Hyperinflation in Ukraine

Econ1102
Guest Lecture

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Outlines

➢ Background information and current economic situation in Ukraine
➢ Characteristics of hyperinflation in 1991-95
➢ Hyperinflation time: winners and losers, seignorage and inflation tax
➢ Roots of the hyperinflation
➢ Monetary reform of 1994-96, end of hyperinflation
### Background: Ukraine, Minnesota, USA (2004)

<table>
<thead>
<tr>
<th></th>
<th>Ukraine</th>
<th>MN</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (sq.mi.)</td>
<td>233,000</td>
<td>87,000</td>
<td>3,718,000</td>
</tr>
<tr>
<td>Population (mln.)</td>
<td>47.7</td>
<td>5.1</td>
<td>293.7</td>
</tr>
<tr>
<td>Population growth (%)</td>
<td>-0.7</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>GDP (PPP, bln. $)</td>
<td>260(^{(2003)})</td>
<td>210(^{(2003)})</td>
<td>11,730</td>
</tr>
<tr>
<td>GDP growth rate (%)</td>
<td>12.0</td>
<td>…</td>
<td>4.4</td>
</tr>
<tr>
<td>GDP per capita (PPP, $)</td>
<td>5,400(^{(2003)})</td>
<td>41,600(^{(2003)})</td>
<td>40,000</td>
</tr>
<tr>
<td>Inflation rate (%)</td>
<td>12.3</td>
<td>…</td>
<td>3.3</td>
</tr>
<tr>
<td>Unemployment rate (%)</td>
<td>3.6</td>
<td>4.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Import (% GDP)</td>
<td>48.8</td>
<td>…</td>
<td>15.0</td>
</tr>
<tr>
<td>Export (% GDP)</td>
<td>59.8</td>
<td>…</td>
<td>9.8</td>
</tr>
<tr>
<td>Budget Deficit (% GDP)</td>
<td>3.2</td>
<td>…</td>
<td>3.5</td>
</tr>
</tbody>
</table>
Hyperinflation: Definition

Hyperinflation is a period of rapid inflation that leaves a country's currency virtually worthless. There is no universally accepted numerical definition to hyperinflation.

Some of numerical definitions of hyperinflation:
- extremely high inflation, usually over 50% per month (Cagan, 1956);
- an unusually rapid rate of monetary inflation, as when prices rise more than 100% per year;
- the cumulative inflation rate over three years is approaching, or exceeds, 100% (International Financial Reporting Standards)
Inflation: Ukraine vs. USA, 1990-97

Hyperinflation (100% and above)
## Hyperinflation: Example

- **Price of cheeseburger**

<table>
<thead>
<tr>
<th>Date</th>
<th>Price (kupons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/92</td>
<td>0.99</td>
</tr>
<tr>
<td>1/93</td>
<td>1.46</td>
</tr>
<tr>
<td>2/93</td>
<td>2.14</td>
</tr>
<tr>
<td>3/93</td>
<td>3.15</td>
</tr>
<tr>
<td>6/93</td>
<td>10.03</td>
</tr>
<tr>
<td>9/93</td>
<td>31.90</td>
</tr>
<tr>
<td>12/93</td>
<td>101.52</td>
</tr>
</tbody>
</table>
Characteristics of Ukrainian hyperinflation

- Legal restrictions on currency circulation
  - … by law local currency was declared the only legal tender
  - … currency exchange was limited
- Dominance of U.S. dollar and “special currency units”
- Prevailing barter of agriculture goods
- Inventories as a tool of savings
Who shared the burden of hyperinflation?

- Households due to loss of real value of savings (inflation tax)
- Enterprises due to loss of liquidity

Who benefited from the hyperinflation?

- Government (seignorage = revenue from printing money)
- Enterprises, recipients of low interest government credit
Seigniorage vs. Inflation Tax

\[
\text{Seigniorage} = \frac{\Delta M_t}{P_t} \quad M_t = \text{money}
\]

\[
\text{Inflation tax} = \frac{\pi_t M_{t-1}}{P_t} \quad \pi_t = \text{inflation}
\]

Change in Real Balances = Seigniorage – Inflation Tax

\[
\Delta \left( \frac{M_t}{P_t} \right) = \frac{\Delta M_t}{P_t} - \frac{\pi_t M_{t-1}}{P_t}
\]

Real Balances in Ukraine

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<tr>
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</thead>
<tbody>
<tr>
<td>M/P</td>
<td>263.1</td>
<td>122.2</td>
<td>13.1</td>
<td>14.9</td>
<td>12.9</td>
<td>11.6</td>
</tr>
</tbody>
</table>

During hyperinflation in Ukraine: Inflation Tax > Seigniorage
What are the roots of Ukrainian hyperinflation?

- Collapse of soviet planned system …
- … which led to shrink of output …
- … which led to double-digit government budget deficit …
- … which was covered by borrowing from the central bank …
- … which led to hyperinflation

Additional (onetime) factors:

- Price liberalization
- Elimination of energy subsidies
- Monopoly pricing practices
How the hyperinflation could be avoided?

- Decrease of government expenses or increase of government revenues rather than increase of budget deficit
  - Conversely, Ukrainian government provided cheap, practically zero-interest credits to enterprises with a hope to stimulate output

- Domestic and foreign borrowing rather than the borrowing from the central bank
  - However, Ukraine didn’t have financial institutions for domestic borrowing and had limited access to foreign markets
Monetary reform: Keystone actions

- President election ahead of schedule (July 1994)
- Decrease of budget deficit
  (from 13% of GDP in 1994 to 5% in 1996)
- Decrease of borrowing from the central bank
  (from 12% of GDP in 1994 to 2% in 1996)
- Domestic and foreign government borrowing
  (from 0% in 1993 to 3% in 1996)
- Wage arrears
  (5% of GDP as of the end of 1996)
Monetary reform: Keystone actions (2)

- Currency reform (September 1996; 100,000 kupons = 1 hryvnya)
  - the reform by itself can do little to stop inflation
  - it’s rather a signal that the future will be different
Conclusions

- Underlying cause of hyperinflation in Ukraine was large budget deficits covered by borrowing from the central bank.
- The most important consequence of the hyperinflation for the vast majority of Ukrainian population was the loss of real value of savings.