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Demand Models and Expenditure Models: A Letter to Editor

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Dear Editor,

An article entitled "Drug Demand Function for Iranian Urban Households Based on Households' Budget" (1) was published in your journal recently. I have read this article and found several basic errors in it:

1. The dependent variable of model could not be true. Authors used drug spending as a dependent variable. Drug expenditures (spending) contain both the quantities and the prices. In a demand model, the dependent variable must be only quantities. By using drug expenditures as a dependent variable, it seems that the drug spending model had been estimated. In some studies, because of hardness of calculating the quantity of drug utilization in macroeconomics, authors used instrumental variables like drug spending, but they had emphasized that they calculated the expenditures, not the demand function (2).

2. In the article, authors claimed that they had calculated price elasticity of demand. As shown above, expenditures are different from demand. Increasing in drug prices, would decrease the demand for drugs, but its effects on drug expenditures could not be calculated easily, because the expenditures contain both prices that have been increased, and the quantities that have been decreased. The changes depend on the price elasticity for the drug (3).

3. A surprising econometric method was used to estimate the effects of explanatory variables on drug expenditures in the article. This method had been disaffirmed all econometric methods established in the century. First, unit root is basically different from autocorrelation. The authors used unit root tests for testing autocorrelation in the model. Second, some of the variables had unit root. The authors decided to eliminate these variables from the base model. It was very wrong! By eliminating the variables from the model, the model would face with specifying bias and the results could not be accurate. There are lots of discussions for the unit root approach (like cointegration, vector autoregressive) and none of them had discussed to eliminate the nonstationary variables. Eliminating the variables was basically wrong (4-7).

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