# Sudden Stops and Output Drops

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  - Sudden stops of capital inflows
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  - Simplest theory: Sudden stops don’t lead to output drops
  - Need other frictions

## Original Economy

$$\max \sum \beta^t \pi(s^t) U(c(s^t), l(s^t))$$

Country's budget constraint

$$c(s^t) + x(s^t) + b(s^t) = F(k(s^{t-1}), l(s^t)) + \sum q(s^{t+1}) b(s^{t+1})$$

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Collateral constraint

$$b(s^{t+1}) \leq V(s_{t+1})$$

## Tightened Collateral Constraint Means Sudden Stop

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Rewritten budget constraint: Net exports

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$V$ tighter $\Rightarrow$ $b(s^{t+1})$ falls $\Rightarrow$ net exports rise

## Business Cycle Accounting

- Exploits equivalence between
  - An original economy with distortions
  - An associated prototype economy with wedges
- Prototype economy
  - Closed economy growth model
  - Shocks
    - Government Consumption
    - Labor Taxes
    - Investment Taxes
    - Productivity Shocks

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- Prototype economy
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  - Wedges
    - Government Consumption Wedge
    - Labor Wedge
    - Investment Wedge
    - Efficiency Wedge

## Prototype Economy

$$\max \sum \beta^t \pi(s^t) U(c(s^t), l(s^t))$$

Consumer's budget constraint

$$c(s^t) + x(s^t) = w(s^t) l(s^t) + r(s^t) k(s^{t-1}) + T(s^t)$$

Resource constraint

$$c(s^t) + x(s^t) + g(s^t) = F(k(s^{t-1}), l(s^t))$$

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**Proposition.**

Given an equilibrium in original economy. Let $g$ in prototype economy equal the net exports of original economy. Then the equilibria coincide.

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- If original economy has government spending then

$$g_{PROTOTYPE} = g_{ORIGINAL} + \text{net exports}$$

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- Increase in $g$ leads to an output increase (standard result)

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$\Rightarrow$ Sudden stop leads to output rise

## Mexico's 1944–1995 Sudden Stop

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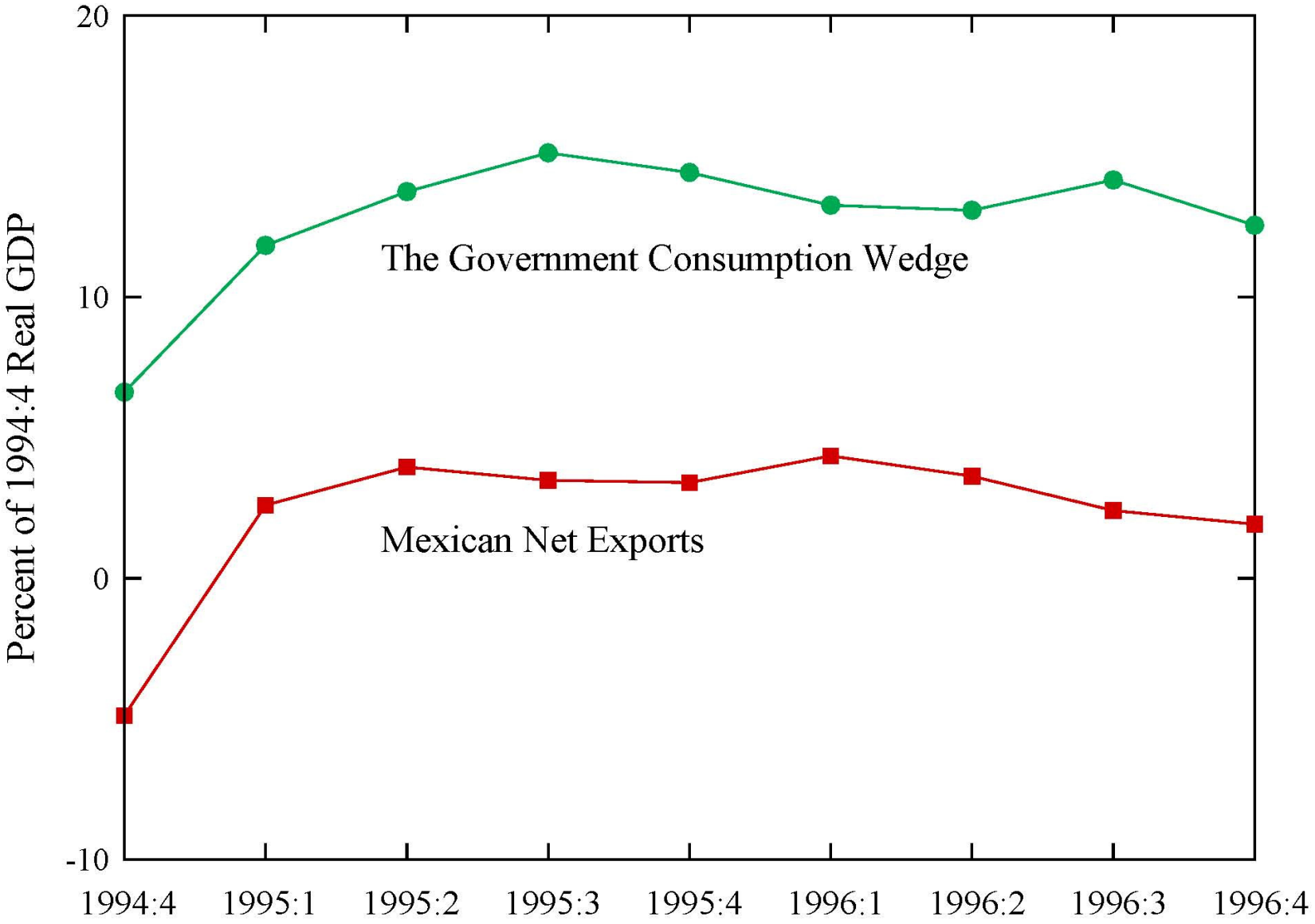
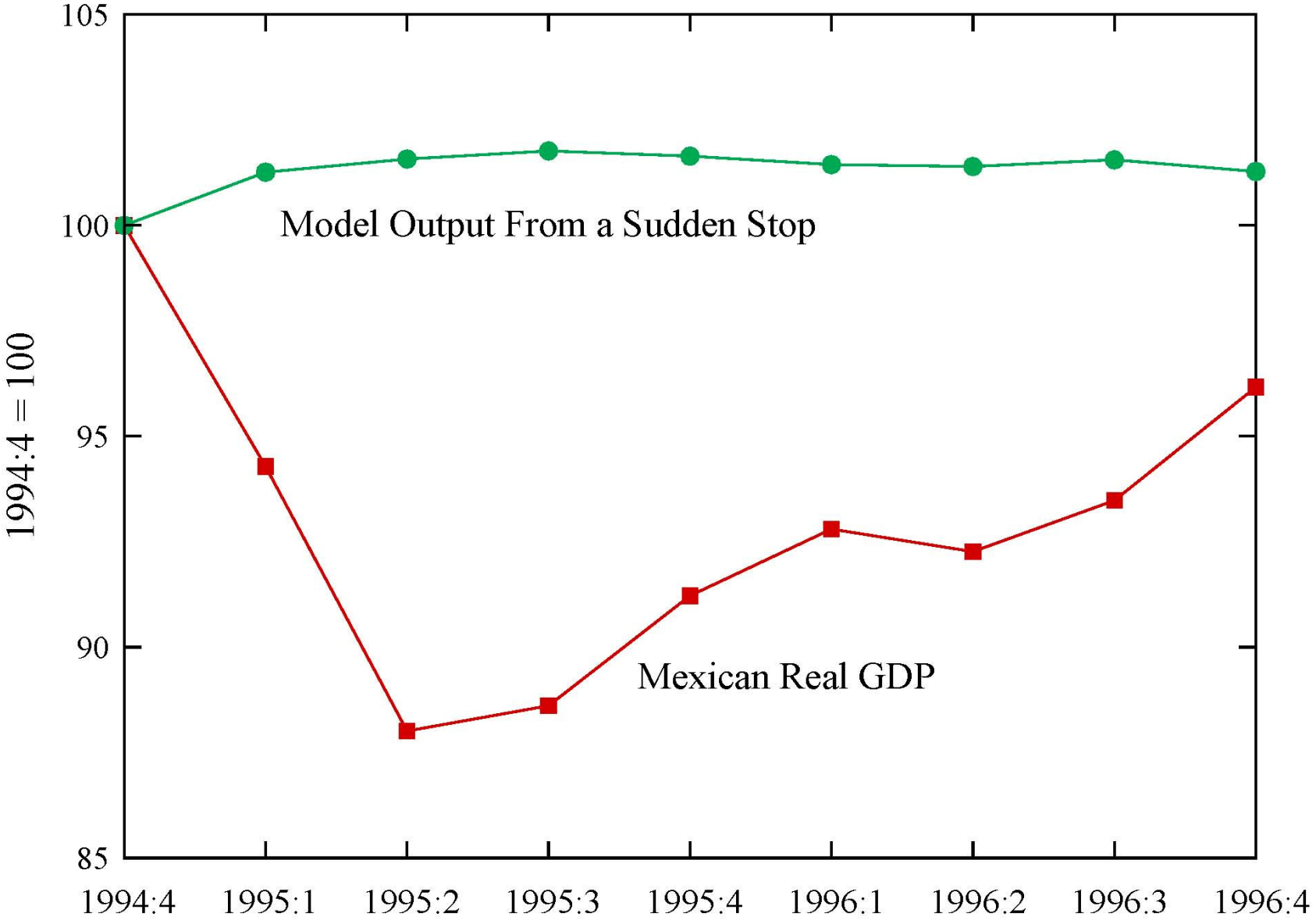
- Use Proposition 1 to focus on prototype growth model
- Estimate stochastic process for the wedges
- What is the effect of a sudden stop alone?
- That is:

  What does model predict from observed rise in net exports?

# Figure 1. The Mexican Sudden Stop in 1994:4



# Figure 2. The Output Effect of a Pure Sudden Stop



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- Advance payment constraint alone: No new wedge
- Need other frictions to get a wedge

## Advance Payment Constraints Alone: No New Wedge

Profits in period $t$: Pay $t + 1$ wage bill at $t$

$$F(k_t, l_t) - w_{t+1} l_{t+1}$$

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Present value of profits

$$\sum p_t [F(k_t, l_t) - w_{t+1} l_{t+1}]$$

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$$\sum p_t [c_t - w_{t+1} l_{t+1}]$$

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Consumer budget

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No labor wedge

$$\frac{U_{lt+1}}{U_{ct+1}} = F_{lt+1}$$

## Getting Output to Drop

- Advance payment constraints *plus* other frictions
  - On labor plus escrow accounts

    Perri-Neumeyer
  - On intermediate goods plus collateral constraints

    Mendoza, Christiano, Gust, Roldos

## Advance Payment Constraints: With Escrow Accounts

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  - Pays workers at $t + 1$ from escrow account
  - Pays lenders $R_{t+1}w_{t+1}l_{t+1}$

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  - Pays lenders $R_{t+1}w_{t+1}l_{t+1}$ at $t + 1$
- Get labor wedge

$$\frac{U_{lt+1}}{U_{ct+1}} = \frac{F_{lt+1}}{R_{t+1}}$$

## Conclusion

- Sudden stops alone do not give output drops
- Advance payments alone do not generate a wedge
- Need other frictions

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- Advance payments alone do not generate a wedge
- Need *direct evidence* on other frictions