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# SYSTEM DYNAMIC MODEL OF PRICE REGULATION IN PUBLIC MANAGMENT

Inflation is an expansion in the quantity of money in an economy, and is seen as a sustained increase in the general price level of goods and services in an economy over a period of time resulting in a loss of value of currency. A chief measure of price inflation is the inflation rate, the annualized percentage change in a general price index, usually the consumer price index, over time. Formula for inflation take into account consumer price index (CPI), especially price index in a base year and price index in a current year.

The problem of public regulation of inflation is important because it's increasing year by year and rate of it is really high. Considering data that was taken from Ukrainian official statistics here is the CPI graph counted as CPI based on 2008's prices and according to the CPI data inflation behavior.

Inflation is usually caused by changes in exchange rate, deficit of government budget, increasing of government payments without considering to ability of economy, extra military spending that is caused by war etc. There are three basic ways to stabilize inflation: deflationary policy (adjustment of demand – monetary policy); incomes policy (costs' adjustment – by limiting the size of increase in prices and wages this policy reduces the rising costs of production of goods); adaptation policy (stabilizing of inflation expectations).

To build SD model of inflation we decided to look on it as on cost push inflation. The hypothesis is that growth of wages defines the growth of prices. I'm assuming that people are spending 100% of their wage so it's becoming a cost of goods and services. CPI needs to be formed by Wage Index that we were taking as current wage divided by its initial value. The main loop here is reinforcing loop between CPI and Wage structure.

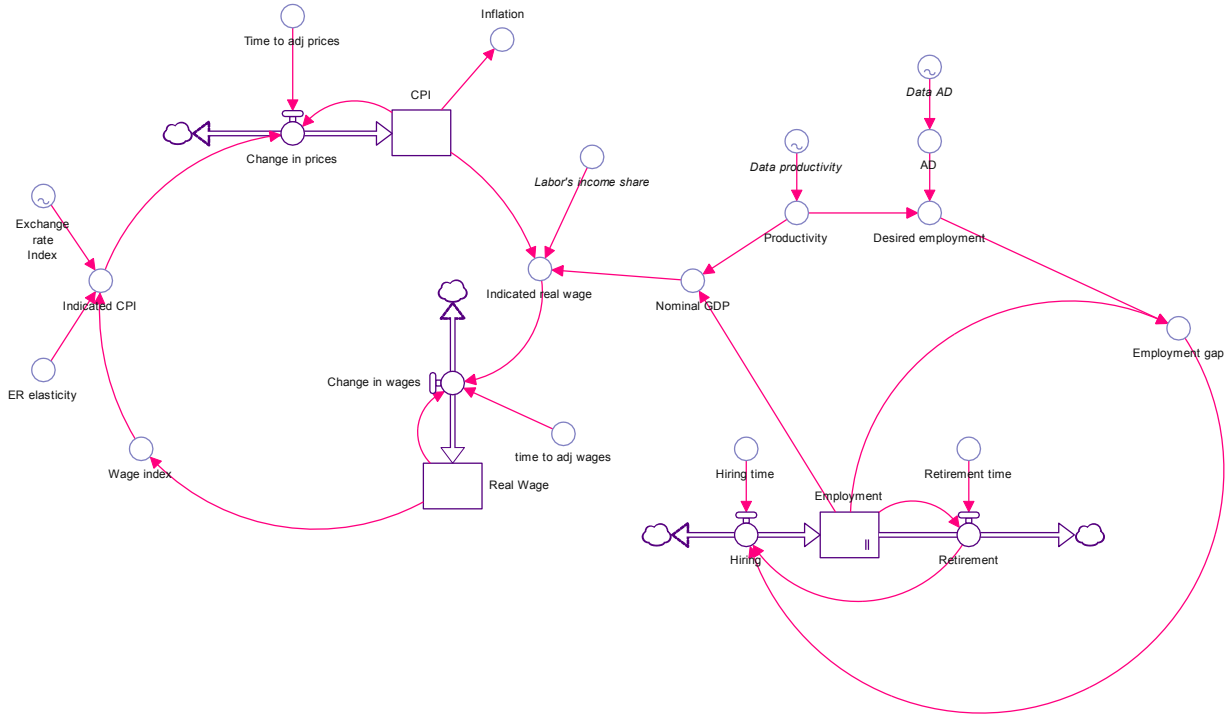


***Figure 1. System Dynamic Model***

We added Employment structure with exogenous data of Productivity and Aggregate Demand and from this structure we got Nominal GDP that together with Labor's income share is forming Indicated wage. Behavior that we have gotten is close to real data but still not the same, but it's caused by fact that inflation depends on other factors. That's why we decided exogenously to add one more index called Exchange rate index that is formed with the same logic as Wage index: current exchange rate divided by initial one. The final SD model is shown in Figure 1. Its result is shown in Figure 2.

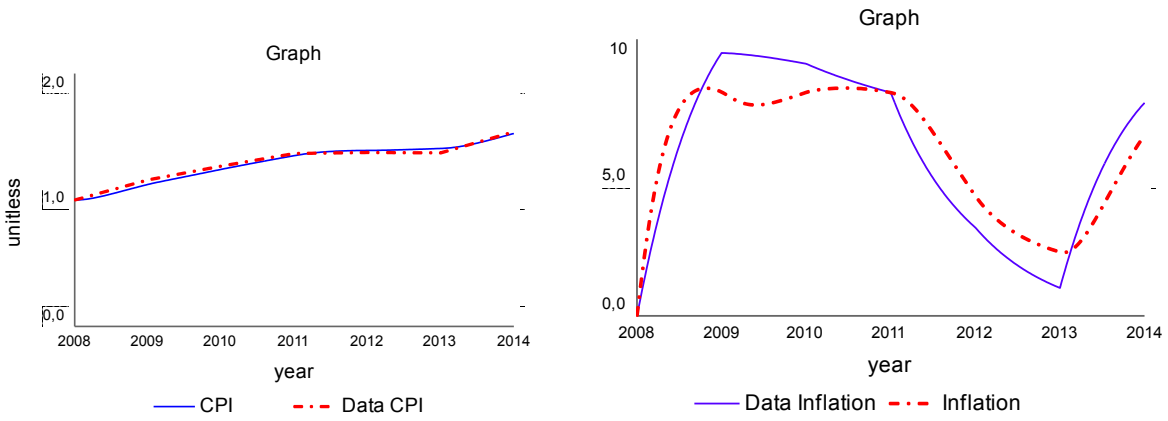


***Figure 2. Results of modeling using system dynamics approach***

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