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TAX EVASION AS A SIGNIFICANT DETERMINANT OF AN UNDERGROUND ECONOMY: STUDY OF PAKISTAN

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Abstract

Tax system of an economy plays a dominant role in stimulating sustainable development but the developing countries failed to do so. Taxes play a very important part in financing the economy's expenditures. But evasion of tax is something that is connected with the activities that are illegal and adopted by the people to avoid or evade tax is the main hurdle in this financing. The main objective of the study is to find the significance of tax evasion and to show that tax evasion is the major determinant of an underground economy. The monetary approach is used to find the size of underground economy. The study period of the paper is from 1980 to 2019. All the data used is secondary and taken from State Bank of Pakistan's reports. Results of the study showed tax evasion as a significant part of underground economy. Suggestions like proper channel of taxation is needed and time to time audits can minimize tax evasion practice.

Keywords: tax evasion, underground economy, tax system, unemployment, tax rate, budget deficit, Pakistan.

Introduction:

Aggregate of economic activities, that is not registered to official economy and hence stays out of the tax system. This type of economic activities includes corruption, narcotics, black-marketing and smuggling etc. These activities create the underground or black economy. Tax evasion discusses all such activities that are taken to escape from the lawful duty of taxes.

Size of underground economy increases day by day when people have lack of trust on government, recession, high level of unemployment, high tax rate prevails in the society. Due to which tax evasion will also increase because both are connected to each other. Ultimately high

rate of tax evasion and large size of underground economy leads to unfair means of competition and reduction in government facilities because government is unable to meet the expenditures. Proper documentation of all the activities in economy, whether they are formal or informal can reduce the problem.

Underground economy is a significant research topic in Pakistan economy because it is the root cause of budget deficit and low revenue in the country. Tax compliance is burning issue of many developing countries. The governments of developing countries are always in search to increase revenue sources to properly finance their budgets (Maseko, 2014).The presence of an underground economy results in reduction in government services, unfair competition, high tax rates. Mostly, self-employed persons are involved in underground economic activities and tax evasion because there is no official system of documentation for them. Tax evasion is a significant determinant of underground economy mainly due to the gaps in tax policy. Farming community released from taxation is also a part of the underground economy. Even traders and industrialists show their income as their farming income and have been exempted from taxation. Reduction in the size of underground economy can enhance revenues and hence the economic growth.

A study conducted by Freidrich and Enste (2002) showed that low levels of GDP are due to the presence of underground economy. Another study by Johnson and Kaufmann (1998) showed that economies with relatively low tax rates, high income level and a well-defined rule of law had low levels of underground economies.

Bagachwa (1995) thought underground economy could be categorized into three groups such as informal sector, parallel and black market activities. According to Bagachwa, informal sector refers to very small-scale units producing and distributing goods and services and consisting of both employed workers and independent self-employed persons in both rural and urban areas. They are informal in the sense that they are mostly unregistered, unrecorded in official statistics; and participants have little or no access to organized markets, to credit institutions, to formal education and training or to many public services (ILO, 1991).

A significant number of researchers have carried out studies on the relationship between tax rate and tax evasion. Their results show that a positive relationship does exist (Bashar et al., 2008; Lutfi,2009; Aloys, 2010; Jayeole, 2010; James, 2012; Mughal & Akram, 2012; Tijani & Mathias, 2013;Guldana, 2013; Richard, 2013; Maria & Judith, 2013; Friedrich et al., 2013). However, contrary to the above findings, Nhano (2013), Fasina et al. (2013) and Adebisi et al. (2013) found that there is a negative relationship between tax rate and tax evasion. On the other hand, Peter & Efiafoh (2013) concluded that neither negative nor positive relationship exists between tax evasion and tax rate.

This study ascertains the size of underground economy along with tax evasion of Pakistan for the time period of 1980 to 2019 and will give the impact of underground economy on the Pakistan's economy. This study is an attempt to present a recent scenario of tax evasion and underground economy.

The rest of the paper is organized as: Section 2 discusses the review of literature, Section 3 will be the methodology with variables description and Section 4 provides the results and interpretations.

Objectives:

- To check the significance of tax evasion in underground economy.
- To suggest some policies or suggestions for better tax system, this will reduce tax evasion and ultimately the size of underground economy.

Review of Literature:

Yasmin, B and Rauf, H., (2005) estimated the size of underground economy. They use monetary approach to estimate underground economy from year 1974-2002. They showed the impact of underground economy on GDP of Pakistan using OLS technique. Their results show enormous increase in underground economy which is due to tax evasion. They suggest high penalties and audits to be the solution.

Ogunc, F and Yilmaz, G., (2000) assessed the size of underground economy in Turkey using different approaches. They concluded that all the approaches gave the best results when data is reliable and the country is developed. In developing countries where data sources are not reliable we cannot yield the best results from these approaches. Stable economies and stable data sets can give the best results.

Kemal, M., (2003) ascertained tax evasion and underground economy in Pakistan. He concluded that monetary approach is the best one for estimation of underground economy. His results show increase in tax evasion and underground economy from 1991-1998 after that decrease till 2002. Decrease is due to documentation of the economy and low level of economic activities.

Iqbal, Z *et al.,* (1999) estimated tax evasion and the size of underground for 1973-1996 in Pakistan. They use monetary approach to assess the size of underground economy and tax evasion. Results show that there is high level of tax evasion and underground economy in the study period. Underground economy is 51 percent of GDP in 1996. Rate of growth of formal economy is lower than the growth rate of underground economy. They conclude that the huge fiscal deficit of Pakistan is due to this high level of underground activities.

Awan, A and Hannan, A., (2014) ascertained the determinants of tax evasion in Pakistan from the view point of tax collectors and tax payers. They conducted a questionnaire based survey from 150 respondents of Southern Punjab (Pakistan). Different techniques are used on the data collected. Results of the survey show six major determinants of tax evasion: corrupt administration of tax, funds misuse, culture against tax, complex tax system, incentives for people who evade tax, high tax rates.

Khan, W and Ahmad, P., (2014) discussed the causes of tax evasion in Pakistan. It is the major problem of Pakistan. They conducted a survey through questionnaire from the students and professionals of Islamia University of Bahawalpur. Their results show that main causes of tax evasion in Pakistan are high tax rate, complex tax system, corrupt Government and go with the

flow scenario. For eradicating tax evasion problem there should be low tax rates, tax system should be on ground realities, awareness of tax among public and proper check and balance system should be maintained.

Akram, M *et al*., (2012) discussed the phenomenon of avoidance and tax evasion in Pakistan as the major source of revenue for Government all over the world is tax. Using integrated approach they confirmed that foreign debt and fiscal deficit are due to avoidance and tax evasion. They considered avoidance as the main indicator of tax evasion through which its magnitude can be determined.

Filho, F., (2012) estimated the underground economy of Brazil through labor market approach and monetary approach. The results show that Brazilian economy has underground economy of size 20 percent of GDP. Literature gave the overestimated size of Brazilian underground economy. Increase in education can drop the size of informal workers working for underground economy. Labor market approach for measuring underground economy is considered the best and valid approach.

Data and Methodology:

- **Variables Construction:**

Real interest rate is calculated by subtracting inflation from nominal interest rates. Total international trade tax is computed by adding total custom duties and sales tax on imports. M2 includes M1, time deposits and other deposits. Banking services variable is calculated by dividing total number of bank deposits by total number of bank accounts. Domestic tax is obtained by subtracting international trade tax from tax revenue.

The data used in the study covers the period from 1980 to 2019.

- **Method of Estimation for Underground Economy:**

According to literature there are two methods for measuring underground economy, one is direct method and the other one is indirect method.

Direct method relies on examination of different indicators such as informal employee's share, higher the direct taxes higher will be the underground economy and money demand, higher informal labor share increase underground economy and money demand.

Indirect approach includes employment approach and simple currency ratio method (monetary approach). According to employment approach, if there is decrease in labor force participation in official economy then it can be the indication of increased underground economy level. We can also consider it as ratio of employment to population is decreasing.

Present study uses the monetary approach for estimating underground economy. This approach is from the model of Tanzi (1983). It has three assumptions. First assumption is that currency is used as medium of exchange in underground economy, second is velocity of illegal money and legal money is same, third assumption is that underground economy is due to evasion of tax.The model estimated for the currency demand equation will be:

$$\left(\frac{CC}{M_2}\right)_t = \beta_0 + \beta_1\left(\frac{DT}{Y}\right)_t + \beta_2\left(\frac{CC}{M_2}\right)_{t-1} + \beta_3 BS + \beta_4 IRR + \beta_5 Y_g + \varepsilon$$

Where

CC = currency in circulation

M_2 = money supply

DT = domestic direct and indirect taxes

$Y = GDP$

BS = banking services (ratio of bank deposits to total number of bank accounts)

IRR = real interest rate on time deposits (nominal interest rate – inflation rate)

Y_g = Growth rate in real per capita GDP

Predicted values of currency ratio; including tax variables $\left(\frac{CC}{M_2}\right)t$ and without tax variables$\left(\frac{CC}{M_2}\right)wt$, were calculated by estimated regression equation for each respective year. The difference between the two terms gives us a sign that how much currency holding is tax induced. This difference is then multiplied with M2 to get illegal money (IM) i.e.,

IM = $\left\{\left(\frac{CC}{M_2}\right)t - \left(\frac{CC}{M_2}\right)wt\right\}M_2$

Following procedure was used for estimating underground economy:

After calculating illegal money (IM), legal money (LM) will be calculated by subtracting M1 from illegal money (IM) as:

LM = M1-IM

From LM, the velocity of money will be calculated by dividing National income (NI) to Legal money as V = NI/LM.

Now, underground economy (UE) can be obtained by multiplying Illegal money with Velocity of income: UE = IM*V

Through underground economy we can obtain the amount of tax evasion (TE) by:

TE = UE (Total taxes/NI)

Empirical Results and Interpretations:

Schwarz stationarity test is applied to check stationarity of data. Some variables are stationary at level and the remaining become stationary at 1st difference. M2, CC/M2, DT/Y and real growth rate are stationary while banking services and interest rate are stationary at 1st difference. Stationarity results are given in appendix Table A-1.

Estimated currency demand equation results are in Table 1:

Table 1: Estimates of Currency demand equation (OLS)

Variables	Coefficients	t-values
C	-0.020	-0.764
DT/Y	0.767	2.037
$\left(\frac{CC}{M_2}\right)_{t-1}$	0.701	5.157
Banking services	0.009	1.077
Real interest rate	0.003	1.607
Growth rate	-0.056	-0.020
R^2	0.855	
F-statistic	39.043	
Durbin h	1.749	

The coefficient of tax to GDP ratio is positive and significant which shows that higher the tax rate will lead to higher currency holdings. Coefficient of DT/Y is positive which show that people engage in tax evading and currency holding activities as the rate of taxation increase. The coefficient of banking services should be negative but not which shows that there is a need of improvement in banking services so that demand of currency can be less. . R^2 value is high which shows that variation in demand for currency is efficiently explained by the estimated equation. F-statistic is also showing significant results. Durbin Watson statistics shows no autocorrelation.

After estimating the results of our main currency demand equation, the predicted level of currency ratios with tax variables $(CC/M2)_t$ and without tax variables $(CC/M2)_{wt}$ are calculated by the mentioned equation. The difference between the both was then multiplied by M2 for calculating the values of illegal money (IM) for each year. The results of estimates of underground economy are given in Appendix Table A-2 which shows that underground economy has increased from 52 billion in 1980 to 297 billion in 2019. On the other hand, tax evasion has also increased from 6 billion in 1980 to 28billion in 2019.

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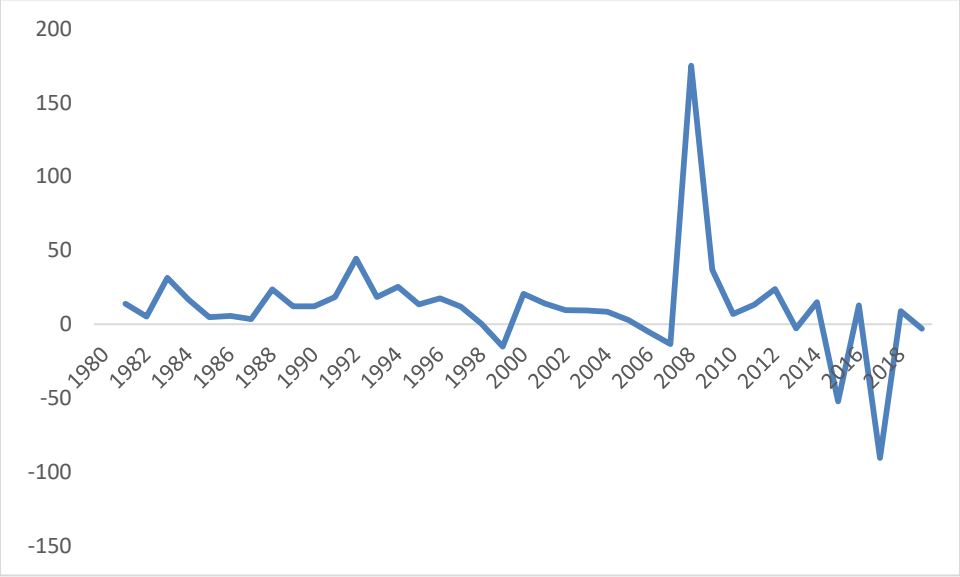
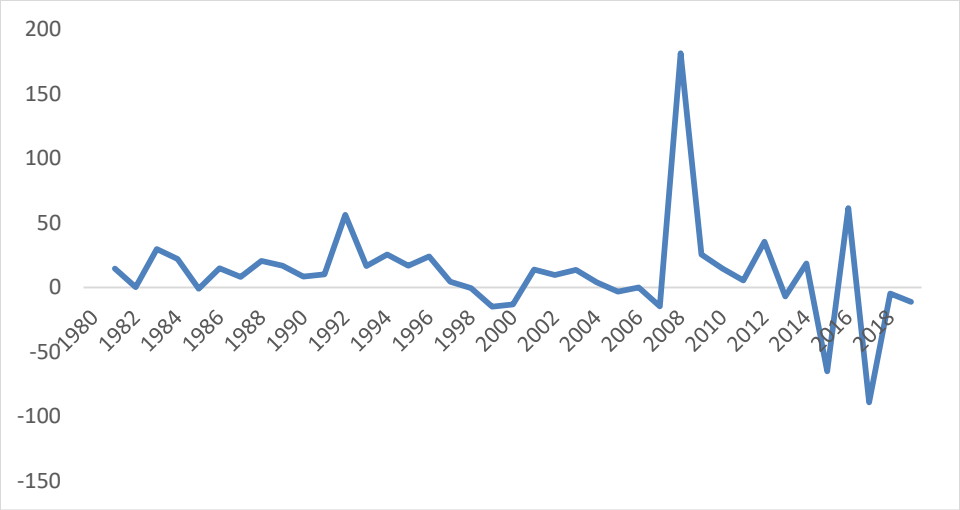
These results show a huge increase in underground economy and the amount of tax evasion over the given years. After 1991 there is a sharp increase in underground economy and tax evasion which lead to many reasons like huge increase in private investment after these years. Private investment means there is increase in businesses which is mostly unaccounted and can be due to increase in smuggling. After 1997 until 2001, there is decline in tax evasion and underground economy which can be the result of decrease in low level of economic activity. Last three years of our study shows that proper documentation of the economy can lessen the black economy. Indeed, high level of economic activities is correlated with big size of underground economies because most of the activities here are not accounted.

Graph 1: Growth rate of Underground Economy (UE)



Graph 2: Growth rate of Tax Evasion (TE)



Conclusion and Suggestions:

From the results it is noted that underground economy and tax evasion are significantly increased from 1980 to over the years. As the investment level increases, the size of underground economy increases because of large number of unaccounted income due to evasion of tax. It is clear that underground economy is due to the tax evasion. If tax evasion can be minimized or controlled, then we can minimize the size of underground economy. Tax evasion cannot be vanished all of a sudden but can be decreased if there is well established rule of law for taxation and low tax rates. Tax evasion can also be controlled by the government by providing proper facilities and showing their potential to serve the public because most of people evade tax due to lack of trust in government or tax authorities. Over the time increased figures of tax evasion and underground economy show inefficiencies of government and also huge fiscal loss to the economy. To overcome the loss if government increases the rate of tax then problem can become worse. So, proper channel should be adopted by the authorities to increase tax revenues through simple and comprehensive system. Proper documentation of every sector of the economy is highly needed to overcome tax evasion which will decrease the size of an underground economy.

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Appendices

Table A-1: Stationarity Results

Variables	**Level**	**1st difference**
CC/M2	0.0001	0.0001
DT/Y	0.0000	0.0000
BS	0.9999	0.0000
Real interest rate	0.1066	0.0000
Growth rate	0.0024	0.0000

Table A-2: Estimates of Underground Economy and Tax Evasion in Pakistan (Rs. Billion)

Year	**IM**	**LM**	**V**	**UE**	**Tax Evasion**	**Growth rate of UE**	**Growth rate of TE**
1980	10.7042	51.2848	4.9420	52.9004	6.7849		
1981	12.2849	61.2751	4.9104	60.3242	7.7881	14.0335	14.7870
1982	12.4504	68.4756	5.1041	63.5484	7.8189	5.3447	0.3952
1983	16.5632	79.9788	5.0486	83.6211	10.1536	31.5864	29.8601
1984	18.1296	85.3154	5.3847	97.6224	12.4018	16.7438	22.1412
1985	19.8840	99.0840	5.1519	102.4395	12.2851	4.9345	-0.9409

1986	21.9835	112.8475	4.9260	108.2918	14.1085	5.7129	14.8429
1987	24.8267	134.7993	4.5168	112.1364	15.2731	3.5503	8.2543
1988	30.4676	154.6124	4.5565	138.8240	18.4162	23.7992	20.5794
1989	33.7121	172.6469	4.6207	155.7734	21.5453	12.2093	16.9906
1990	39.3372	200.8198	4.4460	174.8930	23.3953	12.2740	8.5869
1991	90.5176	454.7804	2.2882	207.1230	25.8030	18.4284	10.2913
1992	124.8396	508.1424	2.3965	299.1727	40.3667	44.4421	56.4418
1993	140.3836	531.3904	2.5270	354.7435	47.1276	18.5748	16.7489
1994	167.6491	589.9279	2.6530	444.7769	59.2272	25.3799	25.6739
1995	182.4430	679.3750	2.7672	504.8557	69.2557	13.5076	16.9323
1996	195.4168	694.9912	3.0404	594.1411	85.9226	17.6853	24.0658
1997	210.4804	761.4946	3.1635	665.8476	89.7322	12.0689	4.4337
1998	221.5940	879.9940	3.0151	668.1337	89.3317	0.3433	-0.4463
1999	224.4937	1153.2673	2.5257	567.0086	76.0583	-15.1355	-14.8586
2000	213.6621	1310.7879	3.2007	683.8679	66.1139	20.6098	-13.0747
2001	235.7819	1380.9361	3.3116	780.8138	75.3990	14.1761	14.0441
2002	277.5451	1602.1729	3.0859	856.4882	82.8215	9.6917	9.8442
2003	344.1445	2031.4365	2.7204	936.1948	94.1577	9.3062	13.6876
2004	402.8942	2510.5788	2.5206	1015.5411	98.0524	8.4754	4.1363
2005	430.6625	2992.5435	2.4262	1044.8945	94.8969	2.8904	-3.2182
2006	528.0800	4464.5990	1.8739	989.5513	95.0629	-5.2965	0.1749
2007	620.1700	6798.8450	1.3822	857.2038	81.1544	-13.3745	-14.6309
2008	588.7829	2708.1751	4.0052	2358.1727	228.4313	175.1006	181.4775
2009	696.9715	2924.2445	4.6323	3228.5837	287.1240	36.9104	25.6938
2010	755.6126	3375.5934	4.5720	3454.6677	329.6849	7.0026	14.8232
2011	825.4962	4027.0058	4.7421	3914.6265	348.3466	13.3141	5.6605
2012	1034.0821	4492.3459	4.6929	4852.8617	472.5488	23.9674	35.6548
2013	1104.5121	5512.2629	4.2718	4718.2504	440.6681	-2.7739	-6.7466
2014	1290.8789	6325.7761	4.2045	5427.5628	523.3303	15.0334	18.7584
2015	727.3172	8156.6548	3.5698	2596.3953	183.9695	-52.1628	-64.8464
2016	894.4553	9415.8467	3.2773	2931.3925	297.3333	12.9024	61.6209
2017	1073.0072	128782.7698	0.2614	280.5018	32.9621	-90.4311	-88.9141
2018	1218.2624	145209.0946	0.2511	305.9095	31.4698	9.0579	-4.5273
2019	1174.6526	160580.8104	0.2531	297.2552	28.0056	-2.8290	-11.0081