

Money, Sticky Wages, and the Great Depression

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IMPULSE RESPONSE FUNCTIONS

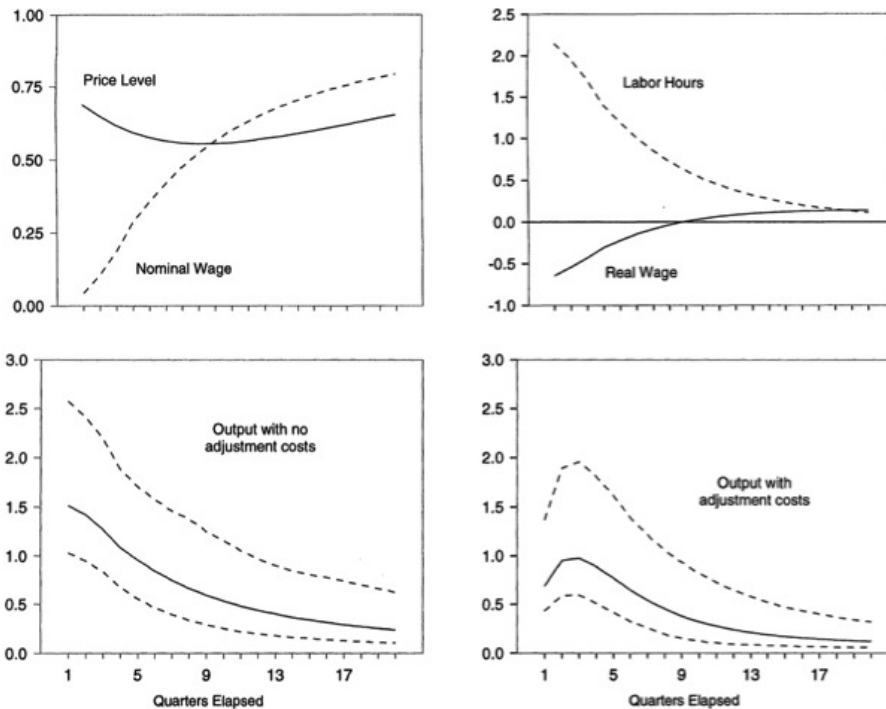


FIGURE 1. Impulse response generated for price, wages, hours, and output by positive shock to the money supply. Bottom two figures display response of output in a staggered wage baseline model (left) and with adjustment costs (right).

- A positive shock to the money supply causes an immediate increase in price level (inflation)
 - An increase in money supply shifts the LM curve outward, decreasing equilibrium interest rate and increasing output
 - Positive movement along the (short-run) aggregate supply increases the price level
- Nominal wage gradually increases after the shock, as staggered wage contracts are adjusted to higher price level
- Because wage contracts are sticky, both nominal and real wages “overshoot” the target wage rate
 - Real wage rises above steady-state real wage
 - Nominal wage grows above price level
- An increase in the price level causes real wage (W/P) to fall below steady state and immediately begins increasing as new wage contracts are set using higher price level
- The drop in real wage causes an increase in productivity, firms hire more because labor is inexpensive
- Higher productivity leads to greater output, which gradually returns to steady-state as wage contracts are adjusted to the new price level
- Output *with* adjustment costs is hump-shaped because there is a cost associated with hiring labor: firms are more hesitant to hire/fire workers. With adjustment costs, labor can be viewed as more of an investment (like capital), lagging the increased level of output

MODEL SIMULATIONS

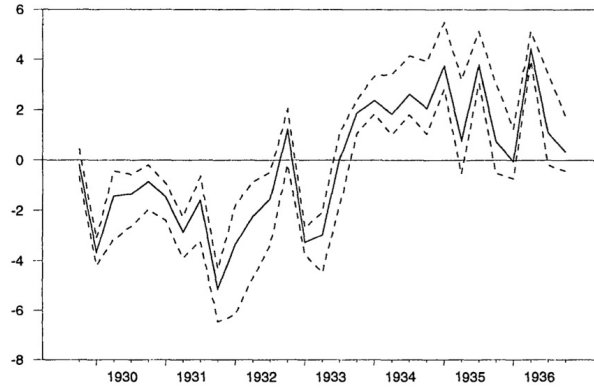


FIGURE 2. Time series of money supply (1929 - 1936). In 1933 the U.S. remonetized (left the gold standard) allowing for more flexible monetary policy.

- Though currency was backed by gold through 1933, negative “shocks” to the money supply enter the economy through bank failure/financial crisis
- In 1933, the U.S. left the gold standard, allowing use of monetary policy to adjust the economy

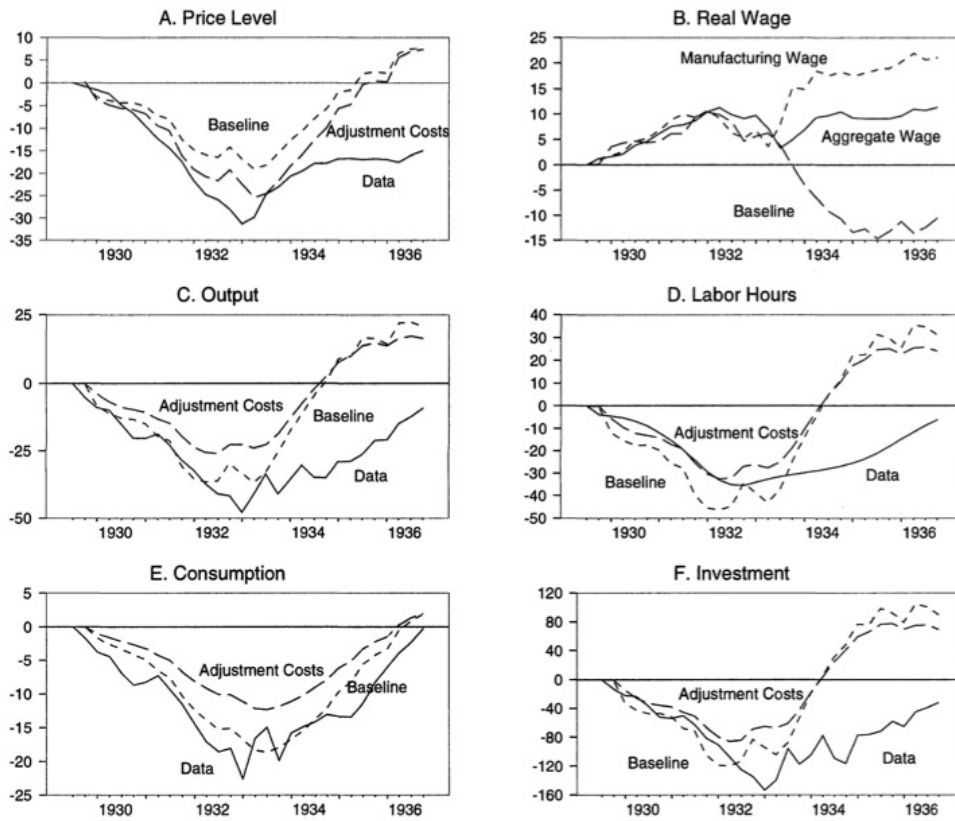


FIGURE 3. Comparison of data to baseline and adjustment cost staggered wage models.

Price level through 1933

- Financial instability beginning in the late 1920's causes divestment and therefore a drop in price level (inflation)
- Price level simulations follow historical trend

Real wage through 1933

- Divestment from the U.S. economy causes a drop in price level
- A drop in price level increases real wage above steady state (this is the backward case of a positive shock to the money supply resulting in a drop in real wage discussed above)
- Because wage contracts are sticky, wages adjust to the monetary shock slowly, causing real wage to be greater than equilibrium wage

Labor Hours through 1933

- As labor becomes more expensive (real wage increasing), firms decrease labor hours

Output through 1933

- Output decreases with hours worked
- Interest rates increase with a negative monetary shock, causing a greater decrease in output

Consumption through 1933

- As hours worked falls, households' purchasing power decreases
- As output drops, firm profits decrease further decreasing households' purchasing power (GE model-profit enters household's problem through budget constraint)

Investment through 1933

- An increase in interest rate causes investment to be more costly
- Investment falls with output - firms have less to invest

After 1933, the U.S. remonetized allowing for the use of monetary policy as a more combative instrument to influence the economy. In 1933, the National Industrial Recovery Act (NIRA) was implemented to increase the consumer's purchasing power by creating a minimum wage. NIRA hindered the recovery of the economy by not allowing real wages to adjust to steady state, causing labor hours, output, and consumption to remain below steady state, contrary to the model simulations, with and without adjustment costs.