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## Socio-Economic Causes of Smuggling in Pakistan: An Empirical Analysis

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ARTICLE DETAILS	ABSTRACT
<p><b>History:</b> Accepted 20 January 2024 Available Online March 2024</p>	<p><i>This research aims to investigate the economic drivers of smuggling in Pakistan. For this objective, data from 300 respondents were gathered from places where smuggling occurs in Pakistan. The binary logistic approach is utilized to evaluate the socioeconomic determinants of smuggling. Results infer that the age of the respondent, people living in rural areas, the employed status of the household, education level, the value of assets, earnings, and livestock ownership are the factor that reduces the participation of the people in smuggling activities. Conversely, married households, household size, and monthly expenditure are increasing smuggling activities in the study area.</i></p>
<p><b>Keywords:</b> Smuggling, Age, Rural Area, Education, Assets</p>	
<p><b>JEL Classification:</b> M14, D19</p>	

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### 1. Introduction

Smuggling may be categorized as an organized crime and different tasks and entities are engaged in distributing illegal products into correctional facilities in this activity. Smuggling operations include more specialized projects, such as the transport plan, the recruiting plan, the procumbent plan for the smuggling of illegal items, the bribing of government officers, and the paying of stashers. Buehn & Farzanegan (2012) reported that tariffs or import restrictions hinder consumers' right to choose between international or domestic products in most countries. While finance and investment markets are increasingly intertwined, until recently, many countries had capital controls that restricted financial investors' ability to convert foreign currency into domestic currency units. Smuggling is made more desirable by these two kinds of constraints in foreign markets. Tariffs and trade barriers, on the one hand, generate possibilities for merchants to make use of illicit forms of trade, such as the theft of merchandise or the misinvoicing of exports and imports.

In the simplest form, smuggling includes either the shipment of illegal products (such as drugs or weapons) for sale in other nations or the procurement of else legitimate goods (such as cigarettes) in a cheaper price market and the sale in a higher-priced market of certain goods across those borders without paying excise taxes. This makes it easier for smugglers to lower costs and hit greater profit

ratios. Therefore, in general, the rise in the tax rate or more restrictions on importing a specific quantity of certain goods, the more smuggling would happen to prevent paying taxes (Hutson& Long, 2011).

Kemal (2007) worked on the causes and the consequences of tax avoidance, criminal activity in Pakistan, and their connections to the trustworthy economy. According to the author, the development of the dark economy has had a significant impact on monetary and fiscal policies, which also generates a lot of difficulties for the policy fabricators to originate financial strategies. The researcher used the monetary approach to estimate the relationship between tax avoidance and budget balance. The author states that tax avoidance has a direct impact on budget balance. The researcher also informed us that if we had no tax evasion in our country then the budget balance might have been positive or zero and we have no need to borrow loans as much as we had borrowed. Researcher outcomes describe that the influence of the formal economy is insignificant in explaining the activities in the underground economy, but the influence of the underground economy is significant to the activities of the formal economy. The official economy and underground economy are positively connected in the long run. The author predicts that the concealed economy values are stuck between 2.91 trillion rupees to 3.34 trillion rupees and concerning Gross Domestic Product it is between 54.6 to 62.8 as a percentage of GDP respectively in 2005. The tax avoidance amounts were stuck between 302 billion rupees to 347 billion rupees concerning Gross Domestic Product it was between 5.7 to 6.5 as a percentage of Gross Domestic Products respectively in 2005. The tax avoidance and concealed economy enlarged sharply from the 1980s to the 1990s and decreased until 1999. It also decreased in 2004-5.

Berger and Nitsch (2008) investigated official exchange information to distinguish examples of smuggling in international trade. Our principal objective of this research is the distinction in matched partner trade statistics, i.e., the degree to which the recorded fare incentive in the source nation deviates from the revealed import incentive in the destination country. Breaking down 4-digit item-level information from the world's top five biggest importers for the period from 2002 to 2006, the Author discovers that the reporting gap is highly correlating with the degree of corruption in both partner nations. These results support the hypothesis that trade gaps mostly represent the smuggling exercises. Gillespie (2010) worked on smuggling and international markets. Smuggling envelops the import or export of products disregarding household or global law. Most underground activities in any case include the illicit import of commodities that face import quotas, huge duties, or other high expenses. Exchange advancement has diminished the informal economy but has been unsuccessful in eliminating it. Rather, the smuggling of basic buyer items has come progressively under the sponsorship of transnational composed wrongdoing and has become entwined with worldwide duplicating and illegal tax avoidance. Even though smuggling presents a few dangers to worldwide brands, global firms have been known to take an interest in sneaking into the endeavor to build sales revenue and profits.

Ilyas and Siddiqi (2010) estimated the influence of the revenue break, on economic progress in the case of Pakistan. The author used the Auto-regressive Distributed Lag (ARDL) bounds model for long-term estimation and Error Correction Modeling (ECM) for short-term estimation. The researcher analyzed the relationship between the revenue gap, corruption, tax avoidance, and smuggling in the case of Pakistan. The researcher used revenue gap as a dependent variable and corruption, tax avoidance, and smuggling as independent variables in his research estimation. The author used every twelve months time series data from the specific time frame of the period of 1980 to 2008 for

estimation in the case of Pakistan. Research results show that the revenue gap occurs because of corruption, tax avoidance, and smuggling which are parallel to the underground economy that's why the economic growth of Pakistan is slow. The results show that the revenue imbalance is of statistical significance and has a negative impact on the economy in both the short and long term. In Inaccuracy or Error Correction Modelling (ECM), the considerable and destructive measurement of the error correction term shows that the equilibrium over the long term will return to a state of equilibrium of around 10.406 percent within a year.

Kemal (2010) assessed the concealed economy and tax avoidance in the case of Pakistan. Fiscal, monetary, and labor market approaches were used for estimation. The author also used many other methodologies to evaluate the proportions of the unregistered economy. Researchers propose that the monetary approach is the most appropriate approach for estimation because it has the best, easiest, and strongest assumptions. The author chooses the 1973 year as a benchmark period because concerned period data of money supply is unreliable. The author obtained the results which show that tax evasion and the subterranean economy as a percentage of Gross Domestic Product (GDP) have increased by 1.83 times during the recently 29 years. It was at its peak in 1998 but after that, due to the low economic exercise, it started to decline. The recent phenomenon shows that it has a strong tie with the formal economy. Tax avoidance and the underground economy enlarged sharply from 1991 to 1998 and then decreased turn in 2002. A major concern to the Government is the degree of growth in the formal budget which was smaller than the degree of progress in the underground bargain during the period 1991 and 1998. The author was recommended not to use any indirect method for estimating the dark economy for policy-making purposes. Researchers also suggested that results should be used to estimate the overall expansion tendency in the dark economy. Arby et al. (2010) estimated the size of Pakistan's hidden economy. The researcher used some modifications of the electricity consumption approach with the monetary approach and MIMIC model for estimation. The author addresses the issue of variable linearity using an autoregressive distributed lag (ARDL) model rather than a basic OLS under a monetary approach. The researcher also used Education as an additional independent variable that can affect the underground economy along with the standard monetary model of estimation. The MIMIC model and consumption of electricity methods are being applied for the first time in Pakistan. The results revealed that the underground sector accounted for around 30% of Pakistan's entire economy. It significantly decreased in the year 2000. Currently, around 20% of financial transactions occur in the underground section.

Schneider et al. (2010) assessed the global hidden economy. The researcher used the MIMIC model for estimation. The author takes tariff weight, excellence of state organizations, and regulation as autonomous variables and Shadow Economy as a reliant variable in his approximation. The author presented the approximations of the hidden economies of 162 nations together with developing nations, Central Asian, or other Eastern European nations, and some proceeds Organization of Economic Cooperation and Development (OECD) countries from the time-specific period from 1999 to 2006-7. From the given information by the Author's approximations the influenced normal magnitude of the hidden economy (as a % of approved GDP) in Sub-Saharan Africa is 37.6%. Smuggling operations are carried out in 36.4% of Europe and Central Asia (mainly transitional countries), and 13.4% of high-income OECD countries. Authors bargain that an improved weight of revenue system (direct taxes and indirect taxes) when joined with (labor marketplace) procedures and the perfection of communal commodities, chattels, or facilities, as well as the administration of the formal economy, is the dynamic force of concealed frugality.

Buehn & Eichler (2011) estimated the determinants of exchange misinvoicing utilizing information on 86 nations from 1980 to 2005. In a basic microeconomic model, we obtain the determinants of four different kinds of trade misinvoicing considering into relation that only the financial incentives decide whether and how much exports and imports are under-invoice or over-invoice. However, the hindrances just influence the degree of misinvoicing. The hypothesized determinants are tested utilizing information on discrepancies in two-sided trade with the United States of America. We obtain that the black-market premia and taxes encourage smuggling exercises. Higher financial punishments successfully go about as an obstacle to this illegal act.

Aregbeyen (2012) investigated the Impact, Causes, and Actions against illegal financing and smuggling in Nigeria. The writer presented evidence-based data from a study demonstrating counterfeiting & smuggling represent serious challenges for the manufacturing sector and the Nigerian economy, with major adverse effects. The few variables that facilitate counterfeiting and smuggling operations, as well as the existing measures that target these illegal endeavors, were examined. A fundamental reason why these initiatives aren't successful in lowering the risk of counterfeiting and smuggling is a lack of cooperation among stakeholders. As a result, the author concluded that achieving success in the battle over counterfeiting and smuggling, as well as the negative implications for organizations and the economy, needs a coordinated strategy from all stakeholders. Also, various suggestions are proposed by the author.

Basu (2014) calculated the attributes of transnational smuggling. The secret transportation of illegal imported cargo across country borders is ordinarily known as transnational smuggling. Unlawful market entertainers use smuggling as a key activity to get their illicit products to market. Exchange costs are one of a kind to smuggling, for example, cover-up and avoidance costs make explicit credits natural for the task's methodology sent by proficient smugglers. Planned logistics flexibility, as well as operational secrecy, facilitates smuggling wings to take the edge off the risk of danger of identification and anxiety by law implementation specialists. Lately, unlawful gracefully chain entertainers have embraced cutting-edge innovations, elective monetary forms, and online appropriation directs to encourage illegal exchange. The author investigated the key strategic attributes of logistics flexibility and operational secrecy which are features of intercontinental smuggling operations.

Gochenour (2015) worked on the smuggling of humans through industrial organizations. The researcher described a criminal venture where the settlers pay smugglers to assist them with intersection borders and manufacture movement records for human smuggling. In recent decades, this undertaking has been overwhelmed by enormous criminal associations, which have displaced free smugglers. Authors contend that changes in U.S. movement requirement strategy are answerable for the adjustment in market structure. As in any market, changes in expenses can influence how makers compose. Under hard border enforcement, huge criminal firms have a relatively preferred position over small firms. Since 2001, U.S. border watch specialists have multiplied, expanding the expense of outskirts crossing and drawing in sorted-out criminal inclusion. In the restriction era, the author contrasted this circumstance with the market for human smuggling during the 1980s and to authentic firms attached with comparative business. Farooq (2017) aimed at the forceful estimation of the magnitude of concealed economy, and tax avoidance in Pakistan. The author explained it with the assistance of time series statistics ranging from the period 1966-2010. The researcher used smuggling and Tax aversion as independent variables and Gross Domestic Product as a dependent for the estimation of the underground economy of Pakistan. The author applied an altered form of the

financial strategy because it has the application of the (auto-regressive distributed lag) ARDL approach for required estimation. Exact discoveries of research achieve verified existence of underground financial exercises and tax avoidance on a higher scale for the viable time of the investigation. By keeping 1966 as the base year the underground economy was measured at 43.97 percent of GDP which shows an expanding pattern till 1980. Afterward, due to the presentation of auxiliary changes in the Tax, standardized savings costs, and administrative structures, the underground economy observed a diminishing pattern and reached 41 percent of the GDP in 2010. In the 1980s tax avoidance followed and increasing growth reached its highest point at Eight out of a hundred of the total Gross Domestic Product (GDP) in the case of Pakistan. Thereafter, in 2010 it was observed to sharply decline to 3.5 percent of the gross domestic product. The Strategy Makers should make strides towards records of the economy and keeping in mind that burdening, there ought to be no unaffected remains in the budget. It is the main technique obtainable for Pakistan's budget to settle down the issue of monetary deficiencies with the goal that distribution regarding improvement financial plan might be expanded, rather than chopping down to keep the Fiscal Situation of the nation beneath organizes.

Novkowska (2017) worked on the connection of Regional development disparities with the informal economy. According to the author, provincial inconsistencies in the enhancement of a nation's areas can hinder the overall growth of the country's economy. The author also stated that confidence in such fluctuations is essential for the creation of adequate financial structures and is anticipated to take action against problems impeding the growth of money. According to the researcher concealed economy is, on the other, a marvel reflecting different shortcomings of the economy identified with comparative elements as those influencing provincial turn of events. In this research paper author talks about the issue of association between local irregularity and the advancement of the shrouded economy in the thought-about areas. Researchers have resolved the Advancement or Development Index for eight districts of the Republic of Macedonia for the period 2008 to 2015. Monetary segment and (aggregate) improvement records are determined utilizing financial (GDP per person or capita, joblessness rate or unemployment rate, and so forth.) and segment markers (natural populace development, net movement or migration rate, and so on.) rankings by level of advancement for various sub-periods are shown. From the total eight districts, only three districts performed generously more vulnerable than the domestic average, one district performed significantly superior to the normal, and the rest performed near the country average. Close connection with the advancement of the shrouded economy for the considered areas has been watched, showing that the variations and concealed economy are associated with each other. Hence, monetary approaches managing national development and shrouded economy must be composed to acquire the most extreme outcomes for districts and the entire nation.

The Tax Evasion Modelling for South Asia was constructed by Murshed & Saadat (2018) using data from Bangladesh, India, Pakistan, Sri Lanka, and Nepal. The author used the tax GDP ratio as a dependent variable and tax evasion as an independent variable in his estimation. The study employed the yearly report of time series data from 2001 to 2015 in Pakistan., India, Bangladesh, Sri Lanka, and Nepal in his estimation. The impacts of tax evasion on the tax GDP ratio of the relevant countries were estimated by the author using the Granger Causality test, the Regression Model, and the Error Correction Model (ECM). Activation of domestic income is of principal significance with regards to the South Asian district since the greater part of these territorial nations are subject to multidimensional improvement help which is required to display a diminishing pattern in the future. In any case, the low proportion of duty revenue to gross domestic product (GDP) situation, across South Asia is a significant region of thoughtful concern for the linked nations that have been insufficient in making

amazing enhancements in their expense of gross domestic product (GDP) proportion accordingly. In this research paper, the author plans to fill the hole in existing writing by demonstrating the tariff avoidance marvel through India, Pakistan, Sri Lanka, Bangladesh, and Nepal. The creators utilize yearly information on pertinent macroeconomic factors for the time frame somewhere in the range of 2001 and 2015. Within the regression model, the authors explain the GDP percentage assessment as one of the macroeconomic factors of the consistency of load in these countries. Fixed impact panel estimation methods alongside the Vector Error Correction Model technique and Granger Causality test were additionally deliberated for the power of the discoveries. Besides, the creators likewise deliberate an extra prototypical model to approximate the linearity of the connection stuck in tariff GDP proportion and macroeconomic totals of national revenue. The outcomes uncover that political security and the current state of the open administrations positively affect the tax GDP proportion. In addition, the discoveries likewise affirm a nonlinear connection with the tariff GDP proportion per person income GDP and development rate of the gross domestic product since the estimated slope factors are discovered to be adverse at first however they become helpful after the incorporation of the squared terms of gross domestic product (GDP), and GDP per person income. Considering the assessments, it is discovered that the edge levels of per person income of GDP and development rate of GDP are Fourteen Thousand Five Hundred and Sixty US\$, and 5.1% separately

Novkowska & Novkovski (2018) analyzed hidden economy and Energy consumption in the case of Macedonia. The author also described the causes and responses of the hidden economy of Macedonia. The researcher developed a Compact Analytical Model to estimate the size of the underground economy. The author also used two independent variables the total electricity consumption in the country and the gross domestic product and smuggling as a dependent variable in his estimation. Iqbal et al. (2019) examined the significant Factors of tax avoidance and concealed economy in the case of Pakistan. The author estimated the effects of concealed economy and tax avoidance on the Gross Domestic Product (GDP) of Pakistan's Economy. This study examines the ways in which tax avoidance and the underground economy are causing Pakistan's economic development to slow down. The resident of the country are willing to avoid tax payments and consider it as their income generation source, that's why they do not value help or primarily earn through illegal activities which are banned in Pakistan like trafficking, smuggling drugs, and all other similar prohibited exercises. Researchers used the Tanzi (1983) equation for calculating the underground economy and used it to bring to light the causative factors of Pakistan's underground economy. Through a practical analysis of the literature that was accessible, the authors identified the crucial elements of Pakistan's underground economy. The research's conclusion clarifies that in this particular case of Pakistan, corruption and income concealment to dodge taxes to the government are the primary indicators of the underground economy. As a result, it is followed by an uninformed labor population, deregularized fiscal policies, and a weak tax-gathering system are the components of the underground economy in the particular case of Pakistan. The author also made recommendations to authorities on how to push back against tax evasion and the black-market sector to move Pakistan's economy in the direction of growth.

In the state of Ekiti, Aliu et al. (2021) investigated the effects of smuggling on small- and medium-sized enterprises' production. This study collected primary data from 395 SME owners. A simple regression technique was adopted for data analysis. The performance of Nigerian SMEs was shown to be significantly impacted by smuggling operations. This study suggested that the Nigerian government should have effectively implemented a clear smuggling strategy, that covers all acts of smuggling and those who are engaged in such acts should have been punished. Oyenuga and Owugah

(2021) discussed the social consequences of smuggling. The methodology used by the authors is the non-probability sampling method. The data cover the period from 2012 to 2016. The data were collected through the qualitative method. The study's findings indicated that smuggling has severe societal implications that have a negative impact on society. These effects include moral decay, criminality and insecurity, bad attitudes towards education and career training, laziness, acceptance of smuggling, drug and substance abuse, and health challenges. The study recommends that the community around the border enlighten the members of the evil community involved in smuggling so that the smuggling will be reduced, and the entire country doesn't have to bear the consequences.

Maiwada (2022) discussed the effectiveness and community relations of Nigeria. The two-way asymmetrical model and systems theory were employed by the researchers. The survey method used by the author involved stratified sampling to select 100 respondents. Data were collected from the people living in Idiroko and Nigeria through the use of questionnaires and interviews. It was determined that community relations tactics had not altered the opinions of the locals but had simply succeeded in building a relationship with the local leaders and winning support from the general public by comforting them. It was believed that customs sensitizations reduced smuggling was not shared by many residents. Oyenuga et al. (2023) discussed the socioeconomic factors that influence young individuals to engage in the smuggling of goods. Data were collected from those who fall between 15 years to 35 who were or had been engaged in smuggling through in-depth interviews and conducted content analyses and ethnographic summaries were used to analyze data. Findings indicated that those who were involved in smuggling belonged to a gang and other factors that had an impact on them were unemployment, family background, economic vulnerability, and the advantage of living beyond the borders. Some people were involved in other crimes like consuming substances and robbery among many other illegal activities. Findings also suggested that the government is responsible for empowering and providing employment opportunities to those households who live near the borders.

The usefulness of customs laws in reducing the smuggling of goods into Zambia was examined by Hamachila and Nsama (2024) studied the impact of laws and regulations on smuggling activities was investigated in this study. Using a mixed-methods approach, the study collected data via semi-structured questionnaires and performed a correlation study to ascertain the association between tax readiness and the efficacy of institutional frameworks and regulations. The findings demonstrated a positive correlation between the likelihood of smuggling and a willingness to pay taxes., and the current customs regulations have a positive effect on reducing smuggling. This study made clear how important it is to put informed policies into place to effectively stop these illegal activities.

It is observed in the literature that unemployment, corruption, poverty, and high tariff rates are the main causes of smuggling especially in developing countries. Due to unemployment and poverty people are more likely to participate in smuggling. At the macro-level different studies are presented in the literature although micro-level determinants of smuggling are not investigated in any study, so this study is important in investigating the socio-economic causes of smuggling at the micro-level in Pakistan. The study will add to the existing body of literature by presenting significant findings. The primary objective of the study is to analyze the causes of smuggling in Pakistan. The introduction and literature review are given in Section 1. The model, approach, and data sources are presented in Section 2. The empirical study of the socioeconomic factors contributing to smuggling is presented in Section 3. The conclusions and suggestions are illustrated in Section 4.

## 2. Data and Methodology

The data of 300 respondents have been collected from the areas where smuggling has been done in Pakistan. A simple random sampling technique is used to collect the data. Smuggling participation is the dependent variable used in the study, while the independent factors are the age of the respondent, education, marital status, monthly earnings, household size, area of living, assets, expenditures, number of earners in a household and livestock ownership. The socioeconomic factors that contribute to smuggling are evaluated using the binary logit model.

### 2.1 Model Specification

To investigate the socio-economic causes of smuggling in Pakistan, the following model is developed.

The econometric form of the model is given as follows:

$$SMUG = \beta_0 + \beta_1 AGE + \beta_2 ARLIVI + \beta_3 MSTAT + \beta_4 EMPLM + \beta_5 EDUC + \beta_6 HHSIZE + \beta_7 VASTS + \beta_8 EARN + \beta_9 EXPN + \beta_{10} LIVST + u_i$$

Where variables are; Age of the Respondent (AGE), Area of Living (ARLIVI), Marital Status (MSTAT), Employed Members in a household (EMPLM), Education of the respondent (EDUC), Household Size (HHSIZE), Value of Assets (VASTS), Monthly Earnings of the Household (EARN), Monthly Expenditures of the Household (EXPN), Livestock Ownership (LIVST).

**Table 1: Variable's Descriptions**

Variables	Variable's Description		Expected Sign
<b>Dependent Variable</b>			
SMUG	Smuggling Participation	=1 if Participating in Smuggling =0 if does not Participate in Smuggling	Dependent Variable
<b>Independent Variables</b>			
AGE	Age of Respondent in Years	Quantitative	+/-
ARLIVI	Area of Living	=1 if Rural =0 if Urban	+/-
MSTAT	Marital Status	=1 if Married =0 if Unmarried	+/-
EMPLM	Employed Members in a household	Quantitative	+/-
EDUC	Education of the Respondent	Completed Years of Schooling	+/-
HHSIZE	Household Size	Quantitative	+/-
VASTS	Value of Assets	Natural log in Rupees	+/-
EARN	Monthly Earnings	Natural log in Rupees	+/-
EXPN	Monthly Expenditures	Natural log in Rupees	+/-
LIVST	Livestock Ownership	=1 if Own =0 if Not	+/-



### 3. Empirical Analysis

Table 2 presents the empirical analysis of the socio-economic causes of smuggling in Pakistan. Considering the age of the respondents, it is statistically significant at a 5% level of significance and negatively associated with the odds of smuggling meaning that as the age of the respondents increases the odds of smuggling or smuggling activities decline. The coefficient for the area of living (ARLIVI) variable which is measured as rural as rural or urban, has a negative sign indicating a negative relationship between the area of living and the odds of smuggling. it is found that rural respondents are more likely to participate in smuggling activities.

The coefficient for marital status (MSTAT) variable which is measured as married or unmarried, is statistically significant at a 10% level of significance and has a positive relationship between marriage and smuggling odds. it is found that married respondents are more likely to participate in smuggling activities. It may be because after marriage the expenditures of the household increase and to meet these expenditures married individuals are more likely to engage in smuggling activities in the study area. The coefficient for employed members in a household (EMPLM) variable has a negative sign indicating a negative relationship between employed members in a household and the odds of smuggling. However, this relationship is found to be statistically insignificant.

The coefficient for schooling years of the respondent (EDUC) has a negative sign demonstrating a negative and statistically significant correlation between respondent years of schooling and odds of smuggling. One specific reason may be that higher education creates better employment opportunities for people so that they are less likely to perform illegal activities like smuggling. The coefficient of the household size (HHSIZE) variable has a positive sign reflecting a direct and statistically significant association between household size and the odds of smuggling. One possible reason is that larger households have more dependency burden or more mouths to feed which influences them to engage in such activities to fulfill day-to-day household expenditures.

**Table 2: Binary Logistic Estimates of Socio-Economic Factors of Smuggling**

Dependent Variable: =1 if Performed in Smuggling =0 otherwise					
Variables	B	S.E.	Wald	Sig.	Exp(B)
AGE	-0.057	0.024	5.622	0.018	0.945
ARLIVI	-0.657	0.429	2.341	0.126	0.518
MSTAT	0.864	0.508	2.893	0.089	2.371
EMPLM	-0.190	0.230	0.682	0.409	0.209
EDUC	-0.198	0.040	5.050	0.000	0.821
HHSIZE	0.684	0.123	3.975	0.000	1.505
VASTS	-0.009	0.176	0.003	0.958	0.009
EARN	-2.830	0.738	14.692	0.000	0.953
EXPN	1.238	0.775	2.549	0.010	0.290
LIVST	-0.843	0.463	3.319	0.068	0.430
Constant	-12.086	2.467	24.000	0.000	0.000
Cox & Snell R <sup>2</sup>	0.477				
Nagelkerke R <sup>2</sup>	0.636				
-2 Log likelihood	221.377				
N	300				

Source: Author's Calculations

The coefficient of the value of assets (VASTS) variable has a negative and statistically insignificant relationship between the value of assets and the odds of smuggling. Additionally, earnings of the household variable are statistically significant at a 1% level of significance and negatively associated with smuggling activities. It demonstrates when household earnings increase the individuals in a household are less likely to participate in smuggling activities. The major reason for the participation of the households in smuggling or any other illegal activity is their inability to fulfill household expenditures because higher earnings can help them fulfill their expenditures. What motivates them to engage in illegal activity like smuggling is their inability to fulfill household expenditures which only require higher earnings to fulfill.

The positive sign of the coefficient of household monthly expenditures (EXPN) indicates a direct and statistically significant between household expenditures and the odds of smuggling. The rationale may be that households with higher monthly expenditures require higher monthly income to fulfill these expenditures so such households may be more likely to engage in smuggling to meet these expenditures. Livestock ownership is found to be negatively connected to the odds of smuggling. It is found that households having livestock are less likely to perform in smuggling. This linkage is statistically significant at the level of 10 percent.

#### **4. Conclusions**

This study attempts to analyze the socio-economic causes of smuggling in Pakistan. For this purpose, the data of three hundred respondents is collected from the areas where smuggling is done in Pakistan. A simple random sampling technique is used to collect the data. The dependent variable used in a study is smuggling participation while independent variables are the age, education, marital status of the respondent, monthly earnings, household size, area of living, assets, expenditures, number of earners, and livestock ownership. The binary logistic model is used to assess the socio-economic causes of smuggling. Results infer that the age of the respondent, people living in rural areas, the employed status of the household, education level, the value of assets, earnings, and livestock ownership are the factors that reduce the participation of the people in smuggling activities. Conversely, married households, household size, and monthly expenditure are increasing smuggling activities in the study area.

#### **5. Recommendations**

Based on the findings of the study the following recommendations are suggested by the researcher:

1. Education is found to be negatively related to smuggling, so the government should provide basic education to the people so that they can get high-earning employment and be less likely to engage in illegal activities.
2. Smuggling leads to a reduction in government revenue so those trade policies are adopted that reduce the level of smuggling.
3. Earnings and assets are found to be a negative determinant of smuggling so the government should ensure employment to all people so that they can earn their livelihood and be less engaged in smuggling activities.
4. Poverty alleviation programs should be taken into consideration. Due to poverty people engage in illegal activities so the government must focus on the poor to enhance their well-being.

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