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ARMENIAN ENERGY EFFICIENCY ASSESSMENT AND ENERGY SAVING MANAGEMENT MULTIDIMENSIONAL MODEL

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The present paper is devoted to the study of energy efficiency assessment and saving management multidimensional model development. As energy sources electrical energy, oil and natural gas are considered.

Assumption 1. It is assumed that energy sources like oil and gas are supplied to Armenia from Russia and Iran. Consequently, Armenian economy should be considered as a customer.

Assumption 2. Armenia is a producer of thermal as well as hydro energy.

Assumption 3. Energy sources circulation in Armenian economy is represented in the Figure 1.

In the paper an attention is paid to the problem of the electricity consumption by population. A vector auto regression (VAR) model is developed in order to capture interdependencies between incomes of population and the volume of electricity consumed in residential area. It is assumed, that the level of income has an influence on the electricity consumption of private households. It is believed in this study that results of this kind of model would allow to reveal and make quantitative judgements about possible simultaneous effects which the mentioned two factors exert on each other.

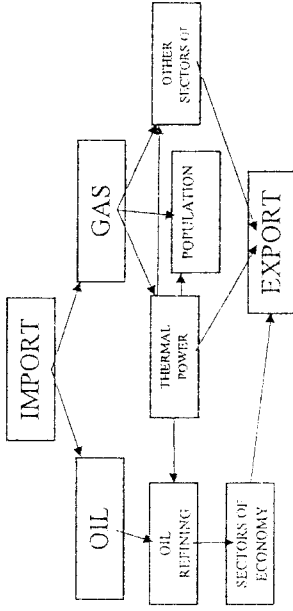


Figure 1. Energy sources circulation in Armenian economy.

For capturing effects of the above mentioned two factors, time series of the following two variables are taken into analysis: average monthly wage (AW) in Armenian Drams, (for the effect of population income) and the volume of electricity supply to population (ESP) in million kWhs (for the effect of consumed electricity by population). The model also includes a variable which represents the volume of electricity supplied to other sectors of economy (ESO) given in million kWhs. This variable is selected for capturing effects of possible shocks in total electricity consumption on main two variables. Those external shocks may be caused by unexpected changes in electricity consumption in sectors like industry, water supply, etc. All variables are taken in monthly basis from National Statistical Service of Armenia.

In the developed VAR model main variables are considered in 2 lags.

The model consists of the following equations.

$$AW_t = a_0 + a_1AW_{t-1} + a_2AW_{t-2} + a_3ESP_{t-1} + a_4ESP_{t-2} + a_5ESO_{t-1} + \epsilon_t \quad (1)$$

$$ESP_t = b_0 + b_1AW_{t-1} + b_2AW_{t-2} + b_3ESP_{t-1} + b_4ESP_{t-2} + b_5ESO_{t-1} + \gamma_t \quad (2)$$

The Equation (1) assesses the impact of lagged values of average wage and electricity consumption on current value of average wage. On the other hand, the Equation (2) estimates the influence of lagged values of the mentioned variables on current value of electricity consumption by population.

Further, in the paper losses caused through the sale of liquid gas and its economic consequences for the liquid gas station are taken into account. During last decade the number of cars using liquid gas has grown twice. At the same time, liquid gas prices have increased sharply too. Nevertheless, the difference between liquid gas and oil prices still provides incentives for installing special equipment in cars, intended for the use of liquid gas. However the volume of gas

supplied to the gas stations is not completely being supplied to customers through the sale. Consequently the need to keep remained liquid gas in station causes certain losses for them.

Advantages of using liquid gas are present in different European countries, where each third car works on liquid gas (Transportation Statistics Annual Report, 2010). In these countries, flexibility of fiscal policies with respect to producers and suppliers of propane-butane mixture provides the feasibility of liquid gas use.

This paper provides analysis of the impact of thinned out gas sale losses on the firm functioning which is specializing on the oil supply for automobiles. The analysis shows that there exists significant dependence between factors characterizing efficiency of this kind of firm. This allowed to assess expected losses of gas station caused by the need of the maintenance of non-supplied gas to customers.

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РОССИЙСКИЕ ИННОВАЦИОННЫЕ ПРЕДПРИЯТИЯ В СОВРЕМЕННЫХ УСЛОВИЯХ: ВЫБОР ТРАЕКТОРИИ РАЗВИТИЯ

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Одним из важнейших факторов инновационного развития экономики является ориентация на экспорт производимой продукции. Согласно большинству прогнозов специалистов, товарные рынки в период кризиса и в посткризисный период характеризуются высоким уровнем волатильности, а также ужесточением конкуренции и модификацией поддержки государствами своих экспортеров. В этих условиях перед российскими компаниями стоит непростая задача: с одной стороны, необходимо удерживать свои позиции на международных рынках, а с другой стороны, не потерять уже завоеванные рыночные ниши для сбыта товаров и услуг на внутреннем рынке, что возможно только за счет повышения конкурентоспособности национальной экономики.

У России имеется традиционно сильные экспортные товары в несырьевых отраслях экономики. Это, в основном, продукция высокотехнологичных и средне-технологичных видов экономической деятельности. Однако в 2014 году и последующий период на внешне торговлю России оказали существенное негативное воздействие введенные против нее экономические санкции и ответные внешнеторговые контрсанкции российского правительства.