# Estimating the Shadow Economy and Tax Evasion Using the Governmental Financial Discipline Variables

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**Abstract:**
The main purpose of this study was to estimate the shadow economy and tax evasion in Iran using the governmental financial discipline variables during the period 1967-2015. Considering the large size of the government in Iran and the lack of revenues, the Iranian government has faced a budget deficit for most of the periods under study. The continued provision of the government's budget deficit through borrowing from the central bank (printing new money) can lead to inflation which, in turn, increases the size of the shadow economy and its resulting tax evasion. On the other hand, in recent years, the implementation of targeted subsidies has created an additional pressure on the government's budgetary conditions and has forced the government to counter the budget deficit by selling oil dollars in the free market in addition to borrowing from the central bank. The latter case, in its own turn, led to high volatilities of the exchange rate and rising inflation, covering the increase of the size of the shadow economy in Iran more than ever. MIMIC method was used to estimate the shadow economy in the present study. Most methods of shadow economy estimation have considered only one index to cover all the effects of shadow economy. However, the effects of shadow economy tend to appear simultaneously in the production, labor and money markets. Thus, the model approach adopted considers the multiple

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causes of the existence and growth of the shadow economy as well as the multiple indicators of the shadow economy over time. In the present study, the variables of tax burden in the two indices of total tax burden and tax burden on imports, the income derived from natural resources, unemployment rate, exchange rate as well as the three indices of inflation rate, budget deficit and government volume taken as the three variables for the governmental financial discipline along with the dummy variable of targeted subsidies were considered as the cause variables. Besides, three indices of energy consumption, household expenditures and money demand were considered as the effects of shadow economy in the final models of estimating the shadow economy. To estimate the shadow economy, at first, eight models were selected from the best estimation models and the final model was selected using the *Multiple* Indicators *Multiple Causes* (MIMIC) approach and the general and comparative fitting criteria. Then, the relative and absolute size of the shadow economy was calculated on the base price in 2004, using the side information and calibrating the time series. The resulting tax evasion was, then, calculated as a ratio of shadow economy. The results showed that the average relative size of the shadow economy over the time period was 30.24%. Moreover, the maximum relative size of the shadow economy in 2008 was found to be 43.3% and the minimum value in 1968 was 18.01%. The average absolute size of the shadow economy was, in turn, 388719.5 billion rials. Besides, the maximum value of the absolute size of the shadow economy in 2011 was obtained 885642.2 billion rials and the minimum value in 1967 was 88687.6 billion rials. The average tax evasion was 19952.85 billion rials, as well. In turn, the minimum value of tax evasion in 1967 was 3923.8 billion rials, and the maximum value in 2015 was 56628.6 billion rials. In the final model of shadow economy, the variables of tax burden on imports, the income derived from natural resources, unemployment rate, inflation rate, budget deficit and dummy variable of targeted subsidies were considered as the cause variables and the variables of money volume and household expenditures were, in turn, considered as the index variables. The results showed that the tax burden on imports and unemployment rate were the main causes of shadow economy in Iran. Considering the three variables of inflation rate, budget deficit and government volume as the variables of governmental financial

discipline, the findings showed that the inflation and budget deficit had a positive effect on the shadow economy and its resulting tax evasion. As a result, the shadow economy can be moved by reducing the consumption costs and government size so as to reduce the government's budget deficit and provide more financial discipline. Thus, controlling the budget deficit and inflation rate is expected to increase the governmental financial discipline, and accordingly, decrease the size of shadow economy and the resulting tax evasion in Iran.