Effect of Smuggling on Economic Status of Households of District Loralai: An Analysis

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ABSTRACT

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This study analyzes the effect of smuggling on the economic status of households in District Loralai. The data of 400 households were collected by using a simple random sampling technique from the Loralai district. The ordinary least square method was applied to estimate the results. Both rural and urban households were sampled. The economic status of the households was measured with household monthly income, household monthly expenditures, and household value of physical assets. The core independent variable used in the study was the participation of respondents in smuggling and price differences. Results show that smuggling boosts the economic status of households but harms the country's economic growth.

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1. Introduction

This study endeavors to analyze the effect of smuggling on the economic status of households in District Loralai. The data of four hundred households were collected by using a simple random sampling technique from the Loralai district. As the Loralai district consists of two Tehsils such as Bori, and Mekhtar the data of two hundred households were sampled from each Tehsil of the Loralai district. Both rural and urban households were sampled. The economic status of the households was measured by the household’s monthly income, monthly expenditures, and value of physical assets. The core independent variable used in the study was the participation of respondents in smuggling and price differences. The price difference was calculated by the difference between the actual price of the product and the smuggling price of the product. The other explanatory variables included in the study were the area of residence of the respondent, age of the respondent, education of the respondent, number of earners in a household, and livestock ownership.

For government officials and decision-makers, smuggling had been an issue as laws failed to
Smuggling is not only a threat to the developing world but also to developed nations as well (Nadelmann, 1993). The sneaking has been alluded to as a second, mystery, equal, underground, or casual economy, with the goal of all terms conveying to state authorities a sense of economic activity not formally recorded and therefore not taxable directly (Nkendah, 2014). Smuggling establishes a black market that is beyond the tax net of the government and the net of regulators.

Cross-border smuggling has both positive and negative consequences. This practice accounts for the preponderance of overall trade in many countries, according to Afrika and Ajumbo (2012), and provides many individuals with a significant source of jobs and revenue. The resulting social impact on household status can be positive as well as negative. Some of the detrimental consequences of smuggling are that, first of all, this illicit practice reduces the effectiveness of the legislation placed in place to ensure the security of health, safety, and the atmosphere. Sanitary and phytosanitary regulations aimed at maintaining food safety at home and avoiding disease spread across borders are avoided for agricultural commodities. Concerning the optimistic consequences, low-income customers often raise their living conditions with the cheap foodstuffs they supply by smuggling. Food trade decreases food security both through income produced in rural areas and through the transfer of food from surplus to deficit areas (Ogalo, 2010).

In general, cross-border smuggling also led to economic consequences. For those participating in the activity, it has created income. Therefore, the money gained is used for spending on economic development. Some save the tremendous income earned and this allows them to increase their living standards. Moreover, it has boosted the region's employment status. In the 18-25 age groups, those mainly interested are between the ages of 15-35 with a clear concentration. It also covers those who have joined the workforce or who are only about to join it. In certain countries, admission into the workforce is also a big concern, considering the high unemployment rates (Comb, 2000).

Smuggling also creates employment opportunities for people. After discussing the positive and negative effects of smuggling on the economy and households, this study attempts to analyze the effect of smuggling on the economic status of households in District Loralai. In the literature, no study is available that investigates the effect of smuggling on the household economic status this study will fill the research gap by presenting the effects of smuggling on household economic status.

Sharif et al. (2000) explored the Pak-Afghan and Pak-Iran borders where a lot of agricultural and non-agricultural commodities are traded illegally. The trade balance was estimated in favor of Pakistan at the Pak-Afghan borders, whereas, it was in favor of Iran at Pak-Iran borders during the period 1997-98. Substantial monetary loss is suffered by the Government of Pakistan in terms of public revenues which could be collected in the form of duties and taxes, provided these commodities were legally exchanged at these borders. A great sum was engaged with pay which might be redirected towards cheap accessibility of the products required at the purchaser level.

Dell’Anno (2004) worked firstly, to appraise the Italian shadow economy by methods for a structural equation approach and, secondly, to confirm the simplification of the primary reactions about the reliability of the "MIMIC technique" (or model methodology) for this sort of investigation. Utilizing the Italian shadow economy, it will show how just a portion of these are confirmed, others exist as a result of the model effecting and test. Specific consideration is paid to identifying the
suspicion that compulsory to be regarded to utilize properly this strategy (trial of multifacility, freedom among estimation and auxiliary mistakes, unit root recognition, and so on.). As per the acquired outcomes, sufficient reliability of this methodology for the gauge of the size of the underground economy.

Yasmin and Rauf (2004) measured the underground economy (UGE) through tax evasion in Pakistan over the period 1974-2002. An Ordinary Least Square (OLS) model was applied to appraise the effect of the underground economy on the Gross Domestic Product (GDP) of Pakistan for a chosen period. The outcomes exhibited that the underground economy has expanded immensely from Rs. 12 billion in 1974 to Rs. 1085 billion in 2002. The Research results proposed that the presence of such an enormous Underground economy (UGE) can decline tax incomes, decrease GDP, and raise financial issues. The author suggested that repeated tax reviews and heavier punishments for tax avoidance may limit the size of the underground economy with its illegal impacts.

Chaudhuri et al. (2006) examined the size of the shrouded economy in the case of India. The author estimates through utilizing the state-level information from India from the period 1974-75 to 1995-96. The researcher described the impacts of trade liberalization on the underground economy in the case of India. Researcher outcomes display that the development in the volume of the concealed economy is around less than 4% in booked political decisions per year than in every single particular year. The researcher likewise exhibits that the development is fundamentally lesser in those districts where the alliance with the government is present.

Dell'Anno (2007) calculated the Portuguese Shadow Economy (SE) from 1977 to 2004 and tested the quantifiable associations between the shadow economy and other monetary elements. To finish the econometric assessment, numerous pointers for different causes (MIMIC) models with means and blocks are applied. The essential drivers of the Portuguese Shadow Economy are researched and budgetary plans to diminish it are proposed. An assessment of the dependability of evaluations and an elective benchmark strategy for the MIMIC philosophy is proposed.

Ferreira (2008) worked on business cycles in the underground economy. The author used the Generalized Methods of Movement Methodology to measure the effects of the business cycle and the underground economy. This paper shows that the size of the casual economy likewise influences business-cycle instability. Casual organizations are normally small in size, which not only keeps them from accomplishing economies of scale and from working with the correct capital work blend but also confines their admittance to credit markets. Utilizing a Generalized Method of Moments technique, this paper shows that nations with bigger casual economies will in general go through expanded unpredictability in yield, venture, and utilization over the business cycle.

Buehn and Eichler (2009) investigated the sneaking of unlawful and legitimate items over the U.S. and Mexico fringe from 1975 to 2004. They used a Multiple Indicators Multiple Causes (MIMIC) model. He tests the microeconomic determinants of both pirating types and reveals their examples. He appraises that the pirating of unlawful items was reduced from $116 billion in 1984 to $27 billion in 2004 due to improved work financial circumstances in Mexico and elevated U.S. fringe approval. Pirating legitimate items is convinced by duty and assessment evasion. While send-out misinvoicing changed at more modest levels, import misinvoicing changed from under-invoicing to over-invoicing after Mexico’s advancement to the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA) started lower duty.
Farzanegan (2009) explored the causes and outcomes of import and export smuggling and calculated its relative size in Iran from 1970 to 2002. Multiple Indicators–Multiple Causes (MIMIC) modeling and trade misinvoicing were utilized to register the inert variable of smuggling. The outcome shows that the punishment rate for smuggling and the nature of financial and political foundations decrease smuggling, while duties and black-market premium (BMP) increment the impetuses for illegal exchange. More exchange liberalization is related to more prominent illegal exchanges the instance of Iran. Overall, smuggling in Iran has been around 13% of all-out trade.

Buehn & Farzanegan (2012) utilized a Different Indicators Multiple Causes (MIMIC) model to explore the determinants of sneaking. The examination reveals that higher debasement and a lower rule of law expanded pirating. Obligations and trade constraints are critical push factors, while a higher market premium (BMP) diminished pirating. In light of the MIMIC counts, we measure a file of carrying which gives a situation to 54 countries. We find that pirating is widespread in Cameroon, Pakistan, and Kenya while it is least spreading in Switzerland, Finland, and Sweden.

Blackburn et al. (2012) studied the relationship between financial development and the underground economy. The author used a model of tax evasion and bank intermediation for estimation. In this research, the author takes tax evasion and financial development as independent variables and the shadow economy as a dependent variable. The main objective of the examination is that the rate of change in gross benefit of income is higher with the level of financial development. Hence, as per experimental perception, we build up the outcome that the lower the phase of such improvement the higher the frequency of tax avoidance, and also the higher the size of the informal economy.

Ela (2013) measured the relationship between the educational level and the underground economy in the case of Turkey. The author said that the casual economy is a dark idea however it contains a few monetary exchanges. It is an exceptionally troublesome errand to quantify its size and measurements, anyway, business analysts have created solid strategies to foresee the size and effect of the casual economy in a given nation or monetary locale. Studies in Turkey and abroad demonstrate that the casual economy in this nation is impressively huge and rambling. The presence of a casual economy is a critical issue in any nation since it contrarily influences the public financial framework. Up until now, arrangements conveyed to manage the negative results of the casual economy in Turkey for the most part centered around charge strategies and wages. Then again, expanded instructive accomplishment and arrangement of contemporary instructive projects ought to be considered as better intends to decrease the size and negative effect of the casual economy.

Igudia et al. (2016) studied the determinants of the underground economy in the emerging economy. The author sets the usage of proved-based approaches to deal with the casual economy in the case of Nigeria. The researcher found the variables liable for the source and extension of the Nigerian casual economy to include, joblessness, a should be independent or independently employed, debasement of government authorities and organizations, members longing to cover less duty, and members having to endure. The best impact regarding size and effects originates from the “members” need to endure factors trailed by defilement. The author's research approach proposals follow these distinguishing factors and perceive the positive and significant pretended by the casual economy.
Nduti and Odhiambo (2020) analyzed the impact of smuggling of food items on households. This study used both primary data which was collected through Focus Group Discussions (FDGs) from 193 respondents and secondary data from documents. This study utilized descriptive statistics and thematic and content analysis. Findings showed that smuggling had positive and negative effects on the households based on their involvement in the smuggling activity. Findings also suggested to implementation of policies that restrict the illegal trade of food items.

Kulish et al. (2021) elucidated why smuggling was a danger to the state’s economic stability. This study employed scientific methods including historical analyses and observation to get a better understanding of legality in the judicial process. Results showed that administrative and legal framework was important in addressing violations of the custom rules which involved formation of the rights and responsibilities, it then became crucial to fulfill these responsibilities by individuals involved in such activities. Furthermore, it concluded that smuggling activities had an impact on all the sectors of the states’ economy and major smuggling activities were performed by different crime groups around the globe. Endris (2022) explored human trafficking and smuggling’s effects on the migrant households’ economic status. This study employed cross-sectional data during the year 2021 and used both primary and secondary data. Primary responses were collected from households including 158 households (migrant) and 236 households (non-migrant). A sensitivity analysis and Propensity score matching model were employed. Results showed that human trafficking and smuggling hurt the economic well-being of migrant households.

Medenou et al. (2023) investigated the effect of an increase in the prices of smuggled gasoline on households and the economy. This study employed a general dynamic computable general equilibrium model that has been adjusted using data from the Social Accounting Matrix (SAM) of 2015. This study hypothesized two situations; a 50% increase in the oil prices and a 5% increase in the oil prices. The results showed that an increase in the oil prices harmed the GDP, raised production costs, and the wages of the households were also decreased. Additionally, the sectoral analysis, or the study of the different sectors, indicated sectors that relied more on oil were more affected by this increase. Findings suggested that when the prices of smuggled oil increased it did harm the economy. There was a need to implement policies that reduce dependency on the oil trade from unofficial channels.

The key objectives of this study are to analyze the effect of smuggling on the economic status of the families in District Loralai and to investigate the effect of smuggling on household income, expenditures, and assets.

2. Data and Methodology
2.1 Profile of Study Area

Loralai is a district of the Balochistan province of Pakistan. Loralai is bordered by different towns and cities such as the Killa Saifullah and Zhob districts to the north, Kohlo and Harnai districts to the south, Musakhail to the east, and Ziarat to the west. Loralai was first known as Bori and known as a separate district in 1903. The total area of Loralai is 9,830 km² (3800 sq.mil). According to the 2017 census, the total population of Loralai was 397,400.

Loralai district is famous for its agricultural production. It produces Wheat, Cumin, Barley, and fruits like grapes, apricots, apples, and pomegranates and vegetables such as onion, fodder, melons, and garlic and also dry fruits. And Loralai district is also famous for its natural resources. its
mountains are enriched with fluoride, chromite, coal, and other natural resources. Loralai district is also important for the China-Pakistan Economic Corridor (CPEC). The climate of the Loralai district is dry and cold in winter, and mild in summer. It has two Tehsils; Mekhter and Bori. It is further divided into 36 union councils.

2.2 Data Description
The data is collected by using a questionnaire that was developed by the researcher. The questionnaire consists of the socio-economic and demographic profiles of the households. The data is collected by conducting interviews and cellphones were being used as a tool for this purpose.

2.3 Sampling Design
The data of 400 households are collected by using a simple random sampling technique from the Loralai district. Both rural and urban households are sampled. The Loralai district consists of two Tehsils, Mekhter and Bori; data from 200 households are sampled from each Tehsil of the Loralai district.

2.4 Limitations of the Survey Study
The primary data collected by using surveys may consist of sampling and non-sampling errors. Sampling errors can be defined as the difference between the calculated value of the sample statistic and the population parameter. Sampling errors can be reduced by increasing the size of the sample. Non-sampling errors may originate due to the errors made by humans in measurement, processing, and observations. In the survey studies, the lack of knowledge about surveys is the main constraint in the data collection. Respondents adopt non-collaborative behavior and hesitate to provide exact information. So that the researcher tries to reduce non-sampling errors by ensuring the respondents their data is only used for academic purposes.

2.5 Model Specification
Multiple regression models show the relationship between the dependent and two or more independent variables. The dependent variable is a left-hand variable and independent variables are also known as right-hand variables in an equation. To investigate the effect of smuggling on the economic status of households three multiple regression models have been developed. Model I assessed the effect of smuggling on household income, Model II assessed the effect of smuggling on household expenditures, Model III assessed the effect of smuggling on the household value of physical assets. The econometric form of the model is given as follows:

Model I: The Effect of Smuggling on Household Income
The econometric form of the model is as follows:

\[
\text{LNHHIN}_i = \beta_0 + \beta_1(\text{AREA}) + \beta_2(\text{EDU}) + \beta_3(\text{NOER}) + \beta_4(\text{LIVEST}) + \beta_5(\text{SMUG}) + \beta_6(\text{PRIDFF}) + u_i
\]  

(3.1)

Where the Natural log of household monthly income (LNHHIN) is the dependent variable. While Area of Residence (AREA), Education level of the respondent (EDU), Number of earners in a household (NOER), Livestock ownership (LIVEST), Participation of the respondent in smuggling (SMUG), and Price difference (PRIDFF) are the independent variables. Additionally, the Error term (\(u_i\)) accounts for the unobserved factors in the model.

Model II: The Effect of Smuggling on Household Expenditures

\[
\text{LNHHEXP}_i = \beta_0 + \beta_1(\text{AREA}) + \beta_2(\text{EDU}) + \beta_3(\text{NOER}) + \beta_4(\text{LIVEST}) + \beta_5(\text{SMUG}) + \beta_6(\text{PRIDFF}) + u_i
\]  

(3.2)
Where the Natural log of household monthly expenditures (LNHHEXP) is the dependent variable. While Area of Residence (AREA), Education level of the respondent (EDU), Number of earners in a household (NOER), Livestock ownership (LIVEST), Participation of the respondent in smuggling (SMUG), and Price difference (PRIDFF) are the independent variables. Additionally, the Error term ($u_i$) accounts for the unobserved factors in the model.

**Model III: The Effect of Smuggling on Household Assets**

$$LNHHAST_i = \beta_1 (\text{AREA}) + \beta_2 (\text{EDU}) + \beta_3 (\text{NOER}) + \beta_4 (\text{LIVEST}) + \beta_5 (\text{SMUG}) + \beta_6 (\text{PRIDFF}) + u_i$$  \hspace{1cm} (3.3)

Where the Natural log of household value of physical assets (LNHHAST) is the dependent variable. While Area of Residence (AREA), Education level of the respondent (EDU), Number of earners in a household (NOER), Livestock ownership (LIVEST), Participation of the respondent in smuggling (SMUG), and Price difference (PRIDFF) are the independent variables. Additionally, the Error term ($u_i$) accounts for the unobserved factors in the model.

### Table 1: Description of Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Description of Variables</th>
<th>Expected Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMUG</td>
<td>Participation of Respondent in Smuggling = 1 if Yes, = 0 otherwise</td>
<td></td>
</tr>
<tr>
<td>EDU</td>
<td>Education of the respondent</td>
<td>Completed Years of schooling +</td>
</tr>
<tr>
<td>AGE</td>
<td>Age of Respondent</td>
<td>Completed years of age +</td>
</tr>
<tr>
<td>AREA</td>
<td>Area of residence</td>
<td>= 1 if residing in an urban area, = 0 if residing in a rural area +/-</td>
</tr>
<tr>
<td>NOER</td>
<td>Number of earners in a household</td>
<td>Number +</td>
</tr>
<tr>
<td>LIVEST</td>
<td>Livestock ownership</td>
<td>= 1 if yes, = 0 if no +</td>
</tr>
<tr>
<td>PRIDFF</td>
<td>Price difference</td>
<td>Difference between actual and smuggling price +</td>
</tr>
<tr>
<td>HHIN</td>
<td>Monthly Household income</td>
<td>Rupees +</td>
</tr>
<tr>
<td>HHEXP</td>
<td>Monthly Household Expenditures</td>
<td>Rupees +</td>
</tr>
<tr>
<td>HHAST</td>
<td>Monthly Household Assets</td>
<td>Rupees +</td>
</tr>
</tbody>
</table>

### 3. Effect of Smuggling on Economic Status of Households of District Loralai: An Analysis

Table 1 presents the OLS estimates of the effect of smuggling on household income. The OLS estimates point out that the variables age of the respondent, number of earners, smuggling, and price difference positively and significantly influenced the household income while the variables area of residence, education of respondent, and livestock also positively connected to the household income although the influence of these variables is found to be statistically insignificant. An indication of a statistical model's goodness of fit is the R-squared value. It displays the degree to which the independent variable in the model can be blamed for variations in the dependent variable. The estimation of R-square is 0.398 it shows 39.8 percent variety in family pay is because of the informative factors while 60.2 percent variety is because of different elements. The F-measurement shows the general centrality of the model its worth is 37.038 and the likelihood esteem is 0.000 it
demonstrates that the model is by and large measurably huge. Considering first the age of the respondent it is found that it is positively linked to the household income. As age exhibits the experience of the individuals more age of the respondent means more experience, and specialization in any activity resultantly it positively influences the household income. The coefficient of the variable age of respondents shows that as the age increases by one year, the household income leads to boosts by 1.4 percent. This association is statistically significant at the 1 percent level of significance. These outcomes are also found in the studies of Vu-Van, 2020; Afzal, 2011.

| Table 2: OLS Estimates of the Effect of Smuggling on Household Income |
|-----------------|-----------------|-----------------|-----------------|
| **Model-I**     | **Dependent Variable:** Household Monthly Income |
| **Explanatory Variables** | **Unstandardized Coefficients** | **Standardized Coefficients** | **t** | **Sig.** |
| (Constant)      | 9.903            | 0.202            | ---            | 48.905 | 0.000 |
| AREA            | 0.039            | 0.084            | 0.020          | 0.467  | 0.641 |
| AGE             | 0.014            | 0.003            | 0.160          | 3.932  | 0.000 |
| EDU             | 0.002            | 0.008            | 0.009          | 0.216  | 0.829 |
| NOER            | 0.073            | 0.032            | 0.091          | 2.290  | 0.023 |
| LIVEST          | 0.034            | 0.085            | 0.018          | 0.405  | 0.686 |
| SMUG            | 1.021            | 0.078            | 0.535          | 13.014 | 0.000 |
| PRIDFF          | 0.00478          | 0.0011           | 0.179          | 4.347  | 0.000 |
| **R-Square**    | 0.398            |                 |                |        |
| **Adjusted R-Square** | 0.387            |                 |                |        |
| **F-Statistic** | 37.038           |                 |                |        |
| **Probability Value** | 0.0000           |                 |                |        |

Source: Author’s Calculations

Education is the important human capital variable that affects the productivity, efficiency, and earnings of households. Educated members have high-earnings employment opportunities. It is discovered that the connection between respondents' long stretches of tutoring and family pay is positive yet measurably immaterial. The coefficient of the variable training of the respondent shows that as the tutoring of respondents increments by one year the family pay prompts an expansion of 0.002 units. These results closely resemble the discoveries of the investigations of Gillani et al. 2013; Afzal, 2011; and Abbas and Foreman-Peck, 2008. Family units having a high support proportion in the work market have a high family unit pay. In this investigation, the relationship between the number of workers in a family and family unit pay started to be positive. According to the variable's coefficient estimation, a family's earnings increase by 7.3 percent for every worker that the household decides to add to the workforce. This relationship has started to be factually noteworthy at the centrality level of 5 percent.

The core explanatory variable incorporated in a study is the smuggling participation of the respondent. In the Loralai district, most of the population is participating in smuggling to earn their livelihood. Participation in smuggling activities by the respondent is found to be positively related to household income. It exhibits that smuggling participation boosts the lives of the people in the Loralai district. The coefficient value of the variable SMUG indicates that as the smuggling participation enhances by one unit the household income leads to enhancement by 1.021 units. This association is found to be highly significant. The price difference is calculated by subtracting the
actual price of the product from the smuggling price of the product. The greater price difference means more sales of the smuggled items and more earnings for the people doing these activities. It is found that the price difference is positively related to household income. The coefficient of the variable cost contrast demonstrates that as the cost distinction increments by one unit, the family salary prompts an expansion of 0.00478 units. This relationship is additionally measurably huge at the 1 percent level of significance.

3.2 Effect of Smuggling on Household Expenditures

Table 3 displays the OLS estimates of the effect of smuggling on household expenditures. The OLS estimates exhibit that the variables age of the respondent, education of the respondent, number of earners, and smuggling participation positively and significantly influenced the household expenditures while the variables area of residence, and livestock negatively connected to the household expenditures although the influence of these variables is found to be statistically insignificant. The R-square displays the goodness of fit of the model it describes the variation in the dependent variable due to the independent variables. The value of R-square is 0.203 which shows that 20.3 percent variation in household expenditures is due to the explanatory variables while 79.9 percent variation is due to the other factors. The F-statistic displays the overall significance of the model its value is 14.221 and the probability value is 0.000 it specifies that the model is overall statistically significant. Examining first the age of the respondent it is originated that it is positively related to the household expenditures. The theory of the “Life Cycle” proposes that in the early age of life individual’s consumption or expenditures are low but as age increases the consumption expenditures also rise till reaching middle age. The coefficient of the variable age of the respondent shows that as age increases by one year, the household expenditures lead to boosts by 1.0 percent. This association is statistically significant at the 1 percent level of significance. These results are also found in the studies of Sekhampu & Niyibanira, 2013; and Ajmair & Akhtar, 2012.

Table 3: OLS Estimates of the Effect of Smuggling on Household Expenditures

<table>
<thead>
<tr>
<th>Model-II Dependent Variable: Household Monthly Expenditures</th>
<th>Explanatory Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Constant)</td>
<td>9.648</td>
<td>0.144</td>
<td>---</td>
<td>66.922</td>
</tr>
<tr>
<td></td>
<td>AREA</td>
<td>-0.003</td>
<td>0.060</td>
<td>-0.003</td>
<td>-0.052</td>
</tr>
<tr>
<td></td>
<td>AGE</td>
<td>0.010</td>
<td>0.002</td>
<td>0.195</td>
<td>4.151</td>
</tr>
<tr>
<td></td>
<td>EDU</td>
<td>0.027</td>
<td>0.006</td>
<td>0.214</td>
<td>4.501</td>
</tr>
<tr>
<td></td>
<td>NOER</td>
<td>0.147</td>
<td>0.023</td>
<td>0.296</td>
<td>6.476</td>
</tr>
<tr>
<td></td>
<td>LIVEST</td>
<td>-0.025</td>
<td>0.060</td>
<td>-0.021</td>
<td>-0.410</td>
</tr>
<tr>
<td></td>
<td>SMUG</td>
<td>0.311</td>
<td>0.056</td>
<td>0.263</td>
<td>5.559</td>
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<tr>
<td></td>
<td>PRIDFF</td>
<td>0.0074</td>
<td>0.007</td>
<td>0.054</td>
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<td>R-Square</td>
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<td>Adjusted R-Square</td>
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<td></td>
<td>F-Statistic</td>
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<td></td>
<td>Probability Value</td>
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<td></td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Source: Author’s Calculations</td>
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</tbody>
</table>

Household expenditures are significantly influenced by the education level of the respondents. Respondents with high education maintain their personality, health, and quality of life
in comparison to the low-educated individuals so educated individuals have high expenditures. It is found that the relationship between respondent years of schooling and household expenditures is positive but statistically insignificant. The coefficient of the variable education of the respondent shows that as the schooling of the respondent increases by one year the household expenditures lead to an increase of 0.027 units. This relationship is statistically significant at the 1 percent level of significance. These findings are also proved in the studies of Zani et al. 2019; Sekhampu & Niyibanira, 2013.

Households having a high participation ratio in the labor market have high income and high household expenditures. In this study, the association between the number of earners in a household and household expenditures is found to be positive. The coefficient value of the variable indicates that as the number of earners in a household is increased by one member the household expenditures, in turn, enhance by 14.7 percent. This relationship originated as statistically significant at the significance level of 1 percent. This association is also verified in the studies of Sekhampu & Niyibanira, 2013.

The core explanatory variable incorporated in a model is the smuggling participation of the respondent. As in model-I smuggling, participation was found to be positively related to household income so household income positively influenced the household expenditures (Keynes, 1936). The coefficient value of the variable SMUG indicates that as the smuggling participation enhances by one unit the household expenditures lead to enhances by 0.311 units. This association is found to be highly significant.

The price difference is calculated by subtracting the actual price of the product from the smuggling price of the product. The greater price difference means more sales of the smuggled items and more earnings and expenditures of the people doing these activities. It is found that the price difference is positively related to household expenditures. The coefficient of the variable price difference indicates that as the price difference increases by one unit the household expenditures lead to an increase of 0.0074 units. This relationship is also statistically significant at the 1 percent level of significance.

### 3.3 Effect of Smuggling on Household Assets

Table 4 displays the OLS estimates of the effect of smuggling on household assets. The OLS estimates exhibit that the variables age of the respondent, education of the respondent, number of earners, and smuggling participation positively and significantly influenced the household value of assets while the variables area of residence, and livestock negatively connected to the household value of assets although the influence of these variables is found to be statistically insignificant. The R-square displays the goodness of fit of the model it describes the variation in the dependent variable due to the independent variables. The value of R-square is 0.313 which shows a 31.3 percent variation in the household value of assets due to the explanatory variables while a 68.7 percent variation is due to the other factors. The F-statistic displays the overall significance of the model its value is 23.872 and the probability value is 0.000 it specifies that the model is overall statistically significant.

Assessing first the role of the age of the respondent in influencing the value of assets it is found that the age of the respondent is positively related to the value of household assets. The coefficient of the variable age of the respondent shows that as age increases by one year, the
household assets lead to boosts by 1.5 percent. This association is statistically significant at the 5 percent level of significance. These results are also found in the studies of Jin & Xie, 2017.

Table 4: OLS Estimates of the Effect of Smuggling on Household Assets

<table>
<thead>
<tr>
<th>Model-III Dependent Variable: Household Value of Assets</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanatory Variables</td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>11.515</td>
<td>0.470</td>
<td>24.479</td>
<td>0.000</td>
</tr>
<tr>
<td>AREA</td>
<td>-0.060</td>
<td>0.195</td>
<td>-0.015</td>
<td>-0.308</td>
</tr>
<tr>
<td>AGE</td>
<td>0.015</td>
<td>0.008</td>
<td>0.088</td>
<td>1.949</td>
</tr>
<tr>
<td>EDU</td>
<td>0.001</td>
<td>0.019</td>
<td>0.003</td>
<td>0.060</td>
</tr>
<tr>
<td>NOER</td>
<td>0.237</td>
<td>0.073</td>
<td>0.143</td>
<td>3.241</td>
</tr>
<tr>
<td>LIVEST</td>
<td>0.328</td>
<td>0.194</td>
<td>0.082</td>
<td>1.691</td>
</tr>
<tr>
<td>SMUG</td>
<td>2.094</td>
<td>0.181</td>
<td>0.525</td>
<td>11.545</td>
</tr>
<tr>
<td>PRIDFF</td>
<td>0.0026</td>
<td>0.000</td>
<td>0.002</td>
<td>1.317</td>
</tr>
</tbody>
</table>

The education of the respondent is an important determinant of household income, expenditures, and assets. Educated households have high-earning opportunities so that they can also establish their assets to maintain their lifestyle. It is found that the relationship between respondent years of schooling and household value of assets is positive but statistically insignificant. The coefficient of the variable education of the respondent shows that as the schooling of respondents increases by one year the household value of assets leads to an increase of 0.001 units. These outcomes are also proved in the study of Jin & Xie, 2017.

A higher number of employed members in a household means higher income, expenditures, and household assets. In this study, the relationship between the number of earners in a household and the household value of assets is found to be positive. The coefficient value of the variable shows that as the number of earners in a household is increased by one member the household value of assets, in turn, enhances by 23.7 percent. This relationship originated as statistically significant at the significance level of 1 percent.

The core explanatory variable incorporated in a model is the smuggling participation of the respondent. Smuggling participation positively boosts the households’ income, expenditures, and assets. The coefficient value of the variable SMUG indicates that as the smuggling participation enhances by one unit the household value of assets leads to enhancement by 2.094 units. This association is found to be statistically significant at the 1 percent level of significance.

4. Conclusions and Recommendations

The OLS estimates showed that smuggling participation and price difference positively affect the economic status of the households. Smuggling provided employment opportunities for the smugglers they earned a handsome amount from smuggling which led to an improvement in their
economic status. Greater price difference means the smuggled items are available to customers at cheaper rates it benefits both the customers and smugglers although it deteriorates the economy because smuggling is considered as an illegal activity and not counted in the gross domestic product of the economy. On the other side age of the respondent was also found to be the positive determinant of the household's economic status. As the age of the individual increases, they become more experienced and specialized because of this their income level also rises. Livestock ownership and the number of employed members in a household were also found to be positive factors that enhance the income, expenditures, and assets of the households. Based on the findings the researcher concluded that smuggling boosts the economic status of the households but it harms the economic growth of the country so the government may take action to control smuggling by defining the appropriate channels and easy ways of the trade from cross-boarders.

6.2 Recommendations
Keeping in view the findings of the study the researcher suggests the following recommendations to improve the economic status of the households specifically in District Loralai and generally in Pakistan:

1. It is found that smuggling boosts the economic status of the households but it hurts the economic growth of the country so it is recommended that policymakers reduce the tariffs, and define easy ways of trade from the cross-boarders so that people may trade by using defining channels it not only provide the revenue to the government but it also boosts the economic status of the households.

2. Education is one of the significant variables that not only boost the economic status of the households but it also prevents people from taking part in illegal activities as educated individuals have more employment opportunities so the government must build education infrastructure and provide education to the people of Loralai District so that smuggling may be controlled.

3. Transportation infrastructure should be improved to increase business activities. Due to the developed transportation infrastructure, people can travel for employment in other areas of the country.

4. Health infrastructure is also important in influencing the efficiency of the individuals so that the government may provide health facilities to the people, access to the health facilities improves the health of the people so that they can be more productive.

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