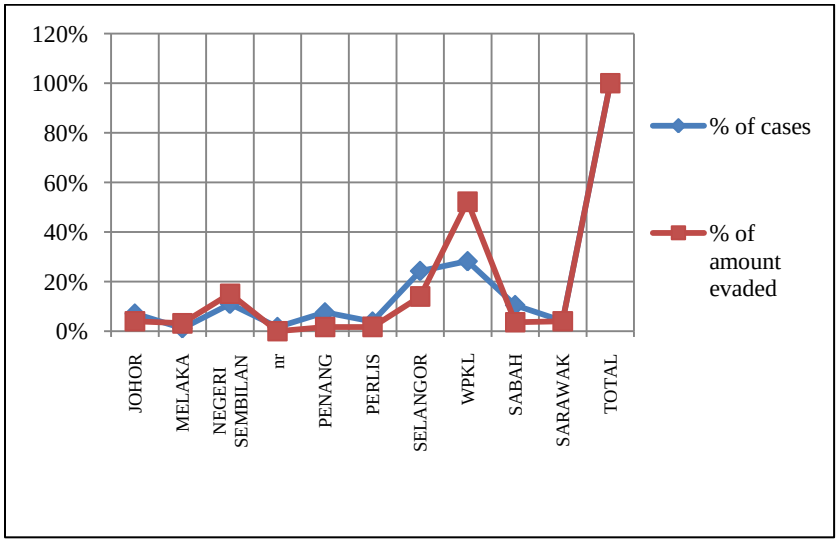



Figure 5-3: Tax evaders and unreported income by states (tax audit)

In most of the states, the percentage proportion number of tax evaders and unreported taxable income are approximately proportionate. But for the middle zone (states with the highest GDP level), proportion of unreported taxable income

is higher than proportion of tax evaders, signifying UE associates with states wealth.

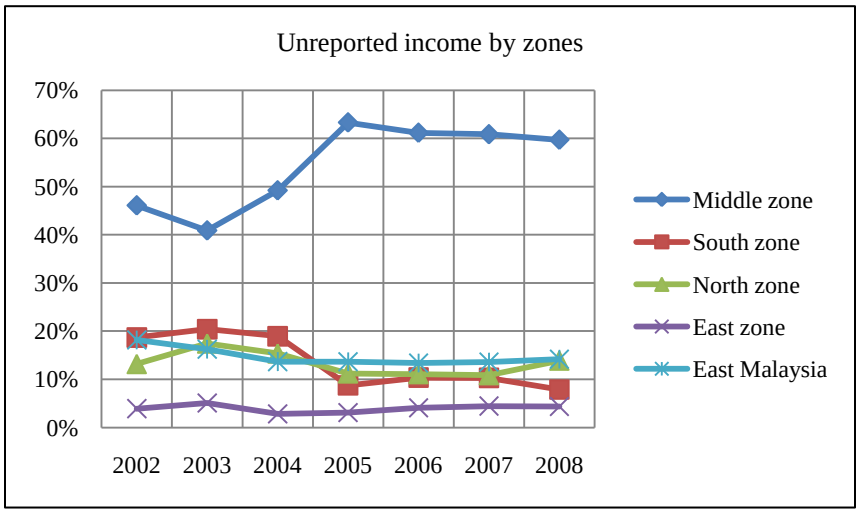



Figure 5.4: Unreported income by zone of states (tax audit)

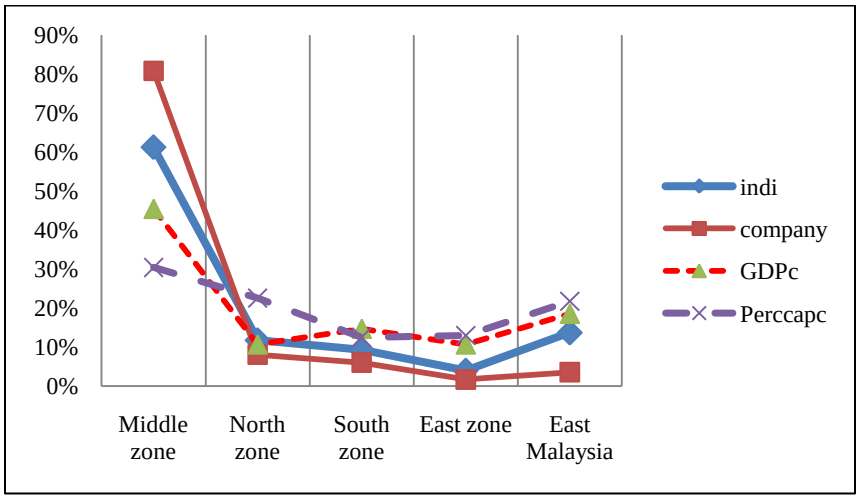



Figure 5.5: Unreported income in relative to GDP and GDP per-capita by zone of states

Figures 5.3 to 5.5 illustrate that over 2000-2009 periods, the percentage proportion of unreported taxable income both in total and its components (individual and institutional) are positively related to states or zones with higher

GDP and GDP per capita. The interrelationship implies that UE corresponds with states of higher income level and economic activities (by GDP contribution).

5.3.4 UE by economic industries and business sectors

Tax evaders and unreported taxable income were further examined for any relationship with type of economic activities, as to whether the UE is prominent in certain economic industries and business sectors or occurs regularly.

5.3.4.1. Institutional – annual data for 2003-2008

There is a mix percentage proportion between number and amount of institutional UE (Figures 5.6 to 5.9). The percentage proportion between number of evaders and amount of unreported taxable income vary across industries with ratios ranging between 0.1 and 24. The disproportionate links between number and amount implies that institutional UE is economically selective with more tax evaders evade lower taxable income in most sectors but fewer tax evaders evade higher taxable income in certain sectors.

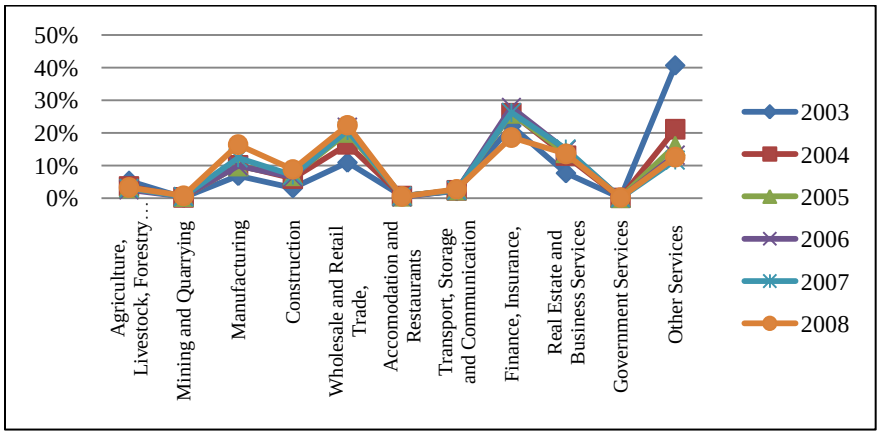



Figure 5.6: Institutional tax evaders across economic industries

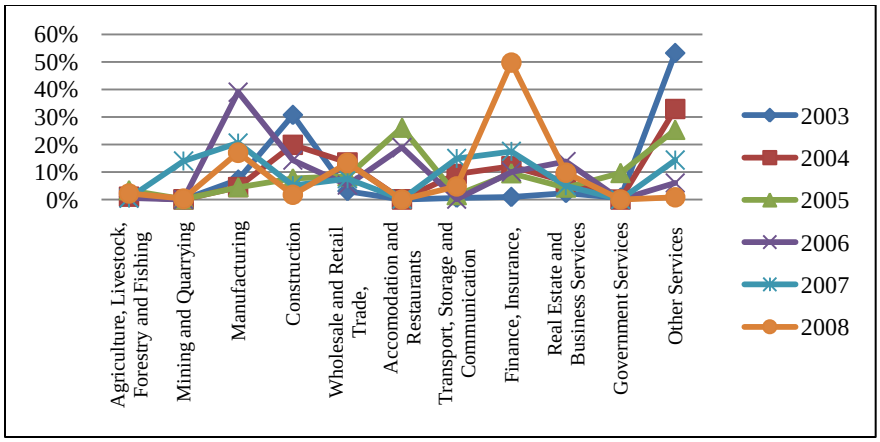



Figure 5.7: Institutional unreported taxable income across economic industries

A large proportion of institutional UE (both in number and amount) is within the top five country's GDP industries; manufacturing, construction, wholesale/retail trade, finance and real estate (Figures 5.8 and 5.9). The larger proportion of unreported income contributed by the five economic industries implies that UE iss prominent in these industries. The percentage proportion number and UE amount of the financial services, construction and manufacturing industries, are moderately disproportionate. Although there are fewer financial services, manufacturing and construction industries participated in underground activities, the amount involved was substantial. Apparently, economic industry of UE mix is now more prominent in manufacturing, real estate and financial services than it was in construction.

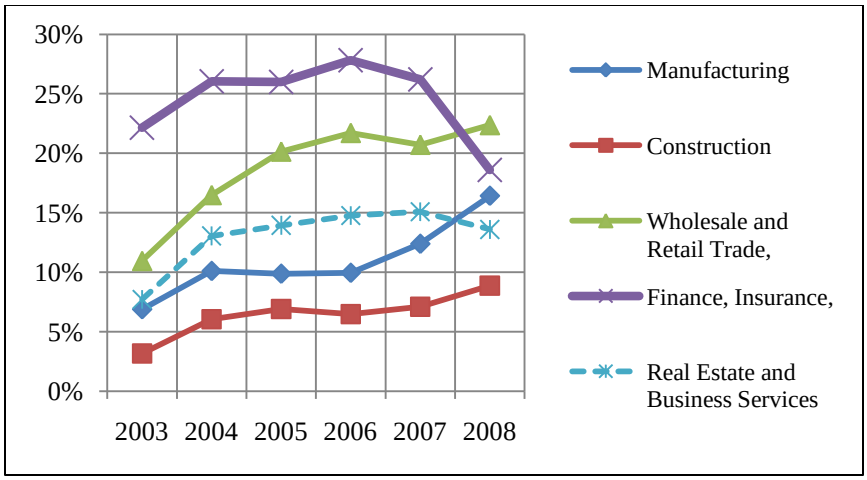



Figure 5.8: Institutional tax evaders in the top five industries

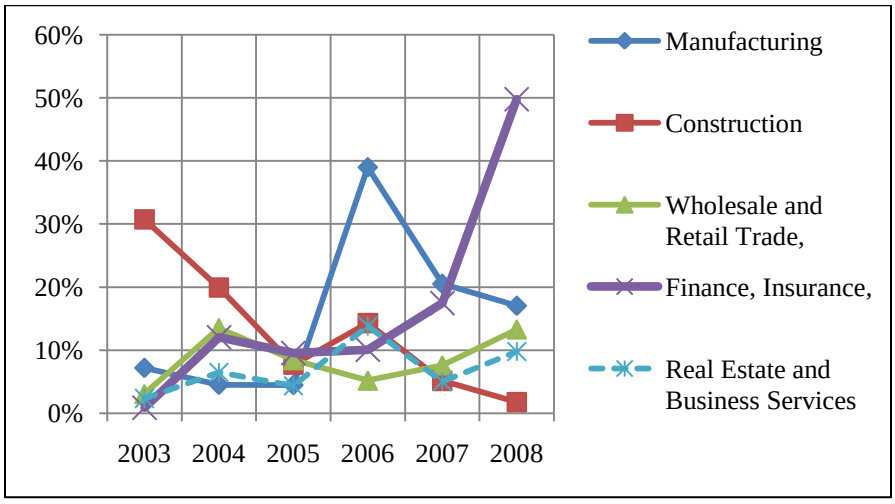



Figure 5.9: Institutional unreported income in the top five industries

Table 5.2 summarises past percentage proportion of tax evasion by economic industries while Table 5.3 summarises GDP contribution level by economic industries. The association between the unreported taxable income and contributing states (states' wealth) also extends to contributing industries; larger UE in economic industries with higher GDP contribution. This implies that UE

associates with states' wealth and performing industries as measured by their GDP contribution to the country.

Table 5.2: Institutional UE – tax evaders by economic industries

| **Year / economic industries** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** |
|---|---|---|---|---|---|---|
| Agriculture, Forestry and Fishing | 1.15% | 1.05% | 3.41% | 0.57% | 0.57% | 2.23% |
| Mining and Quarrying | 0.00% | 0.07% | 0.11% | 0.01% | 14.01% | 0.34% |
| Manufacturing* | 7.22% | 4.54% | 4.49% | 39.00% | 20.53% | 17.06% |
| Construction* | 30.74% | 19.92% | 7.71% | 14.31% | 5.16% | 1.79% |
| Wholesale and Retail Trade, | 3.09% | 13.52% | 8.46% | 5.22% | 7.63% | 13.31% |
| Accommodation and Restaurants | 0.03% | 0.08% | 26.11% | 18.92% | 0.20% | 0.04% |
| Transport, Storage and Communication | 0.64% | 9.31% | 1.63% | 0.17% | 14.95% | 4.81% |
| Finance and Insurance* | 0.92% | 12.05% | 9.56% | 10.06% | 17.50% | 49.75% |
| Real Estate and Business Services | 2.37% | 6.49% | 4.37% | 13.83% | 5.03% | 9.79% |
| Government Services | 0.62% | 0.06% | 9.65% | 0.05% | 0.06% | 0.02% |
| Other Services (unidentified) | 53.23% | 32.90% | 25.33% | 6.09% | 14.37% | 0.86% |
| Total | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

*Prominent industries

Most industries show the percentage proportion of UE approximates the country's GDP contribution, except for manufacturing, financial services and construction industries where proportions are less proportionate as follows:

- Construction services show some inconsistent percentage proportion of UE and exhibit a downward trend compared to its consistent proportion of GDP contribution.
- Manufacturing industry show a lower percentage proportion of UE compared to its higher percentage proportion of GDP contribution.
- Financial services show a higher percentage proportion of UE and exhibit

an upward trend compared to its lower percentage proportion of GDP contribution.

These disproportionate links could be due to business transaction visibility, enforcement success rates and extensive tax incentives that create opportunities for tax evasion as in manufacturing.

Table 5.3: Malaysia's GDP contribution by economic industries

| Year / economic industries | Percentage contribution in constant 2000 prices | | | | |
|---|---|---|---|---|---|
| | 2005 | 2006 | 2007 | 2008 | 2009 |
| Agricultural, forestry and fishing | 7.98% | 7.95% | 7.64% | 7.49% | 7.37% |
| Manufacturing | 30.70% | 31.08% | 30.13% | 29.85% | 29.54% |
| Construction, mining, quarrying | 12.72% | 11.77% | 11.47% | 11.19% | 10.97% |
| Wholesale and retail trade | 11.40% | 11.53% | 12.19% | 12.63% | 12.87% |
| Accommodations / restaurants | 2.25% | 2.26% | 2.35% | 2.40% | 2.43% |
| Services: Finance and insurance | 10.04% | 10.21% | 10.67% | 10.94% | 11.23% |
| Services: Real estate | 4.55% | 4.74% | 5.27% | 5.20% | 5.32% |
| Other services | 22.96% | 23.22% | 23.10% | 23.12% | 23.20% |
| Minus undistributed FISIM | 3.95% | 3.86% | 3.90% | 3.96% | 4.02% |
| Add import duties | 1.34% | 1.11% | 1.09% | 1.15% | 1.09% |
| GDP at purchasers' prices | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Source: Gathered from Malaysian Economic Report and summarised accordingly

The tax structure of the manufacturing companies was further examined by the number of companies, amount of taxable income and tax payable. Table 5.4 summarises the tax structure of the manufacturing companies. Compared with other industries of the entire tax base, the percentage proportion of the number of manufacturing companies is much lower than its taxable income and tax payable.

This implies that manufacturing companies generate large taxable income, in disproportionate manner between number and amount.

Table 5.4: Tax structure of manufacturing industry compared to tax base

| **Manufacturing companies** | **2000** | **2001** | **2002** | **2003** |
|---|---|---|---|---|
| **Number** | 6,867 | 14,905 | 18,781 | 22,388 |
| **Taxable income (RM million)** | 2,614 | 6,071 | 11,058 | 12,224 |
| **Tax payable (RM million)** | 700 | 1,657 | 2,834 | 3,252 |
| **Total tax base** | | | | |
| **Number** | 1,698,320 | 2,258,074 | 2,393,494 | 3,118,078 |
| **Taxable income (RM million)** | 66,300 | 93,595 | 142,038 | 180,119 |
| **Tax payable (RM million)** | 10,514 | 14,583 | 21,959 | 26,184 |
| **Percentage proportion of manufacturing companies to tax base** | | | | |
| **Number** | 0.40% | 0.66% | 0.78% | 0.72% |
| **Taxable income** | 3.95% | 6.49% | 7.79% | 6.79% |
| **Tax payable** | 6.66% | 11.36% | 12.90% | 12.42% |
| **Average relative ratio** | | | | |
| **Number : Taxable income** | 1: 10 | | | |
| **Number : Tax payable** | 1: 16.5 | | | |
| **Taxable income : Tax Payable** | 1: 1.6 | | | |

The percentage proportion of tax payable for manufacturing industry is larger than the percentage proportion of tax payable of the entire tax base. The large proportion of tax payable in manufacturing industries is consistent with the large contribution of manufacturing industry, as summarized in Tables 5.2 and 5.3. Despite large tax payable, the proportion of taxable income is as low as to almost half of its tax payable.

Lower proportion of taxable income may be due to a substantial tax deduction as allowable tax claims to manufacturing companies to promote economic growth. The tax claims range from capital allowance to double expenditure deduction and tax exemptions. It implies that the proportion of tax payable could have been much larger if the "lucrative tax incentives" were not applicable. The government has to bear "legal tax loss" by granting these tax incentives to "promote" growth of economic industries.

On the other hand, these manufacturing companies appear to be among the prominent participants of UE, (compare Figures 5.6 and 5.7; with Table 5.2). This implies that in addition to the positive association between UE and contributing industry, tax claim creates opportunity of tax evasion and facilitate UE growth.

In other words the "lucrative tax incentives" provide channels of "creative accounting" to tax payers seeking for "private benefits". For instance, companies are able to "over claim fictitious incentives" to reduce taxable income. This suggests that policies on bearing tax loss to promote economic growth, must consider the possibility of creation of opportunities of UE (tax evasion). For instance tax grants must be practical; of clear definition, easy monitoring and audit selection priority. Policies must be reviewed occasionally to ensure they are economic dynamic to promote economic growth and plug "loopholes" for opportunities of underground activities. It also suggests that audit forces should give priority to manufacturing companies to uncover more unreported income hidden under fictitious tax deductions, considering that it is a large contributing industry to the country.

5.3.4.2 . Individual – annual data for 2003-2008

Like institutional UE (Figures 5.8 and 5.9), a large proportion of individual UE (Figures 5.10 and 5.11) is also at the top five country's economic industries. There is also a gradual shift of UE mix from construction and sales industries to real estates and business services. However, the overall percentage proportion of participants and unreported taxable income are more proportionate compared to institutional, implying that most individuals participated in small amounts and few in large amount.

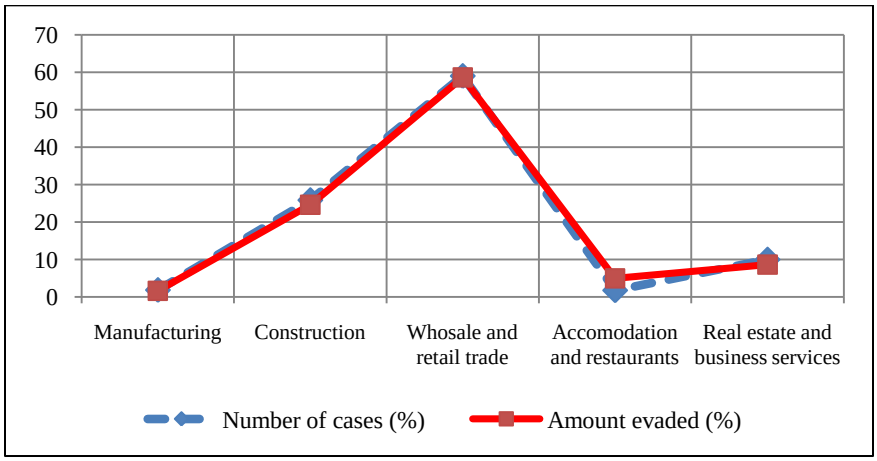



Figure 5.10: Individual tax evaders and unreported taxable income in the top five industries (2005 data)

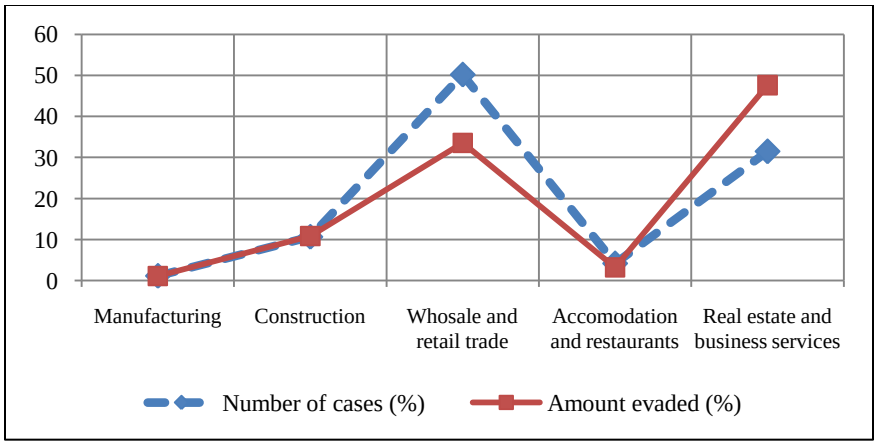



Figure 5.11: Individual tax evaders and unreported taxable income in the top five industries (2008 data)

The individual UE was further examined into 21 narrower business sectors classified based on categories of products and services. The results of cross tabulation between economic industries and business sectors are summarized in Tables 5.5 and 5.6. The UE is relatively large in businesses of vehicles, petroleum, food, timber and real property but lower in large number of businesses of food and business on commission income. It is also more prominent in occupation and professions that are related to construction services (engineers, surveyors and architects), compared to doctors and legal/accountants.

Table 5.5: Number of tax evaders by economic industries and business sectors

| **Economic industries** | **Major business sectors out of 21 product dealings** | |
|---|---|---|
| 2005 (n = 2,714 cases) | | |
| **Wholesale and retail trade** | Vehicles (26.48%) | Petrol kiosk (6.96%) |
| **Construction** | Retailers (32.53%) | Services* (67.47%) |
| **Business services** | Professionals (53.63%) | Comission (30.58%) |
| **Accomodation and restaurants** | Food outlets (83.13%) | Land lord (16.87%) |
| 2008 (2,701 cases) | | |
| **Wholesale and retail trade** | Vehicles (17.16%) | Petrol kiosk (10.65%) |
| **Construction** | Retailers (43.83%) | Services* (69.63%) |
| **Business services** | Professionals (57.42%) | Comission (9.62%) |
| **Accomodation and restaurants** | Food outlets (83.35%) | Land lord (16.65%) |

Table 5.6: Unreported taxable income by economic industries and business sectors

| **Economic industries** | **Major business sectors out of 21 product dealings** | | |
|---|---|---|---|
| 2005 (2,714 cases) | | | |
| **Wholesale and retail trade** | Vehicles (19.13%) | Petrol kiosk (10.71%) | Timber (34.38%) |
| **Construction** | Retailers (21.46%) | Services* (78.54%) | |
| **Business services** | Professionals (72.02%) | Commission (10.30%) | Directors (2.03%) |
| **Accomodation and restaurants** | Food outlets (77.04%) | Land lord (22.96%) | |
| 2008 (2,701 cases) | | | |
| **Whosale and retail trade** | Vehicles (22.31%) | Petrol kiosk (8.66%) | Timber (44.81%) |
| **Construction** | Retailers (32.48%) | Services* (75.48%) | |
| **Business services** | Professionals (43.10%) | Comission (2.75%) | Directors (12.10%) |
| **Accomodation and restaurants** | Food outlets (93.45%) | Land lord (6.56%) | |

*Engineers, Quantity surveyor, architect, Contractors

### 5.3.5 Income distribution of UE

The UE income distribution was examined for any relative skew within and across economic industries based on mean to median ratio difference. The relative estimate indicates that a larger ratio implies income distribution is more skew.

#### 5.3.5.1 Institutional (2003-2008)

The income distribution of both institutional reported and unreported taxable incomes are both in left skew with mean to median ratio ranging from 1 : 9.83 to 1: 20.04 (Table 5.7) and 1: 18.84 to 1: 28.09 respectively (Table 5.8). The average mean to median ratio for reported income is 1:14.36 while for unreported income is 1:22.73. The left skew income distribution indicates that most reported and unreported incomes are in small amount. The more left skew distribution of unreported income compared to reported income implies that UE has a role on inequality. The more skew UE is adding to the existing left skew income distribution of the official economy, could have worsen income disparity.

Table 5.7: Distribution of institutional reported income (average ratio - 1: 14.36)

| | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** |
|---|---|---|---|---|---|---|
| **Number** | 58 | 58 | 58 | 58 | 58 | 58 |
| **Mean (RM million) [Ar]** | 26.06 | 311.77 | 433.94 | 1074.63 | 1,538.41 | 1,391.08 |
| **Median (RM million) [Br]** | 2.65 | 22.50 | 27.47 | 79.03 | 76.75 | 106.66 |
| **Ratio [Ar : Br]** | 9.83 | 13.86 | 15.79 | 13.59 | 20.04 | 13.04 |

Table 5.8: Distribution of institutional unreported income (average ratio - 1: 22.73)

| | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---|---|---|---|---|---|---|
| **Number** | 58 | 58 | 58 | 58 | 58 | 58 |
| **Mean (RM million) [Au]** | 9.27 | 25.23 | 58.03 | 66.03 | 61.78 | 89.33 |
| **Median (RM million) [Bu]** | 0.33 | 1.22 | 2.42 | 3.14 | 3.28 | 3.76 |
| **Ratio [Au : Bu]** | 28.09 | 20.68 | 23.98 | 21.03 | 18.84 | 23.76 |

5.3.5.2 Individual (2003-2008)

The mean to median ratio of individual unreported income were further examined by state GDP level, economic industries, business and job sectors. For simplification, the ratio magnitudes of the 21 business sectors are classified into five groups with the lowest, approximating the normal distribution and the largest ratio representing the extreme income distribution (Table 5.9 and Appendix of Chapter Five).

Table 5.9: Distribution of individual unreported income – skew indeces

| **Mean to median ratio** | **Description of unreported income distribution** |
|---|---|
| **1:< 2** | Approximate normal distribution |
| **1: 2-5** | Moderate skew |
| **1: 5-10** | Moderate upper skew |
| **1: 10-20** | Large skew |
| **1: >20** | Largest skew |

In relative to states wealth, the unreported income approximates a "normal distribution" in the states of lower GDP level, "moderate to moderate upper skew" in states of average GDP level, "larger skew" in states of upper GDP level,

and “largest skew” in states of Pahang, Sabah and Sarawak, where logging sectors are common.

The unreported income approximates a “moderate to moderate upper skew” distribution in most economic industries (low in business on commission) and “large skew” in certain sectors (construction industry, rental in real property and sectors dealing with vehicles [sales and services]). The unreported income of director services and timber sectors (logging contractors and sawmills) is of “large and largest skew” distribution (an average ratio of more than 10). The skew income distribution of the logging sectors is consistent with the skew income distribution of the logging states, implying that UE of logging business is substantial.

The segmented UE according to income level and economic industries or business sectors is consistent with the findings of past studies. Among reasons for the different associations across business sectors are; evasion propensity varies inversely with transaction visibility (Roth, Scholz, and Witte, 1989); positive relationship between transaction visibility and reporting compliance (Klepper and Nagin, 1989; Long and Swingden, 1990, Kim. M.B, 2003); and the professional groups who are self-employed have more opportunity and greater freedom to decide about their finances (Kirchler, 1999; Wallschutzky, 1988;, Andreoni, Erard, and Feinstein, 1998).

### 5.3.6 Income level of UE of individual

In a tax system of progressive tax rates with 9 bands, the amount of tax raised on individuals is staggered according to their income level. As such the average income level of the individuals in the UE is estimated based on an average tax rate of audit cases. It is computed by dividing the unreported income with additional tax raised in audit cases. The disaggregated unreported income of 2008 and the aggregate unreported income of 2000-2009 are divided by the corresponding additional tax raised. The generated tax rates are ranging between 19% and 24%. Its mid-point of the range (21.5%) is assumed as the average tax rate and it approximates the second top marginal progressive tax rate (22%). Tax rate at 22% in the tax schedule corresponds to a taxable income of MYR50,000 to MYR100,000. After incorporating for the probable range of total personal reliefs entitled ranging from MYR20,000 to MYR70,000, the average annual income of individual tax evaders should be around MYR70,000 to MYR170,000.

This income bracket approximates the country's top 10% income bracket, whose earnings are above MYR6,000 per month as discussed in Chapter 4. This "upper income level" association synchronizes with the association between UE and states' wealth and contributing industries (as measured by its GDP contribution to the country). This is also consistent with priori studies where tax evasion was highest in the high-tax group and lowest in the low-tax group.

The reason for prominent UE at the upper income level was explained by Lewis (1982) based on tax attitudes of taxpayers at different tax rates as the standard tax rate - it is likely due to a more profitable "private gains".

### 5.3.7 Size of UE - based on micro data of reported and unreported income

The size of UE was estimated by employing double log uni-variate regression models (OLS). The aggregate audit data of the reported income (Rptinc) was regressed on its unreported income (Unrptinc). The equations of the output are summarized below followed by the interpretations relating to the size of UE.

#### 5.3.7.1 Institutional (2005-2009)

The regression of reported on unreported income exhibit low to moderate positive correlation. The variable coefficient indicates that a 10% increase of reported income will increase about 4.786% of unreported income. This buoyancy coefficient implies that about 47.86% of institutional income earned is not reported.

Ln Unrptinc = 10.5775 + 0.4786 Ln Rptinc - Equation (1)
t - value (16.0132) ( 10.8434)
$R^2$ = 0.2769 F = 117.5786 DW = 1.8336 n = 348

#### 5.3.7.2 Individual (2005 and 2008)

The association between individual reported and unreported taxable income of disaggregated audit data was first analysed by employing parametric and non parametric tests. The correlation matrix is summarized in Table 5.10. This low to moderate correlation was then tested in uni-variate double log regression models.

Table 5.10: Correlation of individual reported and unreported income (parametric and non parametric tests)

| Correlation | Pearson (P) | Kendall's tau_b (NP) | Spearman's rho (NP) |
|---|---|---|---|
| 2005 data | 0.570 | 0.342 | 0.479 |
| 2008 data | 0.1235 | 0.1637 | 0.2166 |

The output regressions of the reported income (Rptinc) on its unreported income (Unrptinc) are summarized in Table 5.11. The equations of the output are summarized below followed by the interpretations relating to the size of UE.

Individual: n=2,420 cases for 2005 data (entire audits)

LnUnrptinc = 4.8205 + (0.4129) LnRptinc - Equation (2)

t-value (22.8260) (26.0132)

$R^2$ = 0.4126 F = 780.2810 AR(1) of inv AR roots 0.3445 (t = 17.0775)

AIC = 3.3355 SIC = 3.3432

The regression of reported on unreported income exhibit low to moderate positive correlation. Its association is likely in a short run as AR variable is significant. The variable coefficient indicates that a 10% increase of reported income will increase about 4.129% of unreported income. This buoyancy coefficient implies that about 41.29% of individual income earned is not reported.

Individual: n= 658 of 2008 data (for the month of Mac, Jun and September data)

LnUnrptinc = 3.9620 + (0.4856) LnRptinc - Equation (3)

t-value (4.0545) (6.2418)

$R^2$ = 0.2174 F = 37.8032 AR(1) of inv AR roots 0.2040 (t = 17.0775)

AIC = 3.6822 SIC = 3.7397

The regression result indicates that the low to moderate positive correlation is of a short run association as AR variable is significant. The variable coefficient indicates that a 10% increase of reported income will increase about 4.856% of unreported income. This buoyancy coefficient implies that about 48.56% of income earned is not reported.

Based on the average sum of institutional (47.86%) and individual (41.61%-55.46%) unreported income, approximate correlation indicate that they do not report about 50% of income earned.

Table 5.11: Regression of individual reported on unreported income

| | **Constant** | **Unreported income** | **Pearson correlation** | **R square** | **AIC**<br><br>**SIC** | **Heteroscesdasity. White test (Htsw)** | **R – model specification test (mspc)** |
|---|---|---|---|---|---|---|---|
| 2005 data<br>t- statistic<br>F=1163.1020<br>n=2420 | 4.8056<br>(29.6350) | 0.4161<br>(34.1043) | 0.3248 | 0.3245 | 3.4638<br>3.4686 | F (2,2417)<br>=<br>2.2405<br>(no Htsw) | F (1,2417)<br>=<br>1.0249<br>(no model spc) |
| AR(1) model<br>Inv AR roots<br>=0.3445<br>(t=17.0775)<br>F=780.2810 | 4.8205<br>(22.8260) | 0.4129<br>(26.0132) | 0.4129 | 0.4126 | 3.3355<br>3.3432 | | |
| 2008 data<br>t- statistic<br>F=142.1954<br>n=658 | 3.6523<br>(4.2877) | 0.5546<br>(7.1188) | 0.1827 | 0.18280 | 3.7299<br>3.7638 | F (2,655)<br>=<br>1.0276<br>(no Htsw) | F (1,655)<br>=<br>1.8050<br>(no mspc) |
| AR(1) model<br>t- statistic<br>Inv AR roots<br>=0.2040<br>(t=3.0828)<br>F=37.8032 | 3.9620<br>(4.0545) | 0.4856<br>(6.2418) | 0.2172 | 0.2174 | 3.6822<br>3.7397 | | |

Note: OLS for 2005 (2,420 cases) and 2008 (806 cases) audit data at 5% significant level – single double log model (micro data)

### 5.3.8 Potential tax loss of UE

The parametric and non parametric correlation matrix between the unreported income and additional tax raised is summarized in Table 5.12. The correlation matrix ranges between 85.32% and 95.73%. The strong positive correlation implies that the captured unreported income is a highly stratified and purposive sample that gives more comfort in estimating tax non compliance as the proxy for UE that contribute to tax loss.

Table 5.12: Correlation of unreported income and tax loss (additional tax raised) – (parametric and non parametric tests)

| Correlation | Pearson (Parametric) | Kendall's tau_b (NP) | Spearman's rho (NP) |
|---|---|---|---|
| 2005 data | 0.8901 | 0.8532 | 0.9569 |
| 2008 data | 0.9401 | 0.8721 | 0.9573 |

## 5.4 Underground economy of tax evasion from investigation cases

Investigation cases are special tax audits on cases that involved "intense" fraud operations. These cases were examined separately from field audit cases (minor fraud) to determine whether the characteristics of the UE are influenced by "intensity" of attempts. In other words the characteristics of the field audit and investigation cases are compared to determine whether the features of the UE could be generalized regardless of how it is conducted (minor and major fraud).

About 20% institutional and 40% individual of the 2007 and 2008 investigation cases based on availability were examined for any additional insights into income characteristics. Figure 5.12 illustrates and Table 5.13 summarizes the results.

Like income distribution of "audit cases" (minor tax evasion), "intense" fraud tax evasion as proxy of "intense" UE also exhibit more left skew in the construction and manufacturing industries; and timber business than in other businesses. Business sectors of vehicles, food, electrical products and accommodation (rental income) are also the prominent underground sectors. As the characteristics of investigation and audit cases are alike, the characteristics of UE could be generalized regardless of evasion attempts are done vigorously or not.

The individual participants of UE are likely male (90.21%). The prominent age is above 40; 52.77% within the age group of 40 to 49; or 76.38% within the age group of 40 to 59. Table 4.3 of Appendix of Chapter 4, summarises the percentage proportion of the employed labor force within the age group between 35 and 65 is 45.48%. While the percentage proportion of individual UE between age group of 40 and 59 is 76.38%. Comparing these percentage proportions, (76.38/45.48 = 1.679 ~ 1.70) the individual UE is about 70% likely to be in the "senior age group".

The association between age group and UE implies maturity influence and synchronies with the income level association where high income bracket individuals are likely in this age group, for instance the managers and directors. From a rational view, this age group of people is likely to correspond to more desire and earnest wishes for better living standards and improved life style. This materialistic culture will create financial pressures for opportunities of "private profit" such as underground activities.

The positive correlation between UE and age group is consistent with the findings of Brownlee (1996) on Federal Taxation in America where the unreported income is explained as naturally rises with individual age. Maturity increases with age, as rational viewers would mould their decision to fit opportunities and are able to evaluate the country policy and purchasing power, questioning whether their taxes are spent wisely and efficiently with high expectation on quality public service in return. Any dissatisfaction against poor government regulation and services would be argued as to starve the government by the unwilling sharing of earnings to tax.

This also conforms to the findings of Mason (1987) on the relationship between communication variables and sanction fears; age or income levels and mass media exposure are positively related.

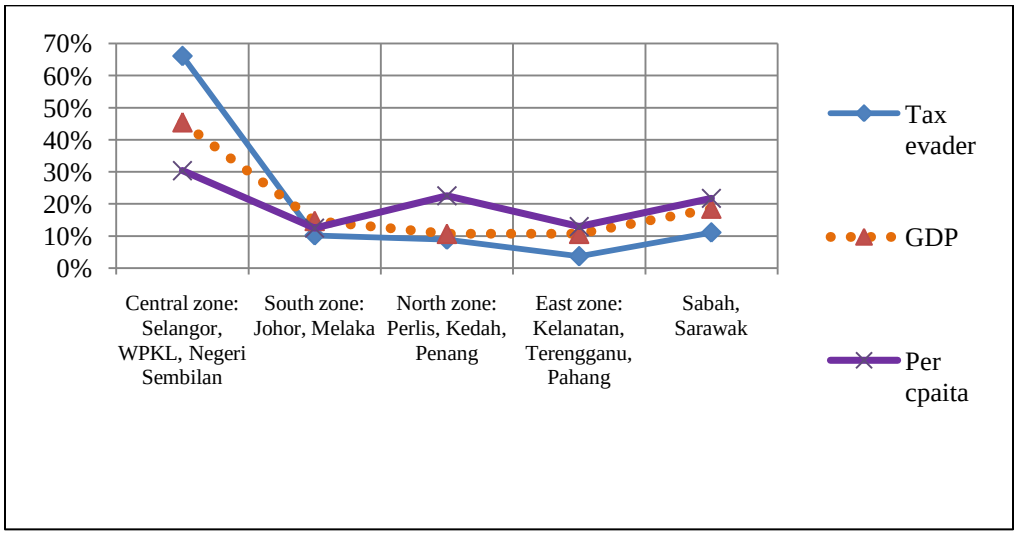



Figure 5-12: "Intense" tax evaders relative to GDP and GDP per capita contribution by zone of states

Table 5.13: Characteristics of individual and institutional "intense" tax evaders

Individuals: n = 72 (39.13% sampling based on availability) – micro data

Gender and age group

94% are males.

| Age group | Non compliant | | mmrui |
|---|---|---|---|
| 40-44 | | | 1:2.78 |
| 40-49 | 52.77% | 76.38% | 1: < 1.8. |
| 50-59 | 23.61% | | |
| < 40 | 15.27% | 23.62% | |
| > 60 | 8.35% | | |

Most individual evaders are male

About 50% individual evaders are within the age group of 40-49 and 75% are within the age group of 40-60.

Unreported income within the age group of 40-44 is of most left skew

Economic industry

| Industry | Non compliant | | mmrui |
|---|---|---|---|
| Business services | 46.30% | 72.15% | 1: 1 - 1.5. |
| Wholesale/retail | 15.68% | | |
| Construction | 10.17% | | 1: 3.72 |
| Real estate | 58.8% are land lords | | 1: 1 - 1.5. |

About 70% individual evaders are in business services; wholesale and retail; and construction industries.

Unreported income for construction industry is of most left skew.

Rental income constitutes about 60% underground real estate

Business sector

| Wholesale/retail | Percentage proportion | |
|---|---|---|
| Food | 27.5% | 68.86% |
| Electrical goods | 23.5% | |
| Vehicles | 17.6% | |

About 70% unreported income in the wholesale/retail deals with food, electrical and vehicles.

Job sector

| Job sector | Non compliant | Age group: 40-49 | | mmrui |
|---|---|---|---|---|
| Director | 29.41% | 38.5% | | 1:1.6. |
| Partner | 13.52% | 59.1% | | |
| Professions: | 18.70% | 39.4% | | |
| Construction | | | 51.55% | 1: 2.72 |
| Business | | | 29.5% | 1:1.6. |
| Total | 61.63% | 40-50% | 81.05% | |

About 60% individual evaders are senior executives

40%-50% senior executive evaders are within the age group of 40-49.

About 50% professional evaders are in construction industry

About 80% professional evaders are in construction and business services

Unreported income for professions in construction industry is of most left skew

…….Continue

Table 5.13: Characteristics of individual and institutional "intense" tax evaders

Individuals: n = 72 (39.13% sampling) – micro data

GDP

| Zone*/state | Non compliant | GDP / GDP# per capita contribution | mmrui |
|---|---|---|---|
| Middle South | 29.17% | 51.92% | 1:<2 |
| Pahang | | 4.66% or #5.90% | 1:3.14 |
| Other states | | | 1:<2 |

More evaders in state of high GDP level

Unreported income in Pahang state is of most left skew (logging is a major sector in Pahang state )

Company: n=197 [19%] – micro data

Economic industry

| Industry | Non compliant | mmrui |
|---|---|---|
| Business services | 85.18% | 1:10-15 |
| Wholesale/retail | | |
| Construction | | |
| Others | | 1:< 10 |
| Manufacturing | | 1:>15 |

Total of business services, wholesale/ retail and construction constitutes about 85% evaders.

Unreported income in manufacturing followed by business services, wholesale/ retail and construction is of most left skew

Business sector

| Business sector | Non compliant | | mmrui |
|---|---|---|---|
| Contractors | 55.5% | 79.24% | 1:<2 |
| Food | 13.13% | | |
| Vehicles | 10.61% | | |
| Electrical | | | 1:3.41 |

About 80 evaders deal with services, food and vehicles.

Moderate distribution of unreported income across business sectors, fairly large in electrical goods.

*Central zones:WPKL, Selangor and Negeri Sembilan and South zones: Melaka and Johor
mmrui = Mean to median ratio of unreported income as rough estimate for skew distribution

…….Continue

Table 5.13: Characteristics of individual and institutional "intense" tax evaders

Company: n=197 [19%] – micro data

**GDP**

| Zone*/state | Non compliant | GDP / GDP# per capita contribution | mmrui |
|---|---|---|---|
| Middle<br>South<br>Total | 44.24%<br>28.14%<br>72.38% | <br><br>51.92%<br>#42.93% | |
| Selangor<br><br>Sarawak<br><br>Other states | | 21.78%<br>#7.77%<br>9.84%<br>#8.99% | 1:2.73<br><br>1:2.79<br><br>1:<2 |

More evaders in the richer states.

Higher unreported income in certain states likely due to:

- dense population and variety of jobs and business in Selangor

- extreme distribution in logging sector in Sarawak

Aggregate investigation data for the period (2005-2009)

By category of tax payers

| Individuals | Range | Average |
|---|---|---|
| Employees | 1.27%– 7.62% | 4.45% |
| Business | 4.44%-10.14% | 7.29% |
| Total | 5.71%-17.76% | 11.44% |
| Companies | 84.64%-92.51% | 88.56% |
| Total | | 100.00% |

Business individuals are twice likely to evade compared to employees.

Institutional and individuals constitute about 90% and 10% tax evasion respectively

GDP

| Zone*/state | Non compliant portion | GDP / GDP# per capita contribution |
|---|---|---|
| Middle<br>South<br>Total | 66.11%<br>10.21%<br>76.32% | <br><br>51.92%<br>#42.93% |

Unreported income associate with states GDP level

*Central zones:WPKL, Selangor and Negeri Sembilan and South zones: Melaka and Johor
mmrui = Mean to median ratio of unreported income as rough estimate for skew distribution

## 5.5 Enforcement ability at curbing underground economy

The disproportionate percentage between the number of participants and the income of UE suggests that both the number of enforcement forces and intelligent network are essentials of effective enforcement. In order to uncover as much unreported income, it is important to suppress both the number of participants of UE and the income of UE. From a rational view, it is important to have large number of enforcement forces to combat as many evaders though majority evade small amount. As participants can be voluminous in number, the total income concealed can be substantial and in long run, participation of UE would become habitual activities.

It is also important to have proper audit selection and effective audit framework as well as sufficient trained enforcement forces to tackle business sectors of large underground opportunities. For cost effective enforcement, the following audit characteristic ratios provide some guidance for designing audit framework:

- Need a large number of "ordinary" enforcement forces to audit a large number of cases for a "substantial" tax revenue
  - Unreported commission income: the percentage proportion of evaders is 4 times larger than the unreported income (1 : 4)
  - Unreported income in business of food: the percentage proportion of evaders is 2 times larger than the unreported income (1 : 2)
- Need a small number of skilled enforcement forces to audit few cases for a "substantial" tax revenue
  - Unreported income in business of petroleum (kiosks): the percentage proportion of participants is 3 times smaller than the unreported income (1/3 : 1)

- Unreported income business of timber (sawmills): the percentage proportion of participants is 13 times smaller than the unreported income (1/13 : 1)

People's "rational thinking" when making decision, whether to remain in the official economy or opt out to join the UE, is subject to condition of an economic environment. People would balance between the opportunity of gaining "private benefit" (zero tax liability) and the strength of participation risk for instance losses to higher taxes (tax evasion risk – detection, enforcement success rate and fines). In this context, tax evasion is likely a recurring phenomenon. Its occurrence is subject to opportunity of UE, availability of creative accounting and enforcement ability to combat the UE. Therefore, continuous efficient and effective law enforcement is believed as the dominant method to curb UE.

To determine the strength of enforcement ability or its effectiveness, the actual income earned (reported plus captured unreported income) as recorded in the investigation year (Pre-taxinc) were regressed on the reported income of the post investigation year. The average reported income of three adjacent post audit years (Post-rep) were compared with the actual income recorded in the investigation year. Assuming other than taxable income conditions are constant, reported income in the post investigation year is at least equal to income in the audit year, or associate positively as income normally increase with GDP.

Table 5.14 summarises the result of parametric and non parametric correlation matrix between the audited taxable income of the investigation year (Pre-taxinc)

and voluntary reported taxable income in the post investigation year (Post-rep). Their correlation is between 0.119 and 0.38, implying low enforcement ability.

Table 5.14: Correlation between audited income (taxable income in investigation year ) and reported income in post audit year (investigation year)

| Correlation | Pearson (Parametric) | Kendall's tau_b (NP) | Spearman's rho (NP) |
|---|---|---|---|
| 2007-08 (Individuals: n=72) | 0.380 | 0.180 | 0.240 |
| 2007-08 (Companies: n=194) | 0.119 | 0.153 | 0.218 |

The enforcement effectiveness was further examined in double log regression models (OLS). The taxable audited income in the investigation year (Pre-taxinc) was regressed on the voluntary reported income in the post investigation year (Post-rep). The results are as follows:

- Institutional; n=194

Pre-taxinc = 12.9935 + 0.0561 Post-rep - Equation 4

t-value (29.6720) (1.6555) $R^2 = 0.0141$ DW=1.8486

- Individual; n=72

Pre-taxinc = 12.4329 + 0.01194 Post-rep - Equation 5

t-value (23.730) (0.2263) $R^2 = 0.0007$ DW=2.2585

Both institutional and individual show insignificant t-values and low $R^2$ values. The statistical evidence of no association between audited taxable income and post audit reported income implies that an insignificant association or poor enforcement ability.

Two possible reasons for the poor enforcement ability are:

Tax evaders that went through audits repeated non reporting activities. In other words they are not affected by audit threats. In this case people could have either continued to evade because they could have identified some tax authority weakness from audit experience. They could have adopted new knowledge that led to employing new evasion techniques. The perception of not being audited again in the near future is also likely as agencies often have enforcement forces constrain and not likely to audit the same person so soon. The "lesson never learnt" phenomena could have been partly due to human attitude adapting to economic constrains that drive them to crave to live beyond their means either by "hook or by crook". In order to sustain comfortable life they would naturally opt for "private benefit", as in this case evading tax liability.

On the other hand, the insignificant association could have been due to a situation of lower business profit. The effects of "good" audits could have tarnished the business of tax evaders. The large tax and amount of fines imposed to penalize for omitting the taxable income could have adequately suppressed the business cash flow and dampening operations.

The poor association between audited income and post reported income implies that enforcement alone does not deter tax non compliance enough. Although

enforcement is important to curb UE, sole tax audit approach is inadequate to educate or threaten tax evaders to comply with tax rules. The poor association is consistent with some priori tax evasion models. Since enforcement does not deter enough, UE is likely to increase. This supports the findings of Laoyza (1996) where the size of SE increases with larger tax burden and weaker enforcement.

### 5.6 Enforcement efficiency in deterring UE

Why is tax enforcement not so effective? One of the reasons could be due to low detection risk that influence people's perception of being audited again. Detection risk is determined by computing the enforcement efficiency based on audit selection factors that include; probability or detection rate (DR); enforcement success rates (ESR); and chances of finalized cases falling into the taxable income bracket (T). In other words it is the product of DR and ESR and T.

Based on some discrepancy of gross profit margin ratio or other gap indexes such as large turnover and gross profit margin ratio, each year about 15% to 20% (a midpoint of 17.5%) of tax files in the tax base are selected for audit. The ESR is based on the proportion of finalized cases over total audit or investigation cases. Audit ESR is; between 37.44% and 70.18% (an average of 54.96%) for individuals; and between 30.21% and 63.07% (an average of 45.65%) for institutional. Overall investigation ESR is between 37.04% and 43.13%, (average of 40%).

The range of ESR of audit and investigation cases lies between 30% and 70% (a midpoint of 50%). About 90% of the finalized enforcement cases indicate that the

unreported income is taxable (i.e. the unreported income is within the tax net). It implies that majority of UE estimated here constitutes unreported income of tax loss. The product of DR (17.5%), ESR (50%) and T (90%) i.e. (17.5% x 90% x 50% ~ 8%) is taken as the estimate for enforcement efficiency.

In addition to raising taxes or additional taxes on the captured unreported income, the law provides the imposition of fines to penalize for non compliance with tax rules. The amount of fines imposed is based on the degree of tax evasion (amount of unreported income and evasion scheme). The mean range for fines imposed is; between 28.36% and 61.58% for institutional; and between 38.36% and 58.45% for individuals. The fines for "serious frauds" can be as high as 100% on the amount of tax raised.

This study does not take into account of the probability of tax audit selection for two reasons. First, the task force is assumed to have been optimally utilized due to resources constrain (staffs, costs, skills and technology). Second, the enforcement cases representing the stratified samples are potential estimates for underground activities. First, they are selected based on some reliable reports on income discrepancy. Second, the micro analysis in paragraph 5.3.8 also showed evidence of potential tax loss arising from audit cases. This implies that the stratified sample of unreported income is highly taxable, to represent purposive sample for UE that escape taxes.

To summarise, the UE participation risk of having to pay "tax on the unreported income" plus an amount of "30% to 100% (as fines) on the additional tax raised" is fairly low (8%). In other words, a person who participates in the underground

activities has 92% chance of obtaining “private income” as the benefit of opting out of the official economy and entering the UE by escaping tax liability. He would only face 8% detection risk of losing “private income” i.e. losing income to taxes, bearing that the lost could be twice (tax plus 100% fine) the amount of tax if he had complied with tax rules.

**Summary**

The characteristics of tax evaders were examined to establish the characteristics of UE. The UE is economically selective, positively related to income level, states and economic industries according to GDP contribution. The overall income distribution in the UE is of more left skew than in the official economy in a varying ratio range within and across economic sectors. The more left skew income distribution within and across economic sectors and more prominent in the upper income level reflects an unfair tax burden and signifies unequal opportunity of underground activities. The left skew income characteristics of UE in about 50% of GDP size could have possibly contributed to income disparity of the country.

Although institutional UE constitutes at least 66% while individual UE at most 34%, their non compliant rate is identical, about half of income earning is not reported. The individual UE are 90% males, 75% self employed, 60% in the managerial level and 75% between the age of 40 and 60. Larger business unreported income (four times lower than employment income) and prominent UE in the manufacturing companies are evidence of tax role on UE. Employment

income but not business income is subject to “withholding tax system” (salary deduction by employers rather than employees reduce tax evasion) and extensive tax incentives for manufacturing companies indicate evidence of opportunities of tax evasion.

Law enforcement is necessary to combat UE as people use rational thinking to gamble between participation risk and private benefits. Low detection risk (8%), moderate enforcement efficiency (50%) and low enforcement ability (20%) highlights the urgency for better services and enforcement forces. For efficient and effective enforcement, audit selection framework must consider high income level and prominent economic sectors. Detection risk could be increased by increasing the probability of audit selection. This would mean that more auditors are required to handle a large volume of underground sectors while more skilled forces (knowledge and experience) are needed to tackle the more complex cases (major frauds). With regards to amount of fines charged, policies and judiciary should consider inflation rate and degree of offence to fit the crime.