

CHAPTER 2

SECOND ECONOMY THAT EVADE TAXES

– THE UNDERGROUND ECONOMY

Introduction

This chapter discusses the literature review of the “second economy” and a portion of it which is the UE. The works of literature traced concerns its definition, summary of past internationally and local estimates of size, trend, impacts, determinants, proxy indicators, law enforcement, theoretical framework as to why people participate in the UE and overview on the methodology of estimation.

2.1 Definition

2.1.1 GDP as the official economy of a country

GDP is the official economy and commonly used to indicate a country’s economic performance. It represents the market value of all final goods and services within a country in a given period of time. The four main components of the official economy are consumption, investment, government purchasers, and net exports. It could be presented in the form of GDP nominal or GDP real. GDP nominal uses current prices to value production of goods and services in the economy, without adjusting it to both physical expansion and higher prices

(inflation). While GDP real is based on constant base-year prices valuing them as what was physically produced, considering only the actual increase in economic output as it is suppressed by GDP deflator, mainly the inflation factor. GDP is also used to formulate other statistics such as GDP per-capita, derived from the average income earned per person (Total GDP/Total population). Smith (1976) showed that the wealth of nations as measured by the productivity of labor force and GDP per capita (nation's income per population) reflects purchasing power parity and the average of national income distribution.

However, GDP does not measure the entire economic activities of a country which is the actual economy of a country or the national potential economy. The potential economy consists of; activities that follow all rules; legal activities but do not follow certain rules; and illicit activities. GDP usually measures most lawful activities and excludes activities that evade laws and regulations due to their hidden in nature.

According to the conventional guidelines on the System of National Accounts – “the GDP measures most lawful activities and often lacks coverage of activities that evade rules, due to deficiencies in estimation techniques and difficulties associated with data collection”.

Bhattacharya (1990) indicated that GDP excludes goods and services of; informal markets; household production; and economic activities that evade rules. Hence GDP under reports a country's economic performance. He relates the various excluded activities as having one common feature - the participants rarely leave

audit trails to avoid detection. From tax perspective they would not report the income of these activities to tax authority.

2.1.2 Second economy and underground economy

As economic activities that evade laws and regulations are normally not captured by GDP, the “missing” activities form an economic gap between the GDP and the potential economy. This economic gap has led to the conceptualization of a “second economy”. Since 1930s, it is studied under various terminologies, plagued in unclear definition and vague concepts.

Among various terminologies used in past studies are; underground economy (UE) (Faal, 2003; Giles et al., 2002; and Hill and Kabir, 2000; Tanzi, 1980, 1983; and Tucker, 1982); subterranean economy (Guttmann, 1977); irregular and black economy (Pissarides and Weber, 1989); informal economy (Castells and Portes, 1989); shadow economy (Helberger and Knepel, 1988); illegal, unregistered and secret economy (Hristoskov, Shopov and Beleva, 1996); parallel economy (Del Boca and Forte, 1982); hidden economy (Feige, 1979); unobserved economy (Schneider and Enste, 2000); and “non-observed economy” (System of National Accounts (SNA93); and European system of National Accounts (ESA95)).

Its definition could be traced to as early as Cagan (1958), who described the economic gap, as an irregular economy. Since then, this subject has been carried voluminously yet there is no universal or precise agreement on its identity and definition.

Pissarides and Weber (1989) used the words irregular economy to mean legal activities but escape taxation, and black economy for criminal activities. Smith

(1994) defined it as, “market based production of goods and services, whether legal or illegal, that escapes detection in the official estimates of GDP”. Bagachwa (1995) categorized UE into three groups which are the “informal sectors (unregistered small-scale economy), parallel (legal in their nature but illegal production) and black market activities (both production and distribution is forbidden by government)”.

Bhattacharya (1999) noted that incomes that evade taxes may be a major component of the hidden economy, but not the total because it also includes a small amount of money that is not taxable. For instance people who provide domestic help who earn a small amount of money would fall below the threshold taxable income. Schneider and Enste (2000) proposed that it consists of all economic activities which do not contribute to the officially calculated GNP.

Most reports including a 1992 US Labor Department study, defined the components of the economic gap based on Feige's (1979) with some modification as below:

- Illegal economy as trading in prohibited goods and/or services. Example; corruption, extortion, financial fraud and smuggling.
- Unreported economy as legal activities meant to evade the tax code. Example; tax evasion and benefit fraud.
- Unrecorded economy as hidden income-producing activities excluded from national accounts. Example; hiring workers off-the-books.
- Informal economy as activities that are not recognized, regulated or protected by existing legal or regulatory framework, such as violating labor contracts, financial credit and social security systems.

Carter (1984) termed the economic gap as the hidden economy and divides it into UE and informal economy. He categorised the criminal and irregular sectors into UE as the measurable economic activities, while the household and informal sectors into informal economy, as the non measurable economic activities. He illustrated a scenario of a householder who is discouraged from employing a painting contractor because of higher costs due to taxation and regulation. The householder has the option to either employ a part timer painter where cash payment is unlikely declared to tax authority, or undertake the painting personally (a do-it-yourself job). The employment of an informal worker is a market-income activity which is the UE but self-employment does not transact any market-income. Nevertheless, they have one thing in common as both economic activities are not included in GDP.

Schneider and Enste (2000) categorized the taxonomy of underground activities into sectors of legal and illegal activities either as market-income economy (monetary sector) or non-market income economy (non monetary sector) as summarized in Table 2.1.

The household sector consists of unpaid activities, where the products are part of the market transactions without prices determined. Thus the value of goods and services was not considered in the national accounts. The informal sector normally includes minor producers, craftsmen, providing passenger service using private cars and some other informal services. He defined the hidden sector as legal production but illegal distribution in nature, such as tax evasion, thus “irregular”; refusing to follow specified regulation such as license or business

permits; escaping bureaucratic formalities; and refusing to comply with legal framework such as labor force rules (minimum wage, social contribution payment, maximum working hours). The illegal sector consists of illegal activities both in its production and distribution, such as drug trafficking and bribery.

Table 2-1: A taxonomy of the types of activities in the underground economy

Type of activity	Monetary Transactions		Non monetary Transactions	
Illegal activities	<ul style="list-style-type: none"> i. Trade in stolen goods ii. Drug trafficking iii. Prostitution iv. Gambling v. Smuggling vi. Fraud. vii. Bribery 		<ul style="list-style-type: none"> i. Barter of drugs and production of drugs for own use ii. Theft for own use 	
Legal Activities	Tax evasion	Tax avoidance	Tax evasion	Tax avoidance
	<ul style="list-style-type: none"> i. Unreported income ii. Under invoicing 	<ul style="list-style-type: none"> i. Employee discounts ii. Fringe benefits 	Barter of legal services and goods	All- do-it yourself work and neighbor help

Source: Summary of Mirus and Roger (1997, p.5) and additional remarks of Schneider and Enste (2000).

Hesam (2003) instead classified activities of the hidden economy into four sectors based on two measures which are the “occurrence of transaction in market” and “legality in terms production and distribution nature” as summarized in Table 2.2.

Table 2-2: Sectors of hidden economy by market transaction and legality in terms of production and distribution

Sectors	Market Transactions	Production Nature	Distribution Nature
Household Informal	Not Practiced Practiced	Legal Legal	Legal Legal
Hidden Illegal	Practiced Practiced	Legal Illegal	Illegal Illegal

Source: Hesam (2003)

The national accountant defines the economic gap as a figure of some statistical errors between GDP (published measure of economic activity) and the “actual” figure which is the target of the measurement (potential economy).

Activities that are productive and legal but are deliberately concealed from the public authorities to avoid payment of taxes or complying with regulations” was defined as the “Non-observed economy”, (OECD 2002, page 13). Typically it includes transactions that are either underground or illegal or informal, or household production for own final use.

For simplification, this study defines the second economy as referring to the various terminologies used by different researchers. It consists of all economic activities for which payments are made with some taxable ones that are not voluntarily or officially declared to tax authority. It includes prohibited or illicit activities [illegal economy], unmeasured activities [informal economy] and legal activities but not declared to tax authority [irregular economy]. The majority of individuals in the informal economy are unpaid family workers, employees of informal enterprises, industrial workers, agricultural output by smallholders and home workers. The various mobile, voluminous economic activities and

“invisible” participants make the task of measuring activities of informal economy difficult.

Potential Economy

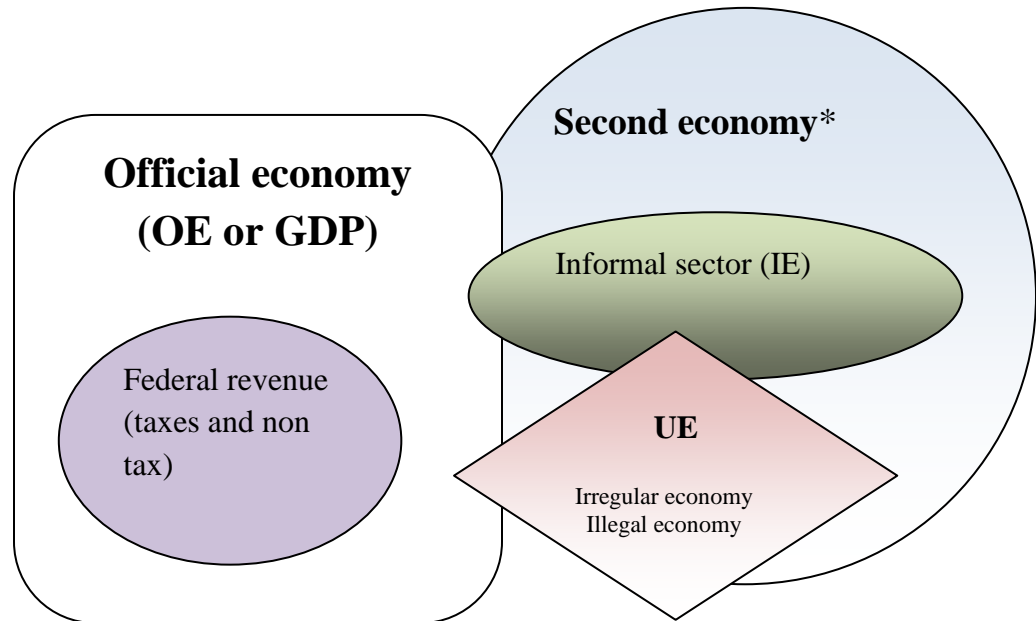


Figure 2:1 Potential economy – official economy and second economy. *Also known as the hidden economy, shadow economy, parallel economy or secret economy.

2.2 The size of second economy

There is a widespread agreement that the second economy is a natural resource sector, yet the identity crisis extends to the size estimate due to a wide scope of activities and various methods employed and heroic assumptions made. Economists questioned the validity, authenticity and unique estimates. Some estimates are of unclear definition and wide in range depending on what and how it is measured; varying with data sets (across activities and period), methods

employed and assumptions made. Researchers emphasized that comparisons among estimates must be interpreted carefully and remain somewhat crude.

It is inherent to all countries but differ in size. In general, the size of the second economy in relative to GDP is smaller for developed countries, larger for transition and developing countries and largest for undeveloped countries, (Kesner-Skreb, 1997). Over a period of 1990 – 2006, world estimates over 150 countries of different economic groups were in the range between 4% and 60% of a country's GDP.

For developed countries, the estimates were in range between 5% of GDP during good time and 20% in bad time. Small size associates with “low cost” of public sectors (Japan, United States and Switzerland) and high tax morality (United States and Switzerland).

Based on a survey conducted in 1998-99; Nigeria and Egypt had the largest second economy compared to South Africa with size at 77%, 69% and 11% of their respective GDP. For Asia, Thailand ranked the top largest shadow economy with size at 70% of GDP while Hong Kong SAR and Singapore had the smallest size, both at about 14% of GDP, (Schneider IMF, 2002).

Shneider (2002) and Schneider and Enste (2000, 2002) had employed physical input (electricity consumption), currency demand and modeling method, to estimate the size of the shadow economy. Their estimates are summarised in Tables 2-3. In 2000, it varied from 13.5% of GDP for OECD countries to 38% for transition economies and to 41% for developing countries. In the year 2000, the average size in Asia countries was between 11.3% (Japan) and 44.6% (Thailand).

Table 2-3: Summary of world size of second economy relative to GDP for 1999-2000

Countries	Size as % of GDP			Remarks (Relative size and range)
	Lowest	Largest	Average	
Africa	28.4 (South Africa)	59.4 (Zimbabwe)	41	Large
South and Latin America	19.8 (Chile)	67.1 (Bolivia)	41	Large and wide
Transition countries (Former Soviet Union, Central and Eastern Europe)	18.9 (Slovak Republic)	67.3 (Georgia)	38	Large and wide
South East Asia	14 (Singapore)	44.6%– 70% (Thailand)	26	Moderate
OECD countries (1999-01)	9% (Switzerland)	27%, 30% (Italy, Greece)	18	Small
Japan Australia Canada U.S.A	10% (average)		13.5	Smallest

Source: Shneider (2002), Schneider and Enste (2000, 2002) and Alm J and Jorge M.V (2006) modified. *Shneider later put the size of the US UE as 8.4% of GDP in 2003

Researchers have attempted to estimate the size of UE in its components comprising of legal economy and illegal economy. On average, the income of legal activities of the UE was about 3 to 4 times larger than the income of illicit activities.

Kadokura (2000) had shown that UE in Japan consists of about 73.3% “legitimate” activities (based on tax evasion) and 30% illegal activities. About 10.7% of incomes of illegal activities were organized commercial income, out of which 8.5% were incomes of sex industries.

Vaknin (2000) showed that illegal activities could increase up to 20% of UE in the United State. Schlosser (2003) estimated illegal activities in the United State accounted to about 10% of its economy. Despite of a substantial size, the major component of UE that constitute 80% legal activities in the United Kingdom evade relatively small amount of tax, (the Revenue and Customs of United Kingdom. 2007-08).

Studies on the subject of UE in Malaysia and ASEAN region countries are scarce and empirical estimates are not comprehensive. One study on UE in Indonesia by Wibowo (2001), estimated the size of UE in Indonesia based on currency demand and MIMIC models. The estimated UE was in about a quarter of GDP, approximating about a third of the households in Indonesia. He showed that the UE was significantly influenced by the process of transitions (whether transition in tax law, economy or politics). In normal time, the size of UE was lower than its average but higher when situation was economically unstable. It associated with changes of economic and political systems in the end of 1990's, the major overhaul of Indonesian's tax law in 1986, and during the small recessions in 1983 and 1993. However, its characteristics and trend was not clearly discussed.

In Malaysia, past estimates of a second economy were in short time series and wide in range. The estimates were based on various data set data sets, methods employed with various assumptions made over different periods between 1970-1999, that range between 0.2% and 85%.

The methodologies employed were confined to either cash method or indirect method of survey or tax data. In-depth studies as to structural proportion, trend

and economic association are unknown because of data paucity and disclosures of information are confidential and accessibility to related data is subject to strict rules. Survey methods employed are questionable as respondents either based on perceptions which may be bias or afraid to reveal the truth. The estimates are now out dated as they lack growth trend, composition of components, income characteristics and economic association. Estimates need to be reviewed as comprehensive information are important for policy and strategic positioning.

2.3 Growth trend of the second economy

An interesting citations of Lenore Schiff (1992), regarding the trend of this second economy, as cited by Wiegand (1979) -... “the UE has differentiated and expanded in the U.S. society. It is moving up into the working and middle class and going global as well. The low-skilled workers are able to get jobs in the UE. The white-collar middle class is joining up, partly because the formal economy is moving toward services and self-employment, offering more chances to work in the shadows. Businesses find new opportunities in the expanding global economy. Increasing enforcement may raise some revenue, but will not greatly dent the underground economy. People join it for too many reasons: from survival for a living, to avoiding taxes, to escape regulations, dissatisfaction with the government and taking the opportunity of the loop hole to have more fund for a better life, where they feel the legitimate economy doesn't offer them enough pay.”

Most studies indicated that it increased in a fluctuating manner around a constant trend until the first half of the 1990s'. Until the year 2000, it exhibited an upward trend in most countries. Burrow et. al. (2004) reported that recent business transactions in the second economy had increased in relation to GDP. It grew relative to GDP, had evolved over time and led to a high degree of money laundering.

Schneider and Enste (2000) elaborated on how the transactions of this economy increased. Based on a survey study over 21 OECD countries, the second economy had grown to at least 20% from 1970 to 2000. For the same period, in the United States it had doubled from 4% to 9% of GDP size. In the states of former Soviet Union, it grew from about a quarter to a third between 1990 and 1998. They emphasized that despite measurement handicap, there was a significant and growing underground sector in most countries. It had grown to at least 20% from 1970 to 2000, based on a survey study of 21 OECD countries, (Schneider, 2002). The 30-year growth trend (1970-2000) showed that the size had doubled from 10% of GDP in most countries (Belgium, Denmark, Italy, Norway, Spain and Sweden) to 20% or more of GDP in other countries. Even for countries, with the smallest second economy, the UE growth in the United States had doubled from 4% of GDP in 1970 to 9% in 2000. According to Park (2003), UE in the United States grew from 3.5% (1960) to 9.5% of GDP (1995). While, in the states of former Soviet Union it grew between 1990 and 1998 from about a quarter to a third.

Kelchev (2006) concluded that over the last 13 years, countries had registered that the informal economy grows with GDP.

According to Esbenshade (2001), the immigrants and the informal economy in 2001 showed signs of progressive trending that follow the new global economy based on small units of production that lend themselves to informal relationships and practices.

In addition to the overall increased, Gupta (1992) reported that the growths of black income had spread to more economic fields and were attributable to the rising share across economic sectors according to changes of economic structures.

In terms of growth pace, the fastest growth over the years was in the 1990s'. The shadow economy had grown from 11.0% (1989-90) to 16.9% (1997-98) of GDP size. For OECD countries, the increased was about 4%, from 13% (1990-93) to 17% (1999-00) of GDP size. While, for transition countries it increased from 25% (1990-93) to 33% (1999-00) of GDP.

Table 2-4: World size of second economy relative to GDP for 1999 and 2006

Countries	Size as % of GDP			Remarks (Relative size and range)
	1999	2006	Average	
Africa				Large
Ethiopia	40.2%	37.6%	39.6%	
Uganda	44.3%	41.4%	42.8%	
Tanzania	59.0%	55.2%	57.0%	
South and Latin America				Large and wide
Chile	19.8%	19.1%	19.3%	
Brazil	40.8%	38.8%	39.8%	
Bolivia	67.2%	62.6%	66.4%	
21 Transition countries (Former Soviet Union, Central and Eastern Europe)	36.9%	33.7%	35.3%	Large and wide
Slovak Republic (smallest)	18.9%	17.2%	18.1%	
Georgia (largest)	68.3%	63.6%	65.8%	
South East Asia				Moderate
Singapore	13.2%	12.2%	12.9%	
Malaysia	31.9%	30.6%	31.3%	
Thailand	53.2%	49.3%	48.9%	
25 OECD countries				Small
Switzerland (smallest)	8.8%	8.3%	8.3%	
Mexico (largest)	30.8%	29.2%	29.2%	
Japan	11.4%	10.4%	11.0%	
Australia	14.4%	13.7%	14.0%	
UK	12.8%	12.3%	12.5%	
Canada	16.3%	15.3%	15.7%	
U.S.A	8.8%	8.4%	8.6%	

Source: Adopt from Schneider, F. A. Buehn, & C.E. Montenegro (2010)

However later studies of Schneider (2003) and Francesco (2008) showed some consistent evidence that the size of the second economy relative to GDP exhibited a downward trend. The findings of a recent study of Schneider, F. A. Buehn, & C.E. Montenegro (2010) is summarised in Table 2. 4. These international

estimates were based on two indirect methods (monetary and MIMIC modeling) on data of 162 countries over a period of 1999-2006. Both methods revealed a downward trend in the 2000 decade.

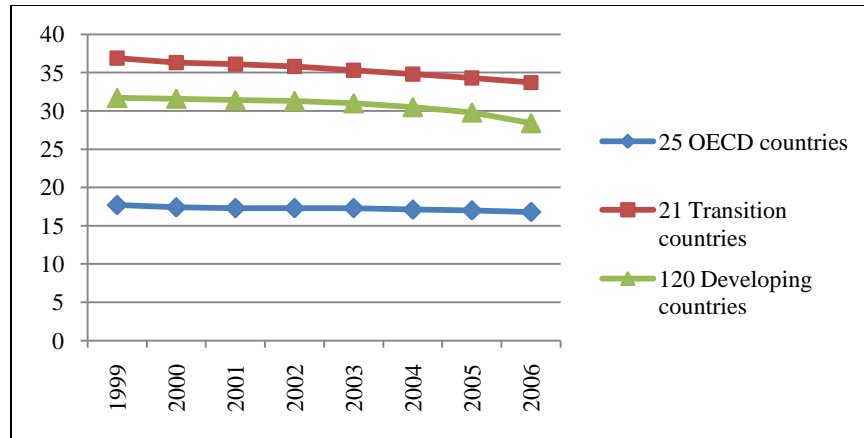
Table 2.5 summarised the average size of the second economy relative to GDP by country group for 1999, 2003 and 2006. The size relative to GDP reduced from; 17.7%, 36.9% and 31.70% to 16.8%, 33.7% and 28.4% for OECD, transition economies and developing countries respectively.

Table 2.5 Size of the “second economy” by country group

Country group	% of GDP		
	1999	2003	2006
120 Developing countries	31.7%	31.0%	28.4%
21 Transition countries	36.9%	35.3%	33.7%
25 OECD countries (developed)	17.7%	17.3%	16.8%

Source: Adopt from Schneider, F. A. Buehn, & C.E. Montenegro (2010) – over 162 countries

Figure 2.2 illustrates a downward trend of the size over the period of 1999 and 2006. Its size relative to GDP for the period of 1999-2006 was from as low as - 8.7% (Switzerland) to as high as 67.2% (Bolivia) in 1999; and 8.2% (Switzerland) to as high as 62.60% (Bolivia) in 2006.



Source: Adopt from Schneider, F. A. Buehn, & C.E. Montenegro (2010) – over 162 countries

Figure 2.2: Size of “second economy” – 1999-2006

Table 2.6 and 2.7 summarised the estimates on selected Asia countries ranging between 13.1% and 54.1% of GDP. For south Asia countries, Singapore had the smallest UE size between 13.1% and 13.7%. The size of UE in Malaysia was relatively moderate, ranging between 31.1% and 32.2%, compared to Thailand which had the largest size between 52.6% and 54.1%. Malaysian studies lack trend estimates as data sets used were not in time series of adequate length.

Table 2.6 Size of the second economy in selected Asia countries.

Countries/Year (% of GDP)	1999/2000	2000/2001	2002/2003
Thailand	52.6	53.4	54.1
Cambodia	50.1	51.3	52.4
Malaysia	31.1	31.6	32.2
Korea	27.5	28.1	28.8
Indonesia	19.4	21.8	22.9
Hong Kong	16.6	17.1	17.2
Singapore	13.1	13.4	13.7

Source: Park (2003) – monetary method

Table 2.7: Size of the second economy in selected Asia countries

Countries/Year (% of GDP)	1999/2000	2002/2003	2005/2006
Thailand	53.2	50.1	48.9
Cambodia	50.4	49.2	46.0
Malaysia	31.9	31.3	30.6
Korea	28.1	26.9	26.1
Indonesia	19.6	19.3	18.6
Hong Kong	17.2	16.2	15.4
Singapore	13.2	13.0	12.2

Schneider, F. A. Buehn, & C.E. Montenegro (2010) – MIMIC modeling

2.4 The positive and negative effects of second economy

Literature perceptions of the second economy indicated two contrasting views. One view regarded it as a dysfunctional phenomenon that represents an undesirable departure from an acceptable economic norm. The socio-economic impacts are serious adverse implications on future economic growth as well as public confidence in government.

McKinsey (2004) emphasized that though economic costs of the “second economy” are not quantified in long run, its growth tends to associate with negative repercussions on the society and individuals. Its negative impacts include statistic distortion towards; misleading policies (Feige, 1990, 1997; and Eilat and Zines, 2000); tax loss (Gupta 1992); income inequality due to unfair opportunity (Farzanegan, 2008); immoral activities (drugs offence, gambling, prostitution); unfair competition due to lower production cost such as piracy and smuggling (Dominguez, 1975); illegal money contributing to money politics (Pasuk, 1999); undermined economic performance (slow investment, inefficient formal banking

sector imbalance consumption, erode work ethic) and often easy money is often claimed to promote spendthrift consumerist culture (Rusenova, 2003).

Chen (2001) described the informal worker working in informal enterprises often performed the same work as the formal worker, but does so in an unregulated and unprotected environment. Eilat and Zines (2000) proposed that GDP growth could be misleading since once changes in the shadow activities are accounted for, the total economic activity may move in the opposite direction to GDP, and many economic indicators would be measured with errors.

Profits of illegal economy were used to contribute to the growth of “money politics” where candidates used money to buy votes in Thai Society and politics, (Pasuk, 1999). Extensive networks of informal economy through the middle-agents such as drug, lottery, casino trades and sex services have been reported to assist the political party in Thailand (Sombat, 1993).

One interesting point, they often shadowed their illegal profit with conducts of legal business as “front line business”. They enhanced their social position in society by building local infrastructure, donating to temples and welfare services, as well as entertaining politicians. At the end of the day, they use their influence and “relationship” to gain protection from the law, as well as getting lucrative concessions and contracts from the government

Profits of illegal economy had also been claimed to promote a spendthrift consumerist culture, as “easy money” is often spent on luxurious items and speculative market such as stocks and property. They also create social values in favour of risk and speculation for superficial and illusory gains that tend to erode

work ethic. Hence, UE activities are often argued to favor corruption that link to other criminal activities. Dominguez (1975) based on UE of smuggling activities, stated that it could deplete government revenues, promote illegal institution and change the patterns of consumption.

Besides giving immense social costs, it could cause inefficiency in public administration, especially when UE growth is larger than the official economy. In view of large illegal funds, there is a possibility that they are laundered to legitimate markets before streamed for investment. The complex and massive transactions are believed to interfere with government policies on controlling consumption, promote saving, combat inflation, and regulate eccentric movements in speculative markets. In this case government expansion policy on boosting out of a sluggish economy could be more inflationary than expected.

Rusenova (2003) remarked a large part of income obtained in the hidden economy remains outside the financial system. The funds therefore are less likely invested in projects with the highest expected rate of return. This will eventually reflect not only the lack of trust in the banking system but also a considerable amount of unaccounted money balances. As most UE escaped taxes, a high level is expected to adversely suppress sufficient tax yield causing substantial economic damages as finances are diverted from the state budget and social security funds.

The contrary views instead elaborated the positive effects of the second economy as important socio-economic contribution. Although the underground activities are outside the fiscal regulatory framework, they are still produced and form part of a vicious economic circle. It acts as productive and creative adaptation to

market forces working towards economic equilibrium. The informal sector can sometimes be more competitive and efficient than the formal sector.

Among the redeeming features are the formations of informal jobs as the survival line for the unfortunate and beneficial for the poor. This economy is said to have developed in response to basic needs of consumers and the failure of the formal sector to provide in a timely way the required goods and services (Wiles, 1987). The illegal businesses in Thailand are labour intensive sector. For instance about 4 million people were employed on a part time basis in the underground lottery and about 200,000 people were employed in the prostitution industries (Pasuk,1999).

It is believed that UE and its counter parts (informal economy) is the only economy that survived during recession period. The creation of informal jobs is put to work in the UE, assisting the economic transactions wheel to turn continuously in a country, stimulating the overall economic growth, (Smith, 2002). The informal economy would be beneficial for the poor to survive and helps the economic transactions wheel to turn continuously in a country (Mike, 1985). Stulhover (1997) provided a sociologist view by referring to the transition countries; the informal economy provides impoverishment means of survival, social peace and maintaining living standard.

Schneider (1999) showed an empirical study to support the positive views of hidden economy in the United Kingdom. There was a significant increased of consumer spending over a period of 1960-84, especially on durable goods and services. The purchasing power represents demand for business in the formal

economy that is indirectly lubricating the formal economy growth. Schneider and Enste (2000) further showed that two third of the earnings in the shadow economy of UK was spent in the country, implying some considerable overall economic boost. In Germany and Austria, about 2/3 of the value added economy produced in the shadow economy would have not been produced at all if it did not exist.

People sometimes prefer informal transactions or jobs as they confer benefits over formal jobs, such as greater freedom, flexible working hours, self satisfaction and not regulated by any formal agencies. The transactions often provide mutual benefits for both “suppliers” (employers) and “demands” (employees), presumably a greater benefit than could have achieved within the formal economy. Vaknin (2000) indicated some “blessing statements” where the money generated in UE were held in foreign currencies outside the banking system or smuggled abroad. Some countries have about 15% of the money “floating” in the recipient country used to finance consumption. Trickle money came back and laundered through the opening of small legitimate business, implying some hidden “backup” economic reserves.

Nevertheless, the redeployed profits in the mainstream economy were argued as of short term benefits. According to McKinsey (2004), in long run, they would be greatly outweighed by the indirect economic and social cost. A sizeable drain of tax loss and the indirect cost of erroneous statistics and policies on both economic and societal price should be of more concerns than the benefits of the life line for the unfortunate.

2.5 Second economy in the future

In view of a dynamic and global economy trending towards a lower “visibility” and that people work in the UE for many reasons, its future is bright! The second economy itself is a natural phenomenon. Its existence is likely to be permanent and may continue to thrive and remain an important component of a country’s economy both in developing and developed countries.

Macafee (1980) described participants of the hidden economy in groups of labor position by income level. The first one comprises of rich people, or those who are becoming rich. They are active participants and deal with large capitals within or close to the sphere of hidden economy. The second one comprises of poor people, or those who are becoming impoverished. They look for supplementary incomes in order to prevent further impoverishment.

The greatest part of the participants in the hidden economy are either hired workers or self-employed. The distinction between hired workers and employers forms two groups who considerably differ in; positions in the hidden economy, motivations for participation and the amount of earnings, etc.

It is generally accepted that the middle class group is not an active participant. They do not experience serious financial hardships, and are capable of earning relatively sufficient incomes in the formal economy. They also consider that the possible risks/fines included/ are higher than the possible profits”.

Both the poor and rich people would face more opportunities of underground activities in the future. The “richer ones” possessing both tangible and non tangible skills are critical element of economic performance, could be the leading

incentives for underground activities. The profits gained by the richer over the poorer groups, if large enough could distort income distribution in the country, that may be responsible for a widening income disparity, though there is no proof of causality.

In developing countries, the creation of smaller enterprises would initiate the informal sectors to support the larger ones, representing potential areas for job creation and poverty eradication. It is often a key tool in developing country with policies to increase employment and personal incomes. In a situation of population growth outstripping formal job creation, the informal sectors provide potential areas for job creation to eradicate poverty.

Whereas for developed countries the growing business complexity and innovations such as the rising use of electronic transactions in internet and e-commerce sales accelerates e-commerce sales of goods and services. In today's hyper connected world, for instance the electronic transfer of funds makes financial recycling (money laundering) easier, puts a progressive future for underground activities. As cyberspace businesses are paperless, borderless and voluminous, with securities leaving "invisible" business trails, tax non compliance is likely to increase and challenging the traditional tax law enforcement, (Owens, 2006).

Its security makes it difficult to quantify, thus, challenges business trails and traditional tax law enforcement. The source of income and the residence concept which are the key principles in taxation when in the cyberspace has become borderless (Sithamparan, 2005).

The increasing complexity of financial crime, such as computerized related fraud challenges enforcement agencies. The economics of criminal activities are strong incentives for money laundering of cash proceeds from illegal activities. Bruce Zagaris (1997) points out that an important component of the UE in United State is more money laundering. The increasing ability to communicate and the electronic transfers of funds make money laundering an increasingly easy service for the UE. The “transformed and recognized” legal income is a phenomenon of organized crime which may involve further tax evasion or false accounting” (Bawly 1982).

2.6 Theory of Second Economy

Studies on the subject of UE had developed based on at least three basic theoretical literatures concerning rational decision (benefits and risks of crime), attitude (public choice social interactions and “spiro” habits) and economic theory (production and tax evasion).

The Public Choice theory emphasized that people employ rational thinking when making decision. In general people would maximize any accessible facilities for private profit as their primary interest. In this case, people would opt out of the official economy and employ any available opportunities to work in the UE for private benefits.

The economics of crime model indicated that people would make rational decision, whether to work in accordance with rules or otherwise, by considering the “private benefit” and “private loss” if detected (Becker, 1968). In the case of

UE that evade taxes, the private benefit is take home taxable income instead of sharing it to taxes. In other words, people would reduce earnings to taxes by evading tax rules. They either conceal taxable income or refuse to pay tax. To deter non compliant activities, tax law prescribes a range of penalties (fines and compounds at various stages). To curb tax evasion, tax authority enforces tax law through tax audits that assessed unreported incomes as additional taxes with fines. The amount of fines can be as high as the amount of tax assessed which is the “private loss” as the risk of non compliance.

Manski (1993, 1995, 2000) in relation to theory of social interactions indicated that any decisions made would associate with social and economic constrains, and are set out with expectations and preferences. Naturally under economic constrains, people would be driven for survival to the extent of avoiding rules. Economic constrains that influence people’s behavior are the determinants of UE, They are primarily due to high costs of intensive regulations on taxation, intensive bureaucracy and corruption, (Tucker, 1982; Kesner-Skreb, 1997; Schlosser, 2003). As people enter UE for various reasons, the participants of UE could be in the range of poor to rich people.

The basic economic theory indicates that an economy is a mechanism that determines what, how and when it is produced, Parkin (1990). The UE like the GDP is also consumed, produced, sold and distributed. It is also competitive and hierarchal, as the ultimate economic goal is to make “profit”. Therefore it is also subject to market forces of demand and supply variables, with perceived pressure and opportunity. The common activities of UE and official economy are people

provide services and sell products to earn income, What distinguishes the two are the official economy is “legal” but UE is “illegal”, Wiegand, (1992).

In an economy where business is concerned, traders gain money and consumers get products. In the case of employment, employers pay and employee receives income. From tax perspective, profits and money received in UE and official economy differ in sharing income to taxes. Traders or employees in the official economy complete with taxes paid, whereas traders or employees of UE ends without taxes paid. Incomes of illicit activities are naturally unreported taxable income because people would conceal their illicit activities from tax authorities, as admission of guilt could result in criminal charges.

Unpaid tax is of great government concern because a large tax loss could distort federal account. Taxes paid to the government constitute federal fund to be spent for benefit of the citizens, a form of some contracts between rulers and citizens.

As UE is a latent variable, studies rely on its traces of observable variables which are measurable proxy indicators. The common proxy indicators are tax non compliant and illicit activities; others include high growth of luxury private consumption, high cash in circulation, extreme income inequality and wide savings-investment gap.

2.7 Conceptual framework to estimate the UE that evade taxes

Conceptual framework of this study is based on three groups of participants: individual and institutional tax payers representing private agencies, and government as the stake holder or enforcement agencies. They interact in a circular flow of income and expenditure with income either reported to tax

authority or otherwise. Taxable reported income enters federal account as tax revenue to finance federal development and operational expenses.

The tax payers would either comply or not with tax rules, gambling between private benefit and enforcement risk. It is based on the concept that people would opt out of the official economy and enter UE if the environment is conducive for UE activities (high UE determinants, low deterrence and weak law enforcement).

Unreported non taxable income is not of concern here as it does not represent UE that escape tax. The estimate concerns unreported taxable income and unpaid tax assessed to estimate UE that escape taxes. This potential tax loss could be recovered by law enforcement, usually tax audit. To curb the UE, government must interact through enforcement of law (Bhattacharya, 1999).

Figure 2.3 illustrates the circular flow of the reporting of people's income to tax authority. Assuming that activities of the second economy escape GDP measures, the national potential economy would constitute the official economy (observable as GDP) and the "second economy" (non-observable or hidden). Then the unreported taxes could be used to infer the second economy, the reported tax infers the official economy and the sum of the reported and unreported taxes infers the potential economy or the actual economy.

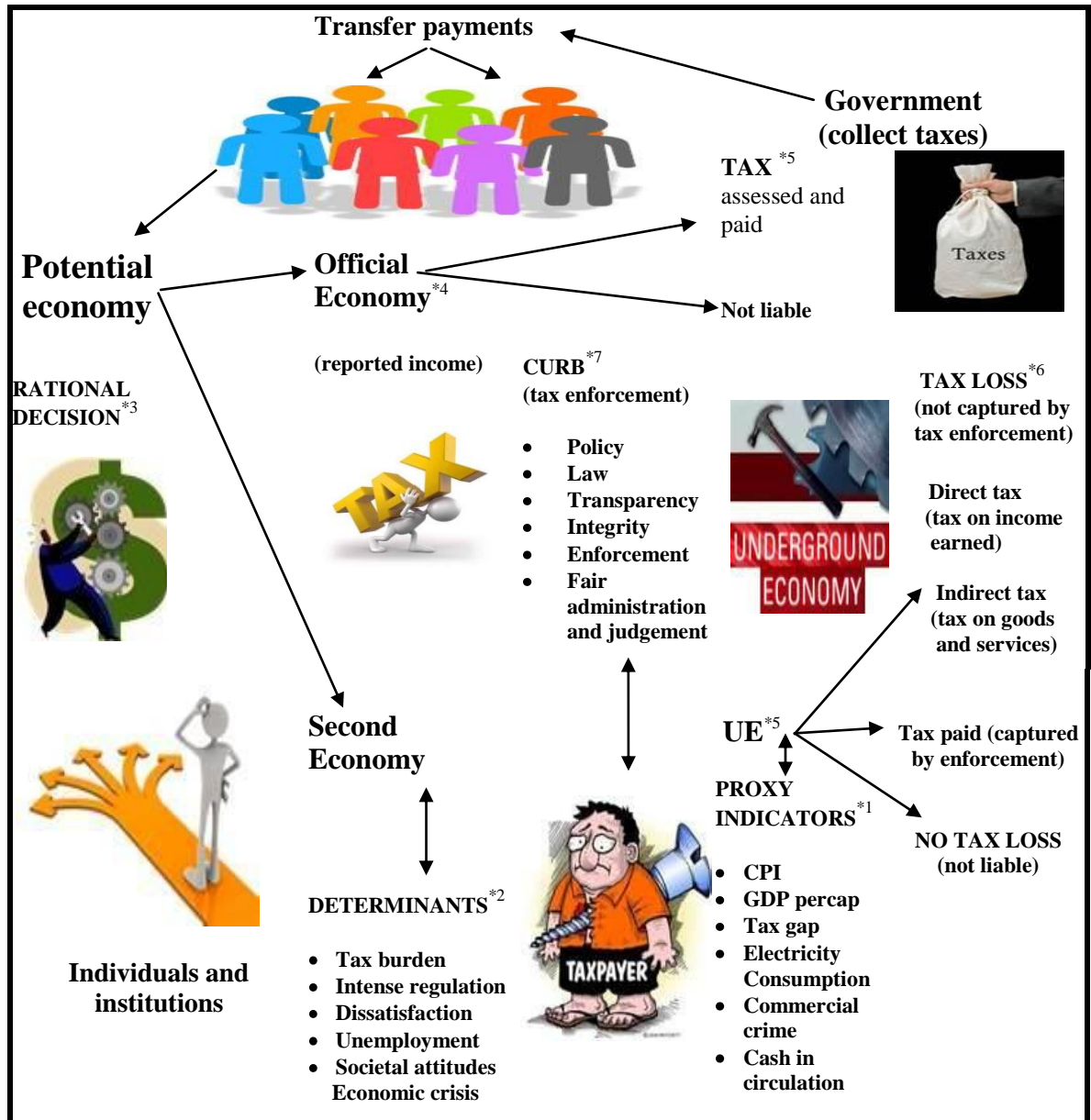


Figure 2.3: Theoretical framework of the potential economy, official economy and second economy – adopts the mechanism of economic flow income and expenditure – Parkin (1990).

The UE proxy indicators^{*1} are influenced by UE determinants^{*2}. People make rational decision^{*3} either to remain in the official economy^{*4} or enter the second economy and evade tax^{*5} (UE). The “private benefits”^{*6} (reduce income to taxes) is curbed by tax enforcement^{*7}.

Theories applied for making rational decision^{*3}:

1. Social interactions – constraints, expectation and preferences Manski (1993, 1995)
2. Decision by economic gains – Becker (1968)
3. Determinants of second economy – CPI, taxes, regulations and corruption – Tucker (1982)

2.8 Proxy indicators and the characteristics of the second economy

As the “second economy” is virtually hidden, researchers used proxy indicators based on the belief that it leaves trails of economic agents in various forms of varying qualities which are observable and measurable variables. The common proxy indicators are; unemployment and labor force pattern (Besley, Preston and Ridge, 1997; and Enste, 2003); GDP (Adam and Ginsburgh, 1985; Giles and Tedds, 2002); CPI (Ahiabu, 2006); income characteristics (Gupta, 1992; and Bloomquist, 2003; Dubin & Wilde ,1988); savings-investment gap (Rusenova, 2003); tax evasion (Bhattacharya, 1999); private consumption flow (Gupta, 1992); corruption (North, 1990; Levenson & Maloney, 1996; and Friedman et. al (2000); electricity consumption (Lizzeri, 1979; and Kaufman & Kaliberda, 1996); and high level of circulating cash in large denomination (Bawly, 1982).

Tucker (1982) indicated that its related activities are voluminous -ranging from household; to tradesman; and to criminal activities such as bribes, drug offences, prostitution, human trafficking and gambling. He proposed that the size of second economy approximates the sum of legal and illegal transactions involving cash, cheques, bartering of goods and labor undetected by conventional statistics. The

2.9 Income characteristics of UE

Many researchers divided the second economy into several components based on type of activities as proposed by Carter (1984), Pissarides and Weber (1989), Bhattacharya (1999), Schneider and Enste (2000) and Hesam (2003). The main components are the informal economy and UE. Most studies revealed that a

portion of second economy that evaded taxes is the UE. As fiscal impacts of UE are taxes, tax non compliance cases are appropriate samples for estimating the size of UE that escape taxes. The characteristic of UE must be examined to suppress its growth as it could distort federal account.

2.9.1. Income distribution

Since people in the UE escaped regulatory expenses, working in the UE could be more profitable than in the official economy. In addition to this profit, criminal activities are likely to transfer more money from the poor to the rich as the poor are desperate to earn money by chance to the entrepreneurs who take the opportunity of cheap labor to operate. The amount of profits differs at different operation depending on efforts, skills and opportunities.

The economic globalization associates with the increase of wage gap between skilled and unskilled workers. Considering participants of UE extent from the poor to the rich, differences in profitability levels increased skew income distribution which could have partly worsened income disparity. “An unfair competition and different level of opportunities if large enough could contribute to a wider income disparity” - Lundberg and Squire (1999). He asserted that the cost of adjusting to greater openness was borne by the poor, regardless of how long the adjustment takes. Among studies that show UE associate with income distribution are:

- Ehrlich (1973) indicated some positive correlation between income inequality and incidence of crime on personal property which they attribute to a lack of economic opportunity.
- Gupta (1992) concluded that unequal income and wealth distribution have

grown overtime because black incomes are relatively more unevenly distributed in favor of the rich.

- Milanovic (1999) showed that international Gini coefficient had increased from 5.5 to 5.8 between 1988 and 1993.
- Worsham (1996) described the distribution of unreported income is of left skew as tax payers may feel that it is acceptable to under report small amount of income.
- Bloomquist (2003) by regressing the shadow economy of 23 developed and developing nations on their Gini Coefficients showed that income inequality associate negatively with visibility of income transaction.

In terms of taxable income, the proportion of unreported income is higher in the upper income bracket. In the last 2 decades, the top 5% of the United State taxpayers with the highest reported taxable income (AGI) accounted for over 77% of the increased in non matching income. The widening variation in tax payer incomes and the associated decline in transaction visibility could be the contributing factors to the rising unreported income (tax evasion) and the trend of widening income inequality.

- Farzanegan (2008), pointed out smuggling activities (evading indirect taxes) could also affect GDP and income distribution.

2.9.2 Income level

With the exception of Christian (1994) who indicated that higher income households report a higher fraction of their income than lower income households report, most studies revealed positive association between UE and income level.

There are some consensus views that tax evasion increased with income levels and the notions that high tax burden (tax rates) increased tax non compliance.

Clotfeler (1983) based on tax return data for the U.S, found a negative correlation

between marginal tax rates and tax reporting compliance. Christian and Gupta (1993) showed income level correlated negatively with tax evasion. Schneider and Enste (2000) and Slemrod and Yitzhaki (2002) supported the positive income level relationship using survey techniques. Jackson and Milliron (1986) explained the positive association between tax evasion and progressive income tax structure as due to taxpayers realised greater dollar return by evading taxable income.

Frank and Dekeyser-Meulders (1977) indicated that high income professionals practice extensive tax evasion in Belgium. Allingham and Sandmo (1972) reported that tax payers who evaded tax most were from the lower and high income tax group. Mork (1975) by comparing the reported income levels from interviews with the income declared on the tax returns of the same individuals, found that the proportion of reported income declined with income rises. Wallschutzky (1984) showed that high income earners in Australia were more prone to evade taxes. Witte & Woodbury (1985) found that better educated areas had generally low levels of compliance, suggesting people evade based on knowledge of evasion.

2.9.3 Type of income

UE was also found to be more prominent in certain profession, economic industries and business sectors, based on the common type of unreported taxable income. Feldman and Slemrod (2005) showed that there was a significant variation of tax non compliance across income source. Bloomquist (2003) explained the positive correlation between high income level tax payers and the percentage of misreported income as partly due to types of income received,

generally of low transaction visibility. Tax evasion was higher in “self employment” compared to regular employees; higher in businesses with more tax grant; and lower with income subjected to withholding tax system.

Income of self employment was often found not reported to tax authority as the nature of self employment allows more opportunities to evade taxes. Among analyses of unreported taxable income by profession implying that self employed people are common participants of UE are as follows:

- Sandford (1973) explained the reason for higher non compliance as the self-employed have higher tax compliant costs (time and money). So a smart step to boost up “private gains” is to reduce tax liability.
- Vogel (1974) showed that self- employed Swedish tax payers were more likely to agree that tax revenue was used unwisely and that the burden of taxes was too high. He also showed that those who reported an improved economic status are practicing more tax evasion than those who reported deterioration in economic status. He concluded that a change in economic status could sometimes be a consequence rather than a cause of tax evasion.
- Wallschutzky (1984, 1985) in a survey on Australian tax payers, showed that the self employed, independent traders and farming had the greatest opportunity to evade tax.
- Income of self employment or business subject to lower compliance compared to incomes from salaries (Madeo, Schepanski & Vecker, 1987).
- Dubin and Wilde (1988) indicated that the findings of lower compliance in self-employment and unemployment but higher in employment could be considered for controlling audit probabilities.
- Mirus and Smith (1997), Pissarides and Weber (1989), Apel (1994) indicated that in the U.S., U.K., Sweden, and Canada respectively, only

60% to 80% of income in the self-employment sector was actually reported to tax authorities.

- Wahlund (1992) in his survey on Swedish tax payers, asserted that the self employed evaded taxes the most because they had more opportunities.

UE was commonly prominent in certain economic industries and business sectors as tax evasion propensity varies with income type and economic sector. Among tax non-compliance studies indicating selective economy are:

- A study by Inland Revenue Service on United States 1978 tax data, based on sample of workers, reported that certain industries are prone to income tax evasion than others, besides the influence of cash transaction and the imposition of withholding tax system.
- Other government and academic studies had also affirmed the positive relationship between transaction visibility and reporting compliance, (Klepper and Nagin, 1989; and Andreoni, Erard & Feinstein 1998).
- Versace (1998) reported that 25% of Ontario's Construction 1998-2000 employment involved activities of UE. About 56% of the tax loss in construction industry was due to unreported income. The costly recruitment of foreign workers and extensive regulations, are the disadvantages of hiring illegal foreign workers. Employment the latter is cost advantage, due to informal jobs are not subjected to any regulated costs.
- Kasipillai (1998) pointed out that as construction industry in Malaysia relies heavily on foreign labors, it is likely the highest hidden industry.

UE that escape taxes is influenced by the tax system itself that allow employment of creative accounting either through omission of taxable income, claiming fictitious tax deduction and refusal to pay taxes. Among related studies are -.

- Clotfelter (1983) based on tax audits of stratified sample of the United States showed that taxable income allowing deductions displayed the lowest compliance rate. He concluded that tax compliant rates vary widely across income sources and also across income with various tax deductions.
- Cowell (1985) emphasized that there were more opportunities to evade income that was not subject to tax withholding. The recent trend of rising tax non compliance could be explained by a consensus views that evasion propensity varies inversely with transaction visibility.
- Analysis of audited tax returns found higher tax rates of voluntary reporting compliance for income subject to 3rd party reporting and withholding than income not subject to information reporting (Internal Revenue Service, United States, 1996). It implies that if other things being equal, having more income subject to information reporting could generate more compliance and a declining share of income subject to information reporting generate a trend of rising non compliance.

2.9.4 Unemployment rate or changes in employment

UE could be influenced by changes in employment rate. Situations of any decline participation of official employment or changes in the employment sectors (shift from employees to self employment or employed people with more than one job) were seen as opportunities of tax evasion. With the exception of DeLong (2010) who argued that the unemployment factor may be uncertain as it could be cyclical or “structural”, most studies implied that there was a positive correlation between

UE and labor force participation rates. The consequence of this association is that the measured unemployment may be lower than actual. The employment rate may be higher than actual, because labor force participation is a mix between official economy and UE. Among related studies are:

- O’Neil (1983) assumed that UE increases when the ratio of employment to population decreases assuming that the ratio of labor supply to population is relatively constant.
- Lemieux et al. (1994) based on a survey in Quebec City found high substitution and high mobility rate between labor market activities both in the official economy and UE.
- The average worker in the UE was also found to hold a regular job in the official economy (Dallago, 1990 and Mogensen, 1995).
- Besley, Preston and Rodge (1997) on the investigation of poll tax compliance in England showed that economic hardship may have been a factor in poll-tax non compliance since unemployment associates positively with non compliance.
- Stulhofer (1997) puts the unemployment pressure to the spread of informal economy in explaining the process taken in transition countries. A mismatch structural unemployment that cannot be alleviated by policies could have boosted the aggregate demand for informal employment.
- Enste (2003) showed that an increase in unemployment rate would cause the hidden economy to increase.
- Richard Du Boff (2004) reported that the sign of “hidden unemployment” is an indicator of increasing size of hidden economy in the United States. High unemployment rates are incentives of underground activities for two reasons; first those who lose official jobs may be able to find work in the UE; second those who are unable to find job in the official economy have no choice but to participate in the UE for survival

2.9.5 Income of illicit activities

Commercial illicit activities are commonly known as the “black economy”, a portion of UE. The notable illicit incomes are of drug trafficking, human trafficking, piracy, financial frauds, black market currency and prostitution. These activities have been reported to provide lucrative business that competes with the production of legal activities and facilitates other activities of UE.

For instance, there are anecdotal evidences of the ability of illegal black market currency transactions to reduce the transaction costs of obtaining foreign currencies and provide hedge against fluctuations in the value of the domestic currency. On the other hand, in situation of high demand of currencies, operators of underground foreign currencies could make huge profits from sales of high price currencies than the formal price ceiling. In this case, profits of UE could contribute to an “unfair wealth”. Among studies on type and effect of illicit activities are:

- Zagaris (1991) indicated that illegal trade in human beings in the form of illegal immigration grew rapidly and may be the most profitable underground activities.
- The illegal activities have also been reported to further accentuate the prevailing disparities in the distribution of income and wealth, (Gupta, 1992).
- As cited by Campbell (2003), based on the findings of Schlosser (2003) - the three basic industries that account for the major portion of the illegal markets are sex, drug and cheap labor both in the 1930s’ and now. In the 2000s, Marijuana, pornography and illegal labor formed a hidden market

in the United States to as large as 10% of the American economy. Since, in a situation when much is wrong, more is needed to be hidden, then the UE is an indicator of the progress and health of nations.

2.9.5.1 Bribery

Corruption is the act of bribery, often used to measure poor governance performance as it hampers democratic process, sustainable development and fair business practices. The widely used definition of corruption is the abuse of public power for private benefit (Tanzi, 1998) or the misuse of entrusted power for private benefit. It is an insidious crime, classified as a crime of knowledge, opportunity and environment or attitude, which if allowed to foster, may lead to a destruction of the society.

In principle, corruption is an “unofficial tax” on consumers and producers. Petty corruption imposes disproportionate costs on the poor but grand corruption in a situation of making super decision with high discretion, could destroy the nation economy and impoverish the entire population. The discretion power creates opportunity of evading rules, depending on the behavior, attitude and law enforcement. Non-compliance are indicators of accountability collapse and poor integrity. Hence many researchers agree corruption is one of the indicators of UE, and view a rampant corruption in a country, as important determinant for large UE.

Corruption activities in many UE studies were discussed either as a causal variable or as effect or an indicator variable, due to its very secret activity hence difficulty in detection.

Theoretical approaches support the notion of corruption as a cause rather than a consequence of shadow economy. Whether corruption is rent creating (expensive and corrosive to growth) or a profit sharing (corruption that promotes growth), considering the negative impacts of heavy prices it carries, in the long-run, both could undermine the official economy and distort equitable income distribution efforts at poverty reduction (“unfair profit”).

Significant correlations were found between high levels of corruption and a range of negative economic impacts such as; inefficiencies in the operation markets; distortion of the composition of public expenditure, reduction level of investment due to “unnecessary costs” as investors seek comfort, governance and accountability. Among related acts of bribery are as follows:

- Approximately 10% to 20% of the increase in price of goods were reported due to corruption, while some studies in several Asian countries indicated that government incurred 20% to 100% more on goods, (Dieter Frisch’s report in Wall Street Journal 1986).
- Gupta (1992) reported that one of the mechanisms of black operations in India was due to bribery and political corruption.
- Kesner- Skreb (1997) emphasized that corrupt state, nepotism and inexperience was the cause of the hidden economy to grow.
- Wei (1997) pointed out that “corruption is much more taxing than taxes because corruption unlike tax is not transparent, not pronounced and carries a much poorer enforcement due to a secret agreement between briber and bribe. In other words, corruption embeds arbitrariness and creates uncertainty”.
- Riley (1998) reported that ‘grand scale corruption had been identified in

the procurement and in the award of large public contracts, in particular, in road building and public construction. An assessment of 24 construction contracts showed substantial costs overruns, and corruption was considered to be the major contributor to this outcome.

- Johnson et al. (1998) and Friedman et. al. (2000) also showed some evidence of a significant relationship between corruption and hidden activities.
- Rose-Ackermann (1999) and Tanzi (1998) indicated nearly 50% of the variance among the sizes of the shadow economy can be explained by corruption indices.
- Schneider and Enste (2000) emphasized that corruption had a positive impact on the size of shadow economy, and a growing shadow economy had a negative effect on GDP growth.
- Corruption resulted in projects which are unnecessary, tendering uncertainty, unreliable and over-priced projects, distort project opportunities and reputational risk. All accumulate to loss of quality life, poverty, economic damages and underground activities, Transparency international (2009).

2.9.5.2 Frauds, criminal breach of trusts, forgery and cheating

Credit-card, computer and internet frauds, criminal breach of trust, forgery and cheating are among the common financial crime on the rise. Element of frauds include; false representation of material nature; knowledge of false or reckless disregard for the truth (Scienter); reliance on the false representation by the victim; and financial damages incurred to the benefit of the perpetrator. Whereas criminal breach of trusts is meant by persons dishonestly misappropriate or convert their own use of the property which comes to their possession in good faith which they are entitled in their course of their normal duties. Forgery is an

offence where the relevance documents, records may be distorted and falsely presented to achieve wrongful gains. Fraudulent or dishonest acts by concealing certain facts are deception and usually classifies as an offence of cheating.

Incomes of these activities are not likely reported to government agencies including the tax authority to avoid detection, thus they are important component of UE. Criminal studies indicated that people are 80% likely to commit these commercial crimes when four conditions exist; pressing financial need; opportunity; reasonable justification and lack of moral principle. The remainder 10% is honest and the other 10% is dishonest. Yet these activities were reported difficult to suppress as the fraud perpetrator is often an ordinary member of the community, intelligent, respected and never been suspected of dishonesty.

2.9.5.3 Drug trafficking

Drug menace is viewed as the initial cause of socio-economic problems, extent from human development, to political progress, and national defense. Bruce, and David, (1991) contended that drug menace initiate both property and violent crime as drug users tend to rob in order to finance their addict habit while drug traffickers tend to cheat for profit and even kill for protection.

In Malaysia, the drug abuse problem began to escalate in the early 1970s and there was a rapid growth of drug dependence problem in Malaysia. There were 100,731 drug addicts and the number of new cases uncovered grew year on year. The prevalence rate of drug-dependence person per 100,000-population increased from 84.3 in 1976 to 754.6 in 1986, a 111-fold over a decade. The rise was likely to associate with the availability of drugs.

Drug trafficking are now organized in powerful illegal syndicates that respect no borders and laws. Drug money arises from narcotics trafficking (or psychotropic substances) and the illegal production of drug activities is widely suspected of providing lucrative source of income and keeping illegal economy afloat.

Offenders are bound to conceal the income of drug trafficking to escape the fatal drug law. Hence, income generated from drug activities is likely an unrecorded economy. Drug money is an important UE component as cited below:

- Approximately 60% to 70 % of other criminal cases in Malaysia were related to drug offences, and Prison Department statistics also showed that 46% of convicts were drug offenders, (Navaratnam & K. Foong, 1989).
- The use of drugs is widespread among teenagers and prostitutes while local leaders, government officials and influential figures had been revealed as traffickers" (*Bangkok Post*, 30 June 1997).
- Campbell (2003) indicated that the shadow economy will continue to thrive as long as marijuana and pornography remain illicit. "Drug trafficking is a major cause of unrest and social and economic problems in southern border provinces".“

2.10 Proxy indicators of UE

Past studies have examined UE through related observable economic traces. Assuming that they are identical they should mirror in the growth and characteristics of UE.

2.10.1 Tax variables

Tax is the common proxy indicator of UE. Among empirical studies that relate UE to taxes are:

- Feige (1989) showed tax non compliance as proxy indicators of UE.
- Giles (1999); and Giles and Tedds (2002) highlighted some relationship between UE and tax mix.
- Graetz (1999) showed positive association between UE and growing tax complexity.
- Schneider and Enste (2000) explained positive association between UE and the rising tax.
- Forest and Shefrun (2002) elaborated the relationship between tax law complexity and perception of unfairness.
- Kim (2003) described positive association between UE and declining transaction visibility, as well as trend of widening income inequality.
- Slemrod (2007) indicated tax evasion as a complement estimate for UE.

Other important clues are the findings of Giles (1999) on the relationship between tax mix revenue (i.e. direct and indirect taxation as a share of total taxation) and size of the hidden economy in New Zealand. He concluded that –

- A decrease in tax to GDP ratio from its current level slightly reduces the hidden economy to GDP ratio.
- An increase in the production of indirect tax to direct tax from its current proportion reduces the size of hidden economy.
- The introduction of “good service tax” (an indirect tax) in 1986 had a

noticeable impact in reducing the size of the hidden economy in relative to GDP.

- However, if the government were to reduce tax rates to zero, the hidden economy would still remain at 4% to 4.5% of GDP
- The economic growth rate, unemployment, inflation and government regulation are significant contributors to hidden economy.

In a later study, Giles and Tedds (2002) showed some empirical evidence on the association between tax mix and the size of hidden economy. The shift of tax structure to personal income taxes and away from indirect taxes such as “goods service tax” and corporate taxes, notwithstanding their problems in the early 1990s, is more likely the reason for the increased of hidden economy in Canada. He proposed that the hidden economy is about 2.5 times more responsive to changes in the effective personal tax rate than to changes in the effective indirect tax rate. It is about 10 times more responsive to changes in the effective personal tax rate than to changes in the effective corporate tax rate. He suggested that changing the tax mix more towards indirect taxes such as the “goods service tax” and more corporate taxes, and away from personal income taxes, played an important role in constraining or even shrinking the hidden economy.

2.10.2 Direct tax evasion

Why tax evasion is commonly used as the proxy of UE? As people who do not comply with rules do not want to be detected, they would naturally conceal income of hidden activities. In this case they do not report the income of UE activities to tax authority. The theoretical relationship between tax evasion and UE is that both evade tax law, as participants of UE would conceal their activities

from any authority to avoid detection and faced allegations on other offences. Therefore they both impair the distributional quality of the tax system by depriving tax revenue and consequently skew allocation of resources towards non productive economy. Their common characteristics justify that tax evasion is a popular complement measure to estimate the size of UE.

Taxes are often viewed as force extraction on earnings from private to public sector. Tax liabilities are additional cost of doing business or accumulating wealth. As people would naturally prefer higher take home income to sharing with taxes, reducing tax liability for “private benefits or wealth” is a common practice. The term for activities of reducing tax liability for private benefit is studied as tax non compliance. It includes analysis of the factors behind tax evasion activities and the measurement of revenue loss resulting from tax evasion. Cuccia (1994) defined tax non compliance as tax evasion. It is a failure to report taxable income to tax authority and is believed a major component of UE. In other words, it is the employment of illegal methods of reducing tax liability than what it is legally liable due. The actual taxable income is reduced either by omitting or under reporting income or over claiming expenses (fictitious or unallowable expenses or claims) or inflating deductions or overstating allowances or in the extreme case by failing to file appropriate tax returns when required by law.

The unreported taxable income could arise from legal activities or illicit activities. People dealing with illegal enterprises and illicit activities often concealed their income from tax authority. They evade taxes because reporting their true personal incomes would serve as an admission of guilt resulting to criminal charges. While

reporting illegal earnings as legal source could expose them to money laundering charges. Among studies that regard tax evasion as reflecting the UE are as follows:

- Castells and Portes (1989) indicated that the informal economy constitutes illicit forms of work outside the regulated, economy, where individuals are working in an unregulated and non-state sanctioned environment. They typically either omit entire or a portion of taxable income on tax returns and often evade other regulations stipulated by regulatory agencies such as applying for permits and buying insurance.
- Miller (1996) emphasized that “the UE forms part of the economy that does not pay taxes, so is not directly measured by government statistics. It consists of individuals who engaged in illegal activities such as prostitution, gambling and drug trafficking. The same analysis holds for anyone who works and does not report income earned”.
- Schneider & Enste (2000) and Silvani & Brondolo (1993) provided some empirical evidence of the association between the size of informal economy and tax evasion. Bolivia which had an informal economy share of approximately 65% of GDP, experienced value added tax evasion of about 45% of GDP, while developed countries like New Zealand, which had a low share of informal activity of about 12%, had a much lower tax evasion, close to 5% of GDP.

Among studies that employ tax evasion to estimate the size of UE are as follows:

- In fact Tanzi (1983) defined income produced in UE would evade any form of taxes. Therefore, the size of UE is an indirect indicator of the magnitude of tax evasion.

- Tax evasion could be estimated by the difference between the taxable income calculated by audit and the amount calculated by individual (Clotfelter, 1983).
- Slemrod (2007) reported that understating income and overstating deductions constitutes 80% and 20% tax evasion respectively. The relatively large proportion of understatement of income offers some comfort in assuming that UE estimates derived from tax evasion are largely value added income rather than redistribution income.

2.10.3 Direct tax gap

Tax gap is defined to consists of a wider scope of activities of tax non-compliance than tax evasion. Among definition and concept stated in literature are:

- According to Hessing, Elffers and Weigal (1988), tax gap represents the intentional actions by which tax payers illegally fail to report or/and pay legally due obligations. On the tax payer's side, it is the difference between tax owed and tax voluntarily reported or paid on time (gross tax gap). Whereas for the government, it is the difference between the amount of tax revenues due to fiscal authority and the amount of tax revenue actually collected at any time. So, the net tax gap is the gross tax gap in any tax year less payments for that year's tax liability that come in later through either voluntary late payment or enforcement activities.
- Singh (2003) described tax gap as due to failure of performing a timely filing or submission by tax payers of all required tax forms including inaccurate reporting of tax liability (due to understatement or overstated expenses) in accordance with tax laws, nonpayment or underpayment or late payment on tax due.
- Toder (2007) illustrated the three components of tax gap as consisting of tax evasion (under reporting of taxable income), non filing of tax returns (non reporting of taxable income) and unpaid tax (under and non payment

of taxes). The under reporting gap is the tax owed by taxpayers who file returns on time, but under report the amount of tax they owe. The non filing gap is the tax not declared and not paid on time by tax payers who have a legal requirement to file a tax return, but do not file on time. The unpaid gap is the loss of revenue owed by taxpayers who declare taxable income on time, but do not pay their reported tax due on time. Hence, the coverage of tax gap is of a wider tax non compliance than tax evasion.

2.10.4 Indirect tax evasion - smuggling activities

Smuggling may be defined as the clandestine import of goods from one jurisdiction to another or as the evasion of taxes on goods circumvention of border controls (Merriman, 2003). The income of smugglers is from activities of importing of goods through state border by violating the state rules, regulations and related costs (Lithuanian Free Market Institute, 2004). Smugglers would not likely to report income of sales of smuggled goods to direct tax authority to avoid detection of illicit activities. So, income of smuggling activities escapes both indirect taxes and the direct taxes, the components of UE.

According to Zagaris (1997) smuggling activities have been facilitated by the complex and increasing amount of international trade of the major industrialized nations. So, it is likely that smuggling activity is a growing UE component.

Growth of smuggling activity is known for its support from both the supplier and the consumer of smuggled goods. Both participants have a common objective - to maximize private benefit. On the demand side, the consumer prefer smuggled goods because they are cheaper and perhaps more “accessible”. On the supply side, the trader sells smuggled goods at lower operating cost because the goods

were not routed through custom ports. Compared to sales made in the official economy, smugglers may make an “unfair profit” as no custom duties and taxes were paid. A substantial size of smuggling activities reflects an unfair tax burden and unfair wealth. It eventually distorts income distribution, as it is partly a contributing factor of income disparity and “spendthrift culture”.

The imposition of high taxes on certain goods or services is to suppress supply and demand of official goods. But its shortage encourage alternative supply (the smuggled goods), thus high taxes are incentives of smuggling activities, a component of UE. Among studies that indicate smuggling associate with UE are:

- Becker (1968) on the study of criminal behavior predicted that the increase price of goods due to high tax rates is inadequate to suppress the demand and supply of certain goods. “Social habitual” naturally associates with “needful relief or entertainment” that may come from “social constrain” or affluent sections of society whose income and wealth has grown rapidly. Conflicts between sanctions and “needful habits” create excess demand over supply, that drive people to opt out of the official economy.
- Farnazegan (2008) showed that smuggling activities correlate positively with taxes, trades and policy restrictions, and negative moral attitudes. He corroborated on the restriction on the movement and prices of goods between international and domestic borders through customs and excise duties, as state intervention that creates incentive for UE.

2.10.5 Electricity consumption as economic physical resource

The growth of electricity consumption reflects economic growth because energy is required for the production of goods and services consume energy. Besides reflecting economic growth its consumption also attributes to an increase of population and dynamic development of electrification and electric-based technologies. Nevertheless, electricity consumption is commonly used as indicator of economic growth because it is more versatile, convenient and transportable energy source than other physical sources such as gas and petroleum.

Electricity is consumed both in the official economy and UE. If electricity consumption of the official economy is known, any excess of consumption of electricity must have been utilized in the “second economy”

Lizzerri (1979) was among the first to initiate electricity method to estimate the size of UE. Kaufmann and Kaliberda (1986) estimated the size of UE using physical resource method assuming that electricity consumption is proportional to economic output.

Economic growth of developed and transition countries is elastic to electricity consumption (approximately unitary - observed as close to one), Johnson et. al, (1997). Significant electricity consumption in Malaysian economy had been indicated in Tang (2008, 2009), but not elastic. There was significant evidence of positive co-integration between electricity consumption and; GDP; foreign direct investment; and population.

2.10.6 Cash in circulation as medium of transactions

Cash in circulation is defined as the quantity of money outside the banking system. The quantity theory states that quantity of money reflects its primary growth. When prices are assumed to be more flexible, its persistent growth in long run, would lead to prolong inflation, (Duck, 1993; and Ball and Mankiw, 1994). The classical theory of economy indicates that quantity of money associate with nominal variables but not real variables. As real variables are mainly suppressed by CPI, cash in circulation increases with CPI.

Cash is also widely accepted as a medium of exchange in economic transactions. It is the preferred mode of payment in the UE to avoid detection as it leaves no paper trails. Both inflation and UE influence the liquidity positions of the economy. Thus, a large amount of cash held by individuals is likely a consequence of inflation and reflects a flourishing UE dominated by cash transactions.

Among studies that indicated cash associate with tax non-compliance and UE are:

- Bawly (1982) showed that cash transactions are common among moonlighters (freelance or part time workers), small business people and other petty evaders.
- Witte and Woodbury (1985); Smith and Kinsey (1987); and Madeo, Schepanski and Uecker (1987) indicated that tax non compliance among small business owners operate in cash money.
- Rogoff (1998) estimated that notwithstanding the advent of cashless society in the United States, the currency circulating outside the banking system in 1996 has reached to about \$1,500 per American. He reasons this

puzzling phenomenon as an evidence of a flourishing UE. The increased circulation of high denomination notes has also been cited as further evidence of a flourishing UE.

- Feige (2000) indicated that cash transactions in the UE are dominated by the largest notes available (\$100 US bills)

2.11. Determinants of underground economy

The UE literature has put forward a range of socio and economic constraints as the determinants of UE. The determinant variables influence the UE either in the presence or absence of stimulating factors that provide an environment that is conducive to evading law. The common determinants are; tax burden, tax system and tax morality (Johnson et. al.,1998); bad equilibrium consisting of massive regulatory codes, high price rules or weak enforcement rules (Johnson, Kaufman & Schleifer, 1997; Kesner-Kreb, 1997; and Franieviae, 1997); high growth of unemployment rate (Enste, 2003); “invisibility” of occupational type (Pestieu and Possen, 1991); high inflation rate which is the CPI (Fishlow & Friedman, 1994; and Ahiabu Stephen, 2006) and; negative societal attitudes such as public disenchantment with the state, corruption, nepotism and in expertise (Friedman et. al., 2000; Reinikka & Svenson, 2003; and Franievae & Skreb, 1997). Among important studies are as follows:

- Guttman (1977) had expressed several exhaustive set of reasons for the incidence of the second economy (determinants of UE) which he termed it as a subterranean economy. “The rise of inflation pushes the taxpayers into higher income brackets who in turn shifts this burden (the cost of

inflation) onto the government by getting off-the book-income. The immensely complex tax system which require inordinate tax-payer time, paper work and expense. The increase in the size of government which leaves smaller share of national output for direct consumption by wage earners. Perception of government as wasteful and inefficient by the public making inadequate use of their hard earned money”.

- Becker (1994) stated the reasons for the growth as due to increased in taxation, regulation, immigrants and criminal markets. The tax burden and social security payments are the major forces of shadow economy, but caveat that any major tax rate deductions would not lead to a substantial reduction. A lower tax burden will only stabilise its size to avoid a further growth.
- Schneider, F. A. Buehn, & C.E. Montehegro, (2010) on a study of estimation of size of UE over 162 countries using MIMIC modeling indicated that the main driving forces are increased burden of taxation, labor market regulation, the quality of public goods and services and the state of the official economy

2.11.1 Tax is a cost

Tax is parting of one's earnings, calculated according to predetermined criteria, without reference to benefits actually received from public and reducing the private funds which would otherwise be available for spending.

The qualities of equity and fairness are not distinguished in taxation from outright confiscation. Yet tax is a compulsory transfer of resource from private to the public sector.

In view that tax is an additional cost of doing business or to accumulation of wealth, parting income to taxes is felt a burden expense. It is an unfair liability especially when taxes are seemed disproportionately high compared with income

earned. Naturally people prefer higher “take home pay” (private benefit by evading taxes) than sharing income to tax. They employ tax evasion which is a common characteristic of UE. Taxation has been discussed widely as the major determinant of UE. Among related studies are as follows:

- Tanzi (1980) highlighted taxes and restrictions are the two main factors that cause the UE to grow, which either one is sufficient to bring about a substantial amount.
- Tucker (1982) further showed that tax evasion associated with economic factors such as imposition of taxes, government regulations, prohibitions and reporting requirements.
- An increasing burden of taxation and social security payments, combining with the rising state regulatory activities and labor market restrictions (e.g. forced reduction in working hours) were the major forces that could account for the size and upward trend of the shadow economy in the OECD countries, (Schneider and Enste, 2000).
- Slemrod & Bakija (2001) were of the opinions that overtime the ranks of dutiful of paying taxes shrinks with the perception of unfair treatment and being taken advantage of by others.
- Since Forest and Sheffrin (2002) were unable to detect any relationship between complexity of tax law and perception of unfairness. So, they concluded that simplifying the tax code, would not automatically improve compliance.
- Schneider (2002) reaffirmed his earlier view such that even if there is no restriction, taxes alone could contribute to some extend of concealed income from authority. But he caveat that tax reduction will not lead to a substantial decrease of the shadow economy. Tax reduction will only stabilize the size of the shadow economy and avoid a further increase.
- According to Tanzi (1980), Tucker (1982) and Slemrod (2007), the

legitimate activities conducted underground to escape taxation appeared the fastest growing component of the shadow economy, largely because of the tax system.

2.11.2 Government intervention

Government intervention is necessary to suppress UE and reduce its societal economic negative impacts. Intervention could be in the form of allocation of funds to; resources of a strategic law enforcement; imposition of strategic and dynamic rules and regulations; and improvement of “government-citizen-contract-rules” (fair policy and transparent administration).

2.11.2.1 Federal expenditure

Taxes and federal expenditures are the two main economic activities in the public sector. The public sector relies on taxes as the major fund for federal revenue to finance federal operations. The annual federal budget is viewed as a form of public contract between citizens who pay taxes and government on the value of country’s development and public services provided. These include expenses on health care, education, welfare and social services, defense and security, law enforcement and jurisdiction, maintenance and development of infrastructure and respective institutions, of which are crucial importance to the society.

As federal budget is at the expense of tax payers’ money, refusal to meet tax obligations are consequences of tax payers’ conviction that their money is being wasted. Thomas (1991) on the “evasion and balance of payment” emphasized that perception about the public sector for instance if tax payers think that public

expenditure is wasteful or tax burden is inequitably distributed, there will be a tendency of tax evasion.

A sizeable UE is reflected by a substantial tax evasion. It depletes federal revenue and eventually cause fiscal imbalance. Extent of government economic remedial efforts including suppressing the UE is ultimately reflected in the characteristics of federal expenditure and tax expenditure. In a situation of sufficient federal fund or more allocation for federal expense, stimulation of public spending could facilitate an overall economic growth rate.

The consequence of slow growth of federal revenue and faster growth of federal expenditure is federal deficit. A federal deficit instead of surplus budget if large and in long run would result in piling of public debt, drive away investors as they lack confidence on investment returns. Radelet et al. (1997) emphasized that economy in a controlled spending with realized larger surpluses in the federal account grew substantially faster than those with smaller surpluses or deficits.

2.11.2.2 Regulations

Regulations or bureaucratic restrictions are meant to make the economic system work by establishing rules on fair competition, but too many regulations makes working in the official economy more costly than in UE.

Johnson, Kaufman, and Shleifer, (1997) established a model that predicts that countries with more regulations on their economies have larger hidden economy (An increase of 1% index of regulation would cause an increase of 10% of the grey economy. Schneider, (2000) and Friedman et.al (2000) also supported the positive correlation between regulation and UE.

Regulations such as licensing requirements, labor market regulations (eg. minimum pay, security contribution), restrictions on foreigners, and trade barriers (eg. import quotas), all aid in increasing the cost of labor to both employees and employers. In response to costly labor regulation of the official economy, employers would reduce labor force and labor cost. Employees who lose jobs in the official economy would turn to employers who offer informal jobs. The demand for jobs and supply of jobs matches, so both accumulate to a vicious circle of an informal economy.

2.11.2.3 Contract rules

Naturally people would not comply with regulations and law made by government if they are not happy with the government. Based on this criterion, people would opt out of the official economy and enters the UE when they loose confidence on government performance. UE is viewed as a negative perception of the public – an expression of citizen’s dissatisfaction in the public services received.

Federal administration is a form of contract rules between the government who provides services and facilities to citizens in exchange for their tax payments. Refusal to taxes reflects a default “contract between government and the citizen”. On the other hand, paying taxes and fees are acceptable in situation of a state that guarantees property rights, provides a good infrastructure and public goods according to preferences of the people. This means that a right combination of state’s efficiency, the quality of institutions and public goods on one hand and taxes and fees on the other is crucial. Corruption, cronyism and cover up have

become a systemic malaise in some parts of the hidden economy as summarized by World Bank country study. Among studies that indicate that dissatisfaction of citizen associate with UE are as follows:

- Guttman (1977) stated that the perception of government as wasteful and inefficiency of employing “public’s hard earned money” (taxes), as one of the reasons for the incidence of subterranean economy.
- Bawly (1982) emphasized that history reveals feeling of hostility as a reaction of public reaction towards perception of “unfair treatment”. Passive resistance, in the form of increasing evasion, is the modern expression of such hostility.
- According to Milton (2002), one concern about government waste is to starve government by reducing taxes.
- Frey and Feld (2002) indicated that people will actively seek out ways to avoid paying tax when there are negative perceptions over fairness of government, and concluded that citizens will evade taxes when psychological contract is violated.
- Braithwaite et. al. (2003) explained that people participate in the underground activities as due to perception of an unfair treatment. Tax evasion is consistent with the percentage of Americans who considered taxes to be unfair, even though tax rates remained unstable.
- Interactions between tax authorities and citizens can be used to guide citizens behavior and on the fairness of tax systems and tax outcomes (Kirchler & Hoelzl, 2006).
- Fitzsimos (2003) highlighted that the upward trend of the hidden economy in developing countries was due to poor justice, poor monitoring and decisions were made based on individual or group interest.
- Winarno (2008) proposed that the ruling administration is among the causal factors of the expanding hidden economy that deprives country’s

revenue in Indonesia.

2.11.3 Economic performance

2.11.3.1 GDP per capita

GDP or GDP per capita income increases are indicators of official economic growth. Economic growth associates with improved living standard, development and increase per-capita income of the citizen. To keep up with life style, people would develop materialistic attitude towards life. This attitude to some extent drives people making decision towards private benefit, usually practicing the activities of not complying with many rules, the UE. Among related studies are as follows:

- The shadow economy was shown to associate positively with economic growths in Belgium, and under certain assumptions an expansionary physical policy has a positive stimulus on both formal and informal economy, (Adam and Ginsburgh, 1985).
- Canada's GDP growth rate caused an increase in the size of UE, where other variables are constant, (Giles and Tedds (2002).
- Similar findings were also found in related studies of Tedds (1998), Giles (1999) and Schneider and Bajada (2003).
- Kelchev (2006) concluded that over the last 13 years, countries have registered that the informal economy grew with GDP.

However, empirical studies do not conclusively explain the association between UE growth and GDP growth. One logic point of view, as the cost of operation and regulations are reduced in the UE compared to official economy, UE is likely

more competitive and efficient economy. UE growth to some extent is redeployed and stimulates the entire economic growth including the official economy. Loayza (1996) found empirical results showing negative relationship between GDP and UE using modeling techniques.

The size of UE as a percentage of GDP varies with economic status. The consequence of inconsistent size of UE to GDP may imposed serious impact. In the case of a consistent UE size relative to GDP, i.e. a constant share of the potential economy. Its existence does not affect economic buoyancy or elasticity. In this context, the GDP buoyancy or elasticity is an unbiased estimate for the “potential economy”.

However, if the size fluctuates within many folds over a period of time, the GDP buoyancy or elasticity is a biased estimate. Derivative estimates formulated based on GDP in the presence of a “second economy” would be inaccurate and policy measures for the potential economy will not be effective. In this aspect, policy must attempt to shift the “second economy” to the official economy.

To shift it, policy measures and effective implementation will depend on the causes of size changes. If the causes are exogenous (e.g. restrictions on entry into formal sector activity and economic hardship caused by a fall in real income) then policy must address the factors that make the “second economy” flourishing. On the other hand, if causes are endogenous (e.g. too many taxes or regulations), then policy must address the structure of taxation or regulations.

2.11.3.2 Inflation

Inflation is a monetary phenomenon (Friedman, 1969). Many researchers concluded that the quantity theory of money and the Fisher quantity equation (inflation moves one-for-one with the growth of money supply) hold up well for long run data. Among related studies are as follows:

- Lucas (1980) plotted inflation against M1 aggregates (cash plus demand deposits from 1955 to 1975, then extended it to 2005).
- Tan & Cheng (1995) reported that money affects the level of economic activities, based on strong evidence of bidirectional causality between money supply and GDP, as well as CPI.
- Fitzgerald (1999) showed that monetary aggregates associate closely with inflation.

Consumer Price Index (CPI) is the unit measure of inflation. CPI is a determinant of UE because the increase in price of goods and services are cost to consumers. Hence it is viewed as an “unlegislated tax”. If inflation is uneven across economic sectors, it alters income distribution to more left skew due to unfair wealth.

High inflation rate is a vicious circle of low purchasing power and insufficient supply of goods that cause increase in demand of goods and services. As a result there is a general rise in the prices of services and goods. This economic constrain drives people to seek alternative of “private gains” to meet ends. One way is to participate in informal activities, the UE.

The ultimate effect of a persistent high inflation rate is low GDP growth. A prolong downturn leads to recession and deflation, where prices fall and

business's profits shrink. During recession, people are likely out of formal jobs because business reduces operating cost by reducing number of workers, and the unemployed people would enter informal jobs. Among studies that indicated UE correlate with CPI are as follows:

- Mirus and Smith (1981) observed that the UE growth in Canada is parallel to the inflation growth after the mid 1960s'.
- Fishlow and Friedman (1994), based on Argentine, Brazilian and Chilean data, found that tax evasion (proxy indicator of UE) increases when either the expected ratio of future to current income increases, or when there is a negative shock over current income or when the inflation tax increases
- Ahiabu (2006) based on Peru study, emphasized that inflation optimal rate depends on formal or underground markets. The optimal inflation rate for Peru is as high as 42% per annum when the underground sector is more crowded, in particular over the period mid 1970s up to the mid 1990s. If the formal sector is more crowded, the optimal inflation falls to about 1.4% close to the 2005 rate.

However, Yusof (1985), indicated that a careful review on the trend and degree of CPI in Malaysia has been well controlled and has not been as severe as in many other developing countries.

2.11.3.3 Financial crises

In good time, people have a lot of opportunities to earn good salary or profit in the official economy. However, in bad time (financial crises), people would compensate their reduced income with alternative "private profit" of UE.

According to Roubini (2011), financial crises are the inevitable result of macro-economic changes, financial, and policy risks and vulnerabilities. They could either due to impacts of crises or due to reforms of remedial causes a rise in federal expenditure that result to a stock of public debt.

Evidence of association between financial crises and UE were observed on data of the United States for the period 1960-2003 using electricity consumption and currency demand methods (Tanzi, 1983; Giles, 1999; and Francesco, 2008). Both methods consistently characterize the cyclical component of hidden economy as negatively correlated with the cyclical component of the GDP.

Busato and Chariani (2004 c) indicated evidence of a “Double Business Cycle” with peaks of the official sector associated with troughs of hidden economy and vice versa.

2.12 Law and enforcement

Law, policies and government regulations are designed to deter non compliant activities but law must be enforced accordingly to curb them. Lewis (1982) described human as a rational calculator whose concerns are maximizing their own utility. Based on economic crime model, people would weigh between “private gains” of evading taxes and loses out as “risk costs” when caught and punished by tax authority.

Weakness in enforcement capacity of the revenue administration are said to put law-abiding firms at a competitive disadvantage as others allowed to get away with rules and regulations.

Hence, efficient and effective law enforcement is essential to reduce public's cynical perception of low risk attempt and successfully combat non compliance (UE).

2.12.1 Enforcement on legal activities - efficiency

The standard economic analysis of tax non compliance solely stress on exogenous variables, like audits, sanctions, tax rates, fines and income effects, (Torgler, 2002 and Kirchler, 2007). Among other related studies are as follows:

- Friedland, Maital, and Rutenberg (1978) demonstrated that large fines are more effective deterrence than small ones, even when audit probability is reduced proportionally.
- Christiansen (1980) showed that if the expected gain from tax evasion is held constant, an increase of penalty rate combined with lower probability of detection will always reduce tax evasion.
- Alm, Sanchez, and Juan (1995) showed that compliance is positively related to audit rate, at least for large fines.
- Bergman (1998) emphasized that penalties are included as one of the three elements that may discourage the intention to evade taxes.

Besides fines and penalty, chances of being audited also influence tax non compliance. Among related studies are as follows:

- Allingham and Sandmo (1972) who first outlined a rational model of tax non compliance showed that the higher probability of detection and penalty rate (based on amount evaded) the lower will be the level of evasion. He suggested that the expected utility of tax savings will offset

the expected utility of costs, depending on whether absolute risk aversion is decreasing, constant or increasing.

- Dubin and Wilde (1988) found that audits deter non-compliance among low and middle income households.
- Cowell (1989) based on a comprehensive survey conclude that increasing either the probability of detection or penalty imposed on evaders that get caught, will reduce evasion.

Some studies suggested that in addition to penalties and probability of being caught, tax attitude are also influenced by perception. In other words, tax evasion associate negatively with the probability of detection and fine, to a certain extent. if audit probability is low, successful attempts at tax evasion are positively reinforced. Among related studies are as follows:

- Individual's exchange relationship with the government has also been shown to influence tax evasion. Lewis and Cullis (1985, 1988) put forward some concerns on individual decision whether to evade or not depending on their perceptions over authorities, for instance government's fiscal policy, tax enforcement policy and the policy maker's assumptions.
- Spicer (1986) highlighted that evasion is committed only when the expected gains from taxes evaded exceed expected losses from fines imposed and psychic cost.
- Baldry (1987) found that high detection rate increases compliance rates, punishment, on the other hand, did not influence tax behavior.
- Beck, Davis, and Jung (1991) found that individual risk attitude moderates the effects of audit probabilities and sanctions on compliance.
- However, experimental evidence showed that impacts of audit probability and tax penalty or compliance are ambiguous (Fischer, Wartick & Mark,

1992).

- Alm, McClelland, and Schulze (1992) concluded that the compliant rate rises in a non linear way as the probability of detection increases.
- Chen (2003) studied the relation between impact of tax evasion on economic growth and public capital externality through income revenues. His empirical results showed that increase tax audits (input cost and penalty) reduce tax evasion, but in terms of economic growth the effects are ambiguous.

2.12.2 Enforcement on legal activities - effectiveness

Vogel (1974) and Van Eck & Kazemier (1988), Antonides & Robben (1995) indicated that audit enforcement posted some learning effect since undesirable behaviour is punished. The experience of being audit is expected to reduce the levels of future tax evasion even audit is done at random because tax payers use “heuristics or rules of thumb” to follow rules and regulations. Among related studies are as follows

- Tversky & Kahneman, (1974) showed that tax payers adopt positive lessons learnt from prior audits, where prior audits could increase the subjective salience of audits and punishments, that led to more compliance in the future due to an “availability-heuristic effect”.
- Spicer & Hero (1985) and Webley, (1987) showed that personal experience with audits has been shown to increase compliant in experimental studies.

In contrast, audit experience may have little specific deterrent effect on future reporting behavior or even more decrease compliant due to learning effects of

prior audits. Such association is partly due to moderation by other factors such as morality and social interaction or other motivation that exploit opportunities. One reason is due to the “experience” from the weakness of prior audits with tax authorities allowing them to predict audits and understand audit strategies. The auditors may have only limited capacities to detect evasion and those clever evasion techniques could have been uncovered. The little effect converges to a general consensus views that audits alone are insufficient to combat non compliance. Low association between audited income and subsequent compliance has been indicated, among related studies are as follows:

- Andreaoni et.al (1998) based on the Inland Revenue Service of the United States audit data of 1969 and 1971, concluded that audits may have little specific deterrent value, because they may not turn out as badly as tax payers initially fear. Among the possible reasons for the perception of tax payers that it pays to cheat are - audit fails to uncover certain non compliant and adequate penalty is not applied.
- Bayer (2006) explained that taxpayers try to predict audits and understand tax auditors’ strategies for a game theory analysis.
- Mittone (2006) in the realm of experimental studies found that tax compliance drops immediately after an audit. He described this phenomenon as similar to “bomb-crate” effect where the next bomb to fall exactly at the same spot of recent explosion (audit) in a short time span is not likely. In other words immediate tax audit of the same case is not likely to occur. After several filing period, however the perceived likelihood of audits increase again and so is compliance with other rules.

Studies on the attitudes of tax non compliance indicated that people would compare the benefits of successful tax evasion with the prospect of being detected and having to bear consequences, (Alm et.al. 1992c). People would consider compliance costs over distortion costs, inherent in the nature of taxes, (Sandford, 1995).

As people participate in the UE for many reasons, ranging from rich to poor, besides tax, there are many factors that influence participation rate. Another possible reason for a threshold relationship (limited reduction) is that once people are engaged in the UE, they could become habitual evaders.

Instinct of survival as in human nature has been indicated as the “Spiro effect”, where once people are engaged in the hidden economy (as termed by Spiro), they would likely to continue doing the same. Spiro (1993) pointed out that,“once this habit is developed, it is unlikely that it will be abandoned,....the participants of the hidden economy are not likely to return to the regulated economy, even in the long run”.

2.12.3 Enforcement on economy of illicit activities

“Crime does not pay” and that criminals are highly undesirable and unworthy characters (Carlson, 1985). Knowledge of the criminal justice system is a significant issue. However, enforcement on illicit activities is often lower than enforcement on legal activities due to difficulties in burden of proofs. Among related studies that emphasized enforcement of criminal activities is crucial are as follows:

- The economics of crime model states that people make rational decision, whether to comply or not to certain rules, depending on the “economic benefits” and “cost of detection” (Becker, 1968).
- Literature on criminal behavior indicated that the probability of detection and conviction has a stronger deterrent effect than the level of sanctions (Tittle 1977, 1980; Erickson and Gibbs, 1976; and Lempert, 1982), implying that law is only effective if law enforcement is efficient.
- The perceptions of criminal justice and law enforcement and the way it penetrates social life and social thinking, in the public eye is said to be more crucial (Lempert and Sanders, 1986; Saney, 1986)

2.13 Methods of estimating the size of second economy

As the second economy composed of many secret activities, estimation of a latent variable is almost impossible without making heroic assumptions.

Yet guesstimates are useful benchmark indicators for strategic policy and effective enforcement. Past scale assessments were estimated based on various methods, data sets and assumptions, thus estimates generated were in a wide range. Economist fostered skeptical views on estimates generated due to imprecision and controversy about the methods used, activities measured and assumptions of close relationship between determinant and proxy indicators.

There are two main estimation approaches. First, is the indirect method by examining the growth of various determinants on its proxy indicators. Second, is the direct method (micro method), resorted to experimental, survey data and compliant records of direct tax.

2.13.1 Indirect method

The indirect method also known as proxy indicator method relies on close relationship between determinants and proxy indicators. The growth of proxy indicators is assumed identical to UE. The growth of unreported income have been estimated based on traces of expenditure-income discrepancy (national account method); employment discrepancy or labor force behavior (labor market method); monetary aggregates (cash demand and transactions), physical input (electricity consumption), and soft modeling (identifying latent variable through the behavior of causal and indicator variables).

However, these methods often allow estimation on the changes in the unreported income over some period, but not in its absolute level. Three main indirect methods are summarized below to give some insights into estimation of the size and characteristics of UE:

- Monetary methods include; cash transaction (Feige, 1979); currency demand correlation and ratio by Cagan (1958) and Guntmann (1977); and currency demand function by Tanzi, (1980, 1982 and 1983) and Hepburn, (1992). These methods utilise monetary data assuming that currency is the preferred mode of payment in UE, as cash transactions is not easily traceable. Based on the excess demand for cash, any discrepancy between growth of official economy and cash in circulation is inferred as the UE growth.

However, the assumption of an identical velocity of money in both the official economy and UE is often argued too heroic, as the velocity of cash in UE could be much faster and not all transactions are conducted in cash.

For instance, a study on Norway showed that between 20% and 30% of

UE activities are not paid in cash. Some reports indicate a large part of UE takes place via accounts located in tax havens. Often, it lacks measurement of local currency outside the country and used of foreign currency in the country.

- Physical input, initiated by Lizzeri (1979), later modified by Kauffmann and Kaliberda (1996), Lacko (1998), and Russo (2008), provide robust time series estimates for the United States. Electricity consumption is assumed as the major physical indicator of economic growth and its association is elastic (close to unity) at constant rate.

Any difference between official economy and electricity consumption growths are assumed to be attributed to the growth of UE. In other words, the difference in the growth of electricity consumption and GDP reflects its consumption in the UE.

Malcom (1997) supports these influences by showing strong correlation between the official economy and electricity demand for the United States, as well as with improved living standards. His argument is based on psychological phenomenon, as income rises, the citizens are likely to sights on electric-powered devices.

However, assuming constant consumption growth can be misleading, since consumption varies with different economic activities. Whereas power consumption may lose economic growth relationship in countries that are living in subsidies and experiencing rapid and massive structural changes, towards systems of heavy reliance on electricity consumption, as argued by Dobozi (1995).

- Frey and Weck Hanneman (1984), Giles (1999) and Giles and Tedds (2002) employed the compound methods or soft modeling approach, that consider multi variables to explain the growth of the second economy. The two known models are the “multiple indicators, multiple causes” (MIMIC) and the “Linear interdependent structural relationships” (LISREL).

Both models consider the function of observed “causal” variables that

link to the function of observable “indicator” variables to form a structural relationship to explain for the latent variable. In other words they estimate the size based on multiple observed variables that are presumed to cause UE growth.

In summary, the disadvantages or draw backs of the indirect methods are the heroic assumptions of strong association between determinants and proxy indicators. Close associations between UE and these variables in a complex and dynamic economy are not assured of true reflection, thus often argued as not realistic. The variables could also be the determinants or indicators of other economic phenomena (see Giles and Tedds, 2002). The actual interpretation of variable relationship may be different as determinant variables may also affect other incidences, thus heroic assumptions are often argued as not realistic. For instance, increase holding cash relative to total money supply is partly due to consumer price index (CPI) while the increase physical consumption is also partly due to the dynamics of energy usage.

The indirect methods also lack the ability of estimating the absolute size of UE, instead only generate index growth of the proxy indicator to infer the growth of UE. As indirect methods produce only relative estimates of the size and development with proxy indicators, researchers need to combine the growth estimate with an estimated size value obtained by a direct method, or past studies or assumed a zero size UE at the lowest growth index (“base year chosen”). The drawbacks of the outcomes are sensitivity to the “base year chosen” and the possibility of the variable compound effects.

2.13.2 Direct method

Direct method is mainly based on perceptions or real activities, usually employed to estimate the size value of UE. Three common direct estimation methods are employment of; enforcement data of non compliance records; respondent voluntary replies or perception about UE from designed surveys; and estimated gap between income declared for tax purposes and income measured by other agencies.

Among researchers who employed non compliance records to deduce the size and characteristics of UE on tax evasion are Simon & Witte (1982) for United States, Frey and Pommerehne (1984) for Sweden, Inland Revenue Service (1979), O'Higgins (1989) for United Kingdom, Kinsey (1987) for Netherland, and OECD (1980) for France.

As for the survey method, detailed information derived from questionnaires are essential, however conclusions could be misled by respondents whom may not responded truthfully. They tend to conceal their inhibited activities, fearing of legal sanctions therefore results are sensitive as to how the questionnaires are formulated.

The gap method includes accounting errors and expenditure-income discrepancy between national and agencies statistics (Cowell, 1990; and Macafee, 1980). Herschel (1978) on a quantitative research in Argentina employed the gap approach to estimate the income tax non compliance to infer the size of UE. However, comparison between estimates of total national data and agencies is

often argued as too large a scope and also ignores other activities that are not captured by other agencies and official measurement (Macafee, 1980).

2.12.3 Past methods employed on Malaysian data

Among past studies that estimate the size of Malaysian second economy or UE are as follows:

- Kanbur (1994) based on direct tax non compliance of tax investigation data over 1980-85 estimated UE as 0.2% to 1.2% of GNP. These estimates may be qualified as estimate of UE that escape taxes by intense frauds.
- Mahfar (1994) estimated a 30% tax non compliance based on non filing of 1994 income tax returns to Inland Revenue Board of Malaysia. This estimate is a rough approximation as it is based on the number of tax payers who do not file return forms rather than unreported income.
- Kasipillai (1997, 2000), estimated the hidden economy by employing the monetary approach as a measure of tax evasion in Malaysia for the years 1971 to 1994. His underlying methodology was based on the monetary approach of Gutmann (1977), Tanzi (1982) and Hepburn (1992). The discrepancy between the volume of cash actually in use and the volume one would expect to be in use on the basis of income reported is used to infer the size of hidden economy. He employed the econometric model to explain for the variation in the currency ratio, defined as the ratio of currency to a broader definition of money aggregates of M2.

The size range of hidden economy was between 8.7% of GNP in 1980 and 3.7% in 1994, amounting between RM 1.0 billion in 1971 and RM 6.6 billion in 1994. The tax loss computed at an average tax rate of 13.4% was between RM0.192 billion to RM1.350 billion per annum. For over the period 1971 to 1994, the total tax loss amounting to RM17.681 billion

accounts to about 20% of total tax revenue. He explained for the declining UE to GDP ratio over the years as partly due to a lower tax burden. However, this study only considers the cash hidden economy.

- Wong (2000) examined the tax evasion behavior in Malaysia using mailed questionnaires. Among variables studied are tax rate, tax law complexity, perceived fiscal equity, types out of jobs and education background. His surveys were based on 14% response rate of 550 questionnaires mailed randomly to individual tax payers in the states of high GDP level (Selangor and the Federal Territory of Kuala Lumpur). Only perceived fiscal equity and taxpayer's occupation had significant relationships with tax evasion. The average monthly income of tax evaders were between RM 1,001 and RM 2,500. As the income bracket is now below the tax threshold level, the unreported income is no longer representing UE that escape taxes.
- Abdul (2001) used three methods to estimate direct tax evasion over three years data of 1995 to 1997. She employed the gap approach to estimate the discrepancy between income reported to tax authority and national account; filing of the annual tax forms and; assessing the views of tax officers regarding the seriousness of tax non compliance in Malaysia. Her estimates based on tax gap method revealed about 48% of derived taxable income was not captured by tax authority, amounting to RM75.3, RM94.8 and RM99.1 billion for 1995, 1996 and 1997 respectively. Her estimates were about 29% and 85% based on non-filing of annual tax forms and tax officers view on tax non compliance as serious issues respectively.
- Schneider and Enste (2000) instead employed the currency demand approach on 1990-1993 monetary data to estimate the extent of tax evasion. They indicated that about 38% to 50% taxpayers escaped legitimate taxation in Malaysia.
- Aziz (2002, 2004) estimated informal economy based on mixed income of national reports for the period 1987 to 1997. It exhibited a gradual

downward trend, from 19.7% to 13.2% of GDP size. However, these estimates were based on the average monthly income of less than RM 2,500. As this income is now below the taxable threshold income, estimates are now no longer concern with UE that escape taxes.

By sectors of establishment, employees and sales (most from retail and restaurants), the size of informal economy was about 34.9%, 21.8% and 7.1% of GDP respectively. Among his concluding remarks about the characteristics of the informal sectors are:

- The participants of informal sector responded to globalisation using new technologies, transportation and communication; challenging the demarcation borders of the formal sectors.
- Certain jobs and forms of subcontracting are increasingly important informal activities.
- The growth of the informal sector may no longer be a rural phenomenon and its association with transitional non-agricultural activities of those who have migrated to urban areas acquires a rethinking

Table 2.7 summarised Malaysian estimates that range between 0.2% and 85%. Although these wide range estimates could be interpreted according to scope of definition, data coverage, methods employed and assumptions made, they are not comprehensive enough. The estimates are out dated and lack of information; do not show any structural proportion, trend direction and correlation coefficients for policy measures.

Table 2.8: Size of second economy in Malaysia (1971-2000)

Researcher	Method	Data Coverage		“Second economy” as a % of GDP / GNP
		Period	Activities measured	
Kanbur (1993)	Direct tax non compliance	1980 - 1985	Direct tax evasion - by fraud detection	0.2% - 1.2%
Mahfar (1994)	Direct tax non compliance	1994	Direct tax non reporting - non filing of return forms	30%
Kasipillai (1997)	Indirect method - Monetary	1971 - 1994	Cash transaction	8.7% - 3.7%
Aziz (2004)	Survey	1987, 1993, 1996, 1997	Small establishment and household labor force	19.7% - 13.2%
Abdul (2001)	US-Australia - Gap approach Direct tax non compliance Tax officer’s opinion	1995 - 1997	National discrepancy	48%
			Direct tax non reporting - non filing of return forms	29%
			Direct tax – perception of authority	85%
OECD (international estimate)	Indirect method - Monetary	1999-2000	Cash transactions	33%
Propose study	<i>Non compliance</i>	<i>1980-2009</i>	<i>i.) Irregular economy (Direct taxes and indirect taxes [evasion and debt]) ii) Illegal economy (bribery, drugs, swindles and cheating etc)</i>	<i>Yet to be examined</i>

2.13.4 Appropriate estimation methods

There is no agreement to an appropriate methodology. Hence, any method employed must be qualified with assumptions and estimates generated must be justified according to data coverage. Among past critical views on estimation approach are as follows:

- Ivo Bicanic and Katarina Ott (1997) based on UE study in Croatia, indicated that there is no significant deviation found using the various methods and assumptions, implying that the differences and changes can be explained by economic factors rather than by measurement quality.
- Kesselman (1994) stated that indirect methods are more appropriate since it accounts for activities which are inherently concealed and covers a wide range of people, therefore estimations result in highly variable figures.
- Feige, (1980a, 1980b); and O’Higgins, (1980) emphasised that for practicality, any discrepancies are to be regarded as the lower boundary of unreported income considering a complex economy.
- Economists conceded the estimates as “approximates of the unknown” and Schneider (2000) admitted his error margin is plus or minus 10%.

Summary

The gap between the official economy and “potential economy” or actual economy has led to the conceptualisation of a “second economy”, studied under various notions. It is a widespread phenomenon, poses serious socio economic cultural and political challenges across the world. Yet many issues about its definition, characteristics, size and growth estimates, and impacts remain unresolved. The size of the second economy is within a range of 4% to 60% of country's GDP. Most international studies defined UE as a subset of the “second economy” that naturally evades taxes to avoid detection.

UE had evolved and associated with economic variables either as determinants or proxy indicators. Its upward trend relative to GDP had turned to a downward

trend in the 2000 decade. Malaysian past estimates are not informative and outdated for policy measures.

It is a permanent fixture that grew with globalization and rapid technological changes. In developed countries the growth is due to growing cyber transactions; developing countries due to creation of supporting enterprises and; undeveloped countries due to potential jobs as “survival line” for poverty eradication.

In short run, it is viewed as the nursery of future economic growth with the OE. It complements the “missing economy” during bad time, as it provides life line to the unfortunate. However, in long run any “society welfare and redeployed profits” is likely to be outweighed by a range of distorted resources (tax loss, social damage and income inequality).

The theory of the second economy is based on the concept of human rational thinking and “influential environment”. People remain in the official economy when there is no economic constraints and there is high “risk of law evasion”. But when system provide otherwise, people would opt of the official economy and enter the UE. As people would maximize private benefit when law enforcement is poor, UE could be curbed by efficient and effective enforcement.

As UE is a latent variable, it is studied through measureable traces of related incidence known proxy indicators. The common ones are the characteristics of labor force, GDP, CPI, taxes, savings-investment gap, private expenditure or consumption pattern, cash in circulation and electricity consumption.

The common characteristics of “determinants” of UE are positively related to income invisibility and opportunities of more private profits and negatively associated with law enforcement on violations. They are commonly felt as economic constrain that initiate people to buck the system such as pinch of; taxes, dissatisfaction; inflation; intensive regulations; rampant briberies; and crime rates.

Tax enforcement studies indicate that tax non-compliance reduces with high probability of detection and penalty increases, however limited by other factors such as morality, social interactions and other motivation that exploit opportunities. Criminal law enforcement is more crucial in view of the more serious criminal’s societal economic impacts.