

# Wages, Output, and Transition: Natural-Rate Hypothesis Approach. The Case of Poland

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## ABSTRACT

The presented study aims to elucidate a causal relationship between the real gross wages and real output during the second stage of the Polish transition. According to the author's earlier works, this paper develops the investigations on natural-rate hypothesis. The opening section presents briefly the concept of natural-rate hypothesis and the namely the Lucas-type output function. An empirical investigation starts with the unit root tests. Although the results depend on the different lag length, they do not differ significantly: the tested series are stationary in level  $I\sim(1)$ . The next section is devoted to the VAR-based modification Granger causality tests. The lag length in both auxiliary as well as VAR models is chosen on the basis of information criterion, Lagrange multiplier tests, and Lagrange multiplier F-tests. Since the auxiliary model for VAR-based causality tests is an AR(p) model, the application of Lagrange procedure is reasonable, and thus seems to be supportive for the lag length selection based on the information criterion. The results of the causality tests cancel the null that the changes in wages do not cause the changes in output, while there is no causal relationship in the opposite direction. The last section presents the cointegration-based long-run causality tests results. After the cointegrating restrictions on trend and intercept were imposed, no long-run causality is found. Hence, the obtained conclusions can be seen as supportive of the natural-rate hypothesis approach.

## Introduction

The presented study aims to elucidate a causal relationship between the real gross wages and real output during the second stage of the Polish transition. According to the author's earlier works, this paper develops the investigations on natural-rate hypothesis (NRH). The opening section presents briefly the concept of NRH and the most influential model, which developed the Friedman's idea (1977), namely the Lucas-type output function. Since the results obtained by Lucas (1973) stressed out a relationship between the unexpected demand shocks and output, it is reasonable to assume that the wages should affect production. The next sections examine this supposition.

An empirical investigation starts with the unit root tests. The employed tests are augmented Dickey-Fuller test (ADF). The null and alternative hypotheses are unit root with drift against the linear trend stationarity and unit root against the stationarity. The lag length is chosen on the basis of information criterion (i.e. Akaike, Hannan-Quinn, and Schwarz). Although the results depend on the different lag length, they do not differ significantly. The tested series are stationary in level  $I\sim(1)$ .