Letter

Responses to the Criticism About "Drug Demand Function for Iranian Urban Households Based on Households' Budget"

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Dear Editor,

The authors, in addition to thanking the honorable critic for expressing his opinions, have provided the following responses to his criticisms:

Response to Criticism 1:

In the health sector, the demand for health care is measured by both the quantity of services used (such as inpatient days, outpatient visits, or prescriptions) and the total cost of services. The latter allows for the combination of services measured in different quantity units. Both of these methods, i.e. the use of the quantity and the total cost, can be used to estimate the elasticity of the demand (1). In many studies, the total cost has been used to estimate the demand function, some of which have been provided in the references (2-7).

Response to Criticism 2:

As explained above, the total cost can be used for estimating demand. Also, the honorable critic has mentioned that "Increasing in drug prices would decrease the demand for drugs". The health care market faces a phenomenon called "market failure", which has effects on some issues such as demand elasticity. It should be noted that moral hazard, adverse selection, supplier induced demand, and so on have significant effects on the demand elasticity. In some studies, the researchers have used sophisticated statistical techniques to identify the degree of market failures (e.g. adverse selection) and decompose their total effects on demand (1, 8, 9). However, in the present article, the authors have not investigated the effects of moral hazard, adverse selection, and the like on demand because of some problems, including the lack of access to the required data, mentioned in the 'Study Limitations' section.

Response to Criticism 3:

The honorable critic has mentioned that "A surprising econometrics method was used to estimate the effects of explanatory variables on drug expenditures in the article. This method had been disaffirmed all econometrics methods established in the century". The model used in this study is a multivariate model and the variables entered into this model are somewhat similar to those in other Iranian studies (2, 3). In addition, in this study the logarithmic form has been used in order to estimate the elasticity. Goldman and colleagues (2004) in their study have also used a generalized linear model with a logarithmic link function to estimate the drug spending (10). Besides, the researchers in the different studies have used a variety of econometric models for estimating demand in the health sector. For example, in some studies, like the present one, the researchers have used ordinary least squares method (11-13). While in other studies, the researchers have used the two-part model. That is, they first used probit model and then log linear model (14). Still, in some other studies, the researchers have used the "Hurdle" model (15, 16). In the Iranian studies also the researchers have used some models, including ordered probit, multinomial logit, and Zero inflated regression models (17-19). The process of selecting an econometric model to estimate the demand for health care has been described by Mariko (2003) (20).

Moreover, the honorable critic has claimed that in the current article the authors have used the unit root test to determine the autocorrelation!!! However, the authors have mentioned in the 'Abstract,' 'Methods,' and 'Results' sections that the unit root test has been used for determining whether the variables have been stationary. For example, in the 'Method' section, they have mentioned that:

"In this study, augmented Dickey-Fuller (ADF) test was

used to show that whether variables were stationary or not. This test is a test for a unit root in a time-series sample and is a version of the Dickey-Fuller test for a larger and more complicated set of time series models".

On the other hand, in order to determine the autocorrelation, the authors of this article have used the Durbin-Watson Statistic. As they have mentioned in the 'Results' section that:

"The Durbin-Watson statistic (DW = 2.04) showed that estimated equation had not any serial correlation."

Furthermore, the critic has claimed that the researchers in the current article "decided to eliminate some of the variables had unit root from the base model". However, this was not the case in this article. The following sentence in the article can explain this issue more:

"Table 2 shows the results of the estimating equation after removing autocorrelation."

Finally, it should be noted that the authors have tried to refer to a lot of Iranian and non-Iranian articles indexed in the valid cites in order to clarify the issues raised by the critic.

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