



Pegs in Latin America, Lessons for Europe?

Ariel Burstein
University of California, LA

Iván Werning
MIT

Paper presented at the 14th Jacques Polak Annual Research Conference
Hosted by the International Monetary Fund
Washington, DC—November 7–8, 2013

The views expressed in this paper are those of the author(s) only, and the presence of them, or of links to them, on the IMF website does not imply that the IMF, its Executive Board, or its management endorses or shares the views expressed in the paper.

Argentina's Crisis and
Recovery: A Demand
Side Story 1998-2006

Ariel Burstein UCLA
Iván Werning MIT

This Paper

- Deep recessions with fixed exchange rates
 - Argentina 1998-2001
 - Europe 2009-today
- **Goal:** re-examine Argentina through the lens of open economy macro model
 - isolate shocks to organize facts
 - demand-side story

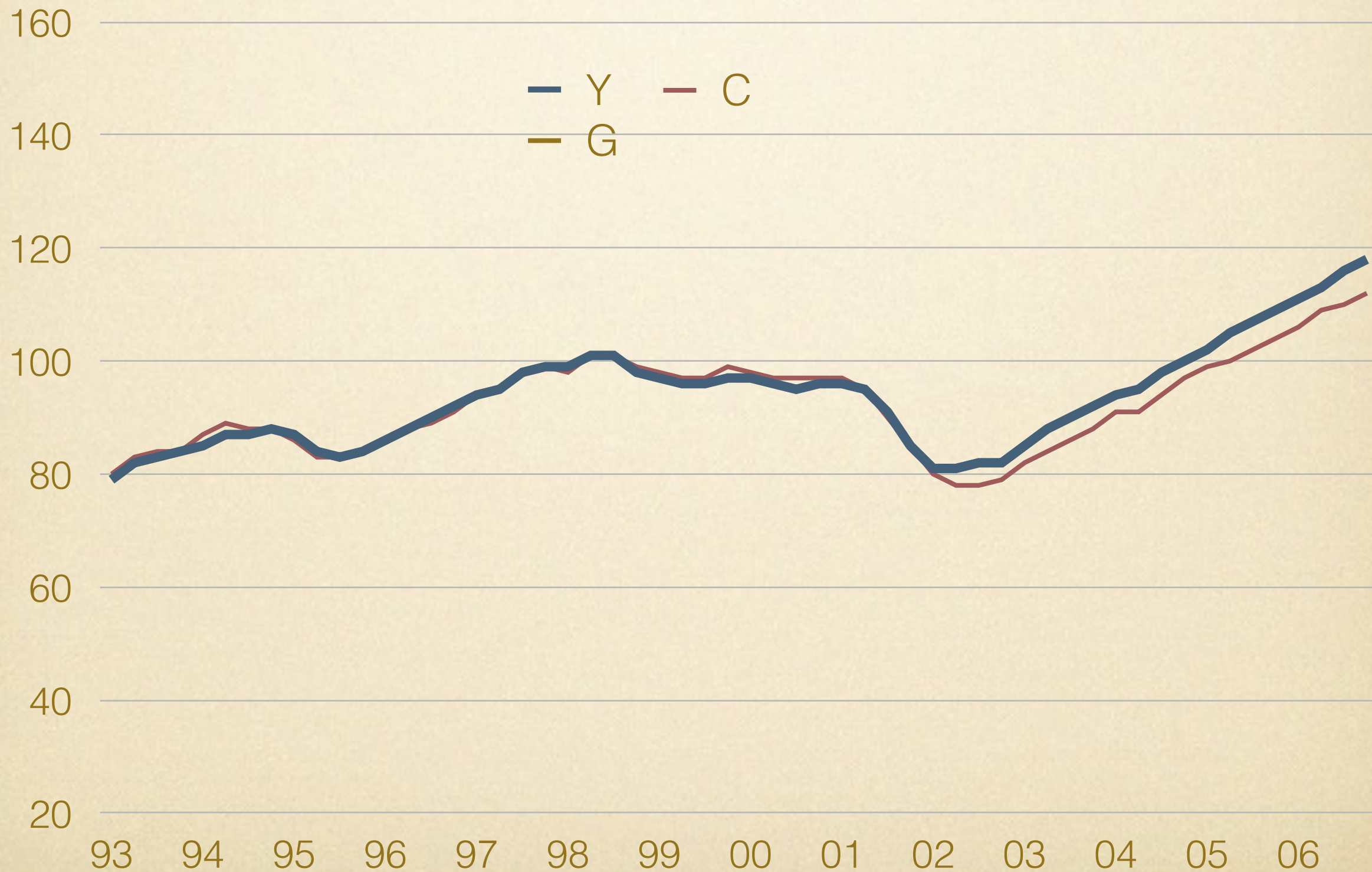
1. Facts

GDP components

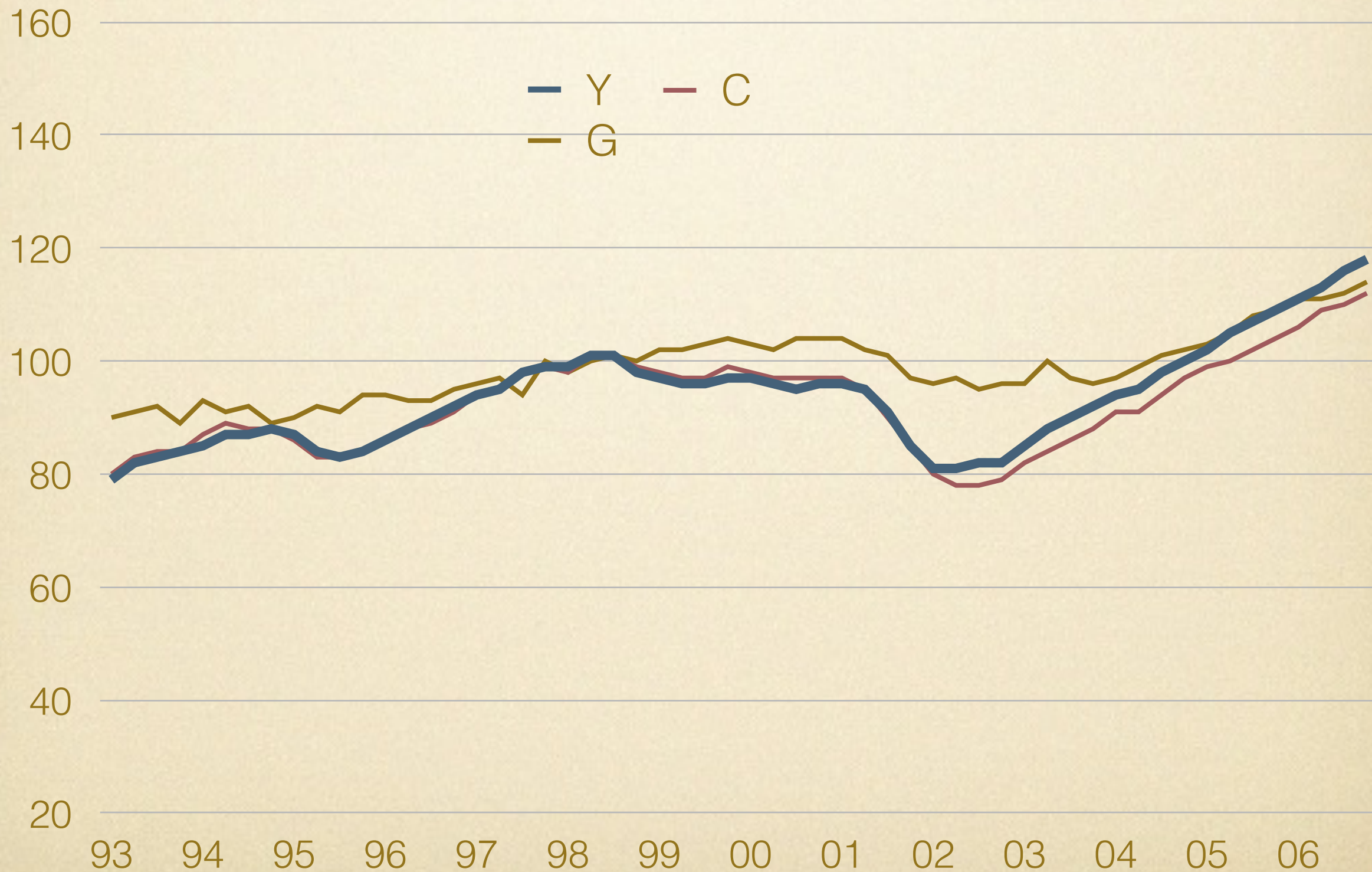
GDP components



GDP components



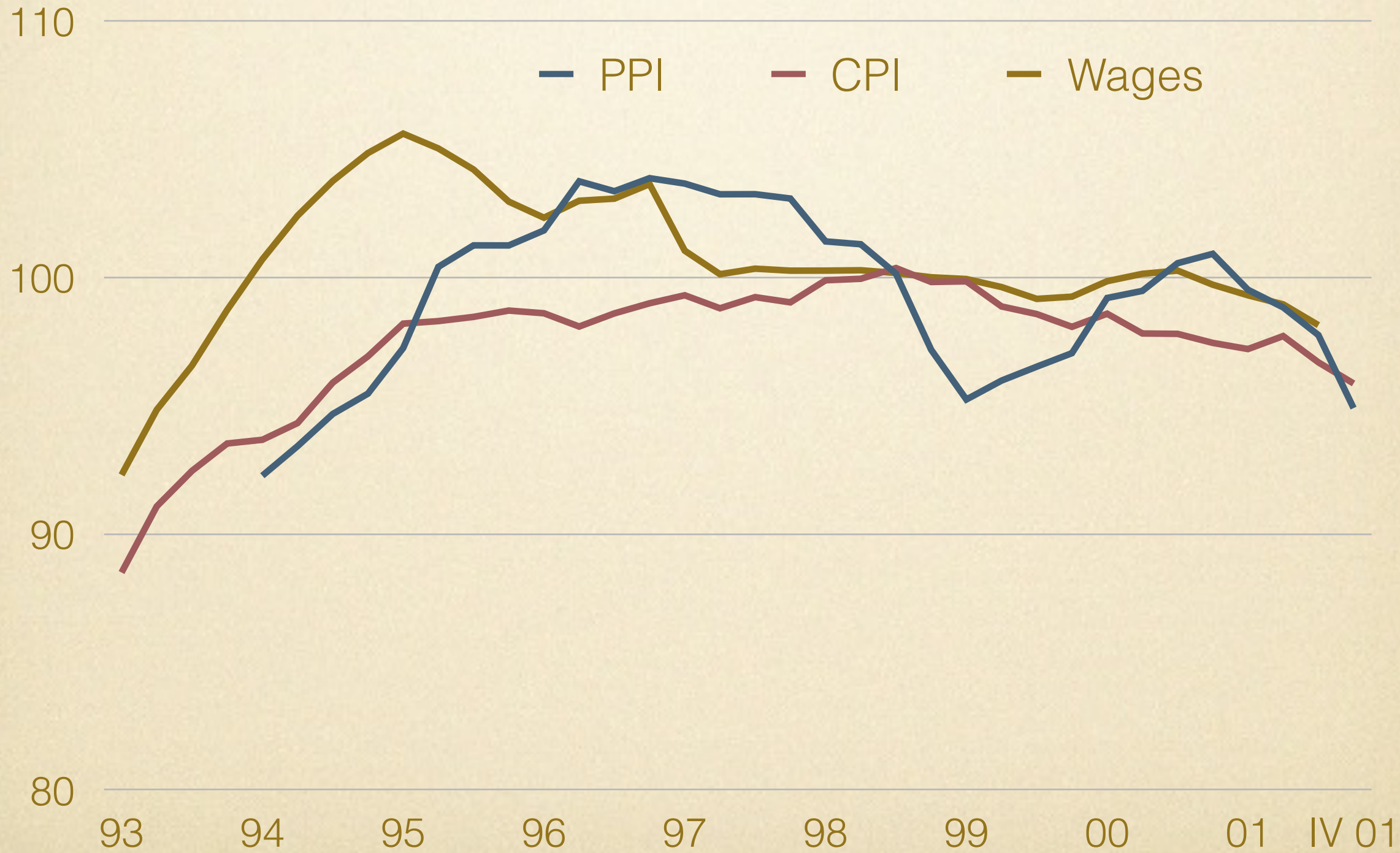
GDP components



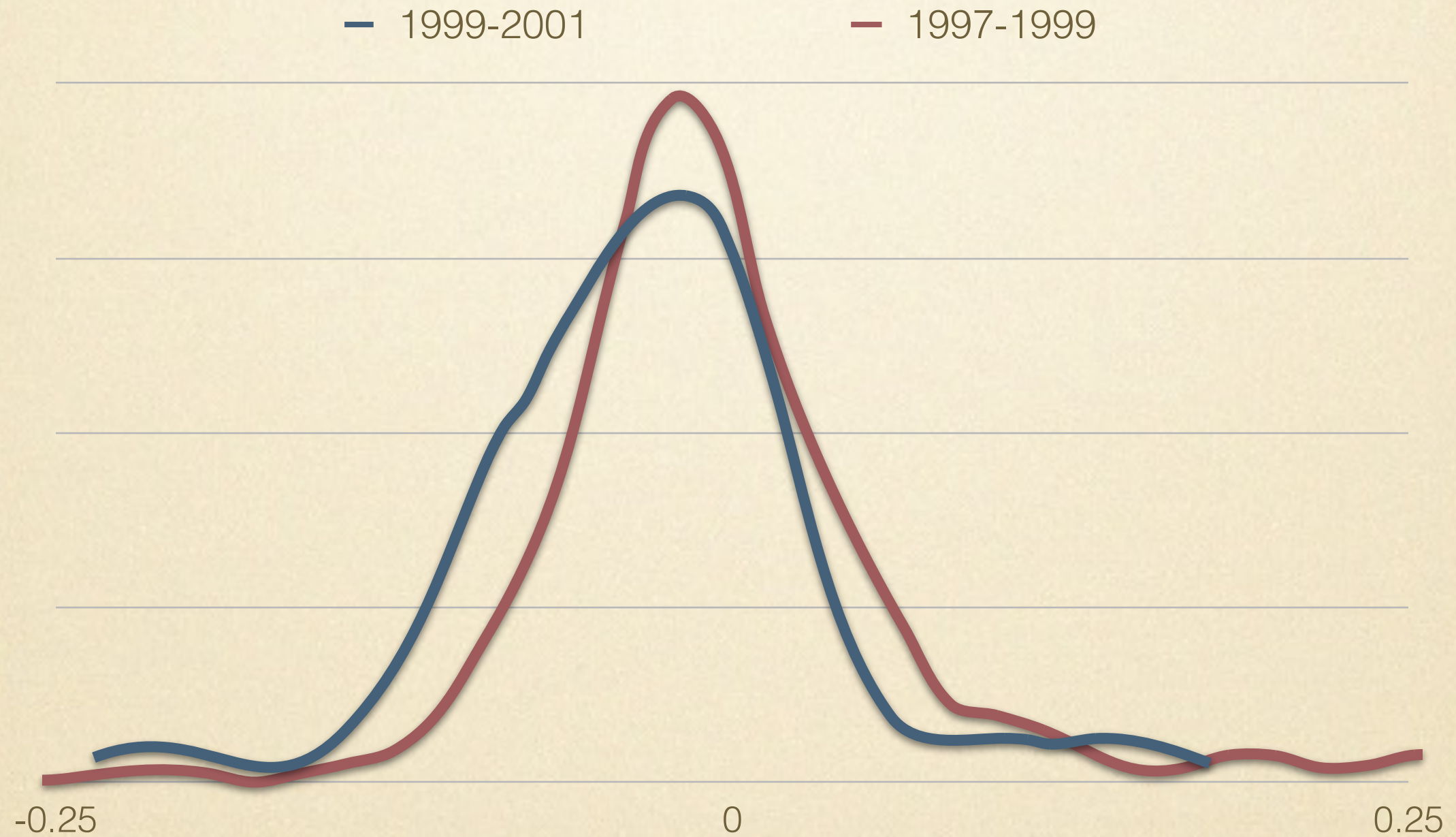
Unemployment Rate



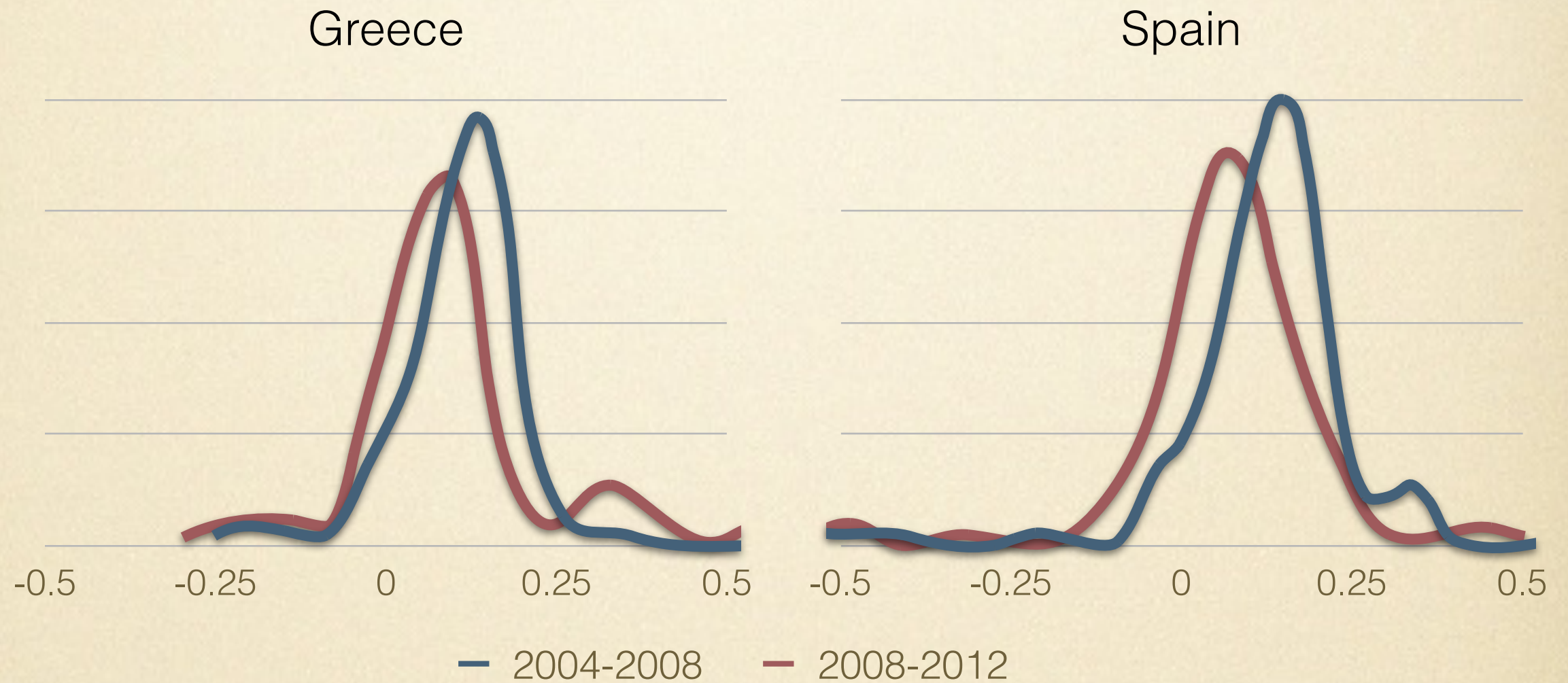
Prices and Wages



Argentina Disaggregated CPI



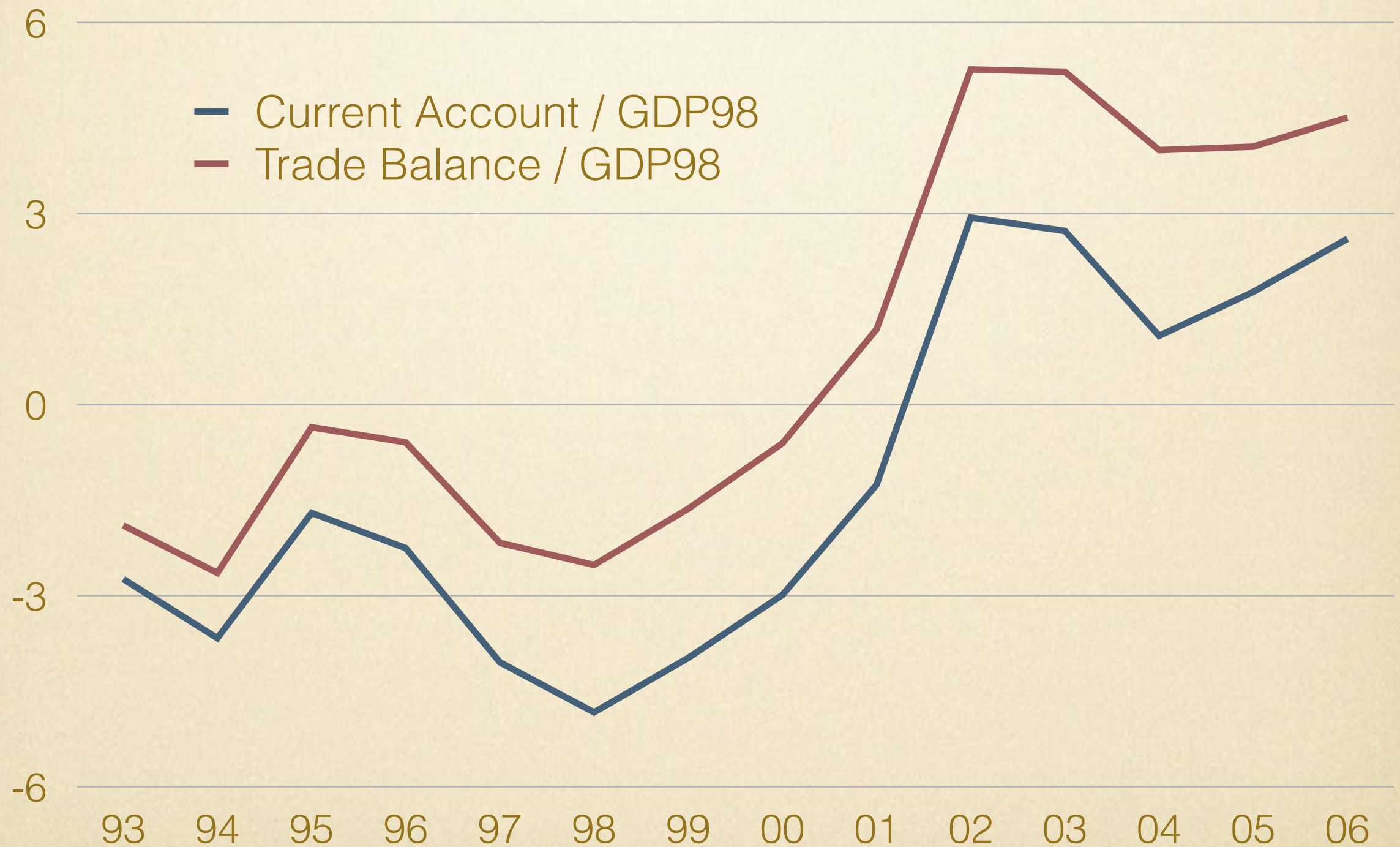
Europe Disaggregated CPI



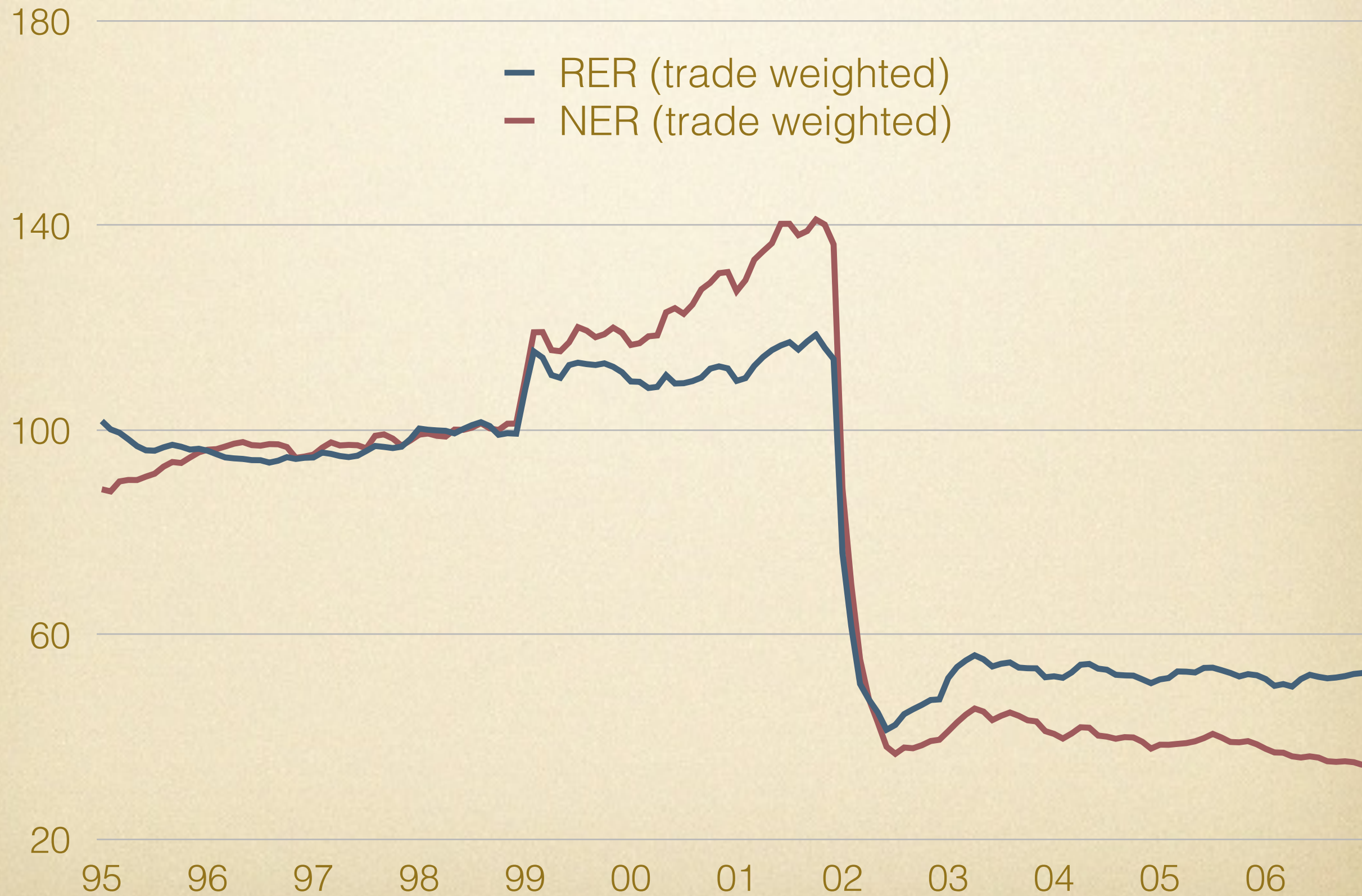
Shocks: EM Crisis



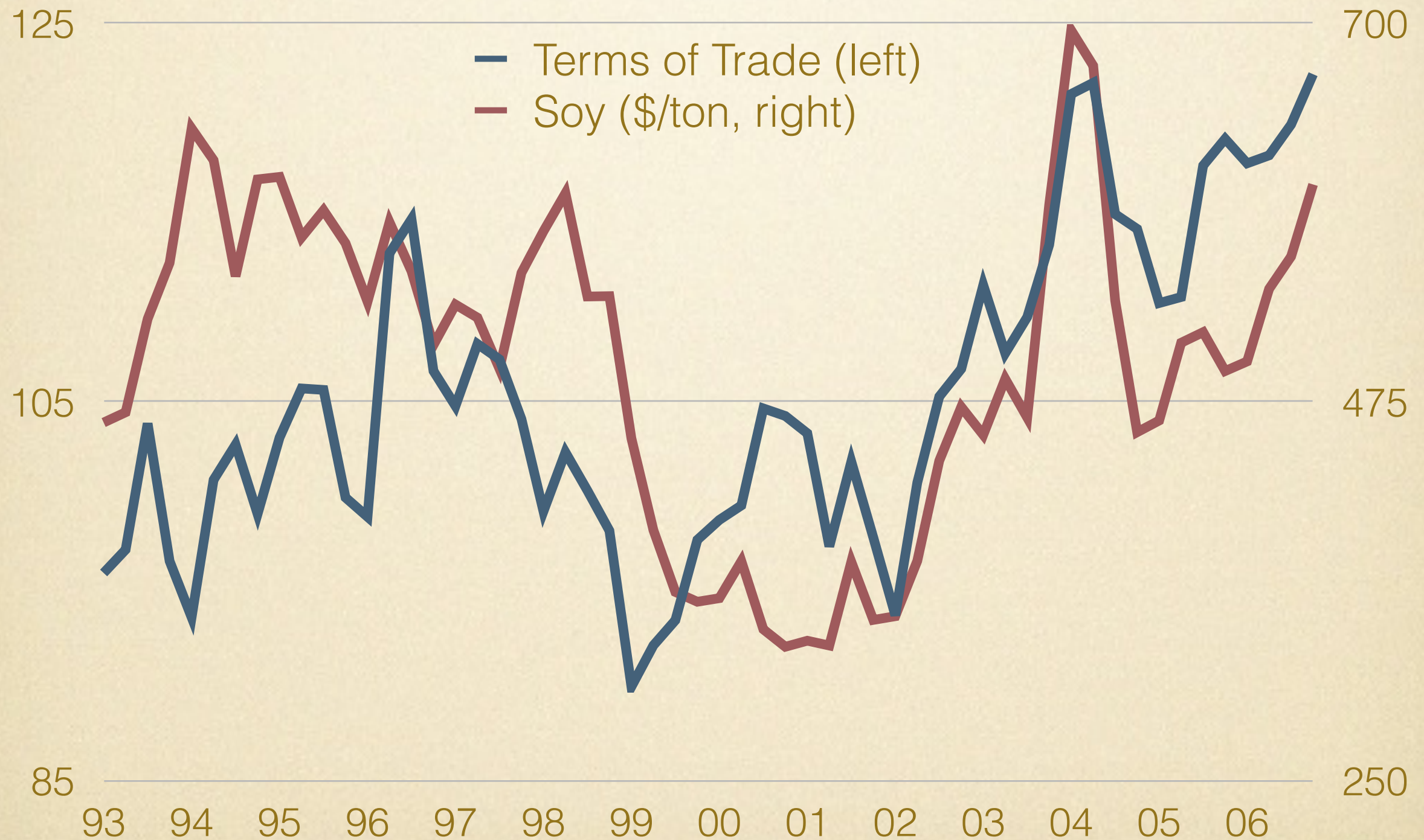
Shocks: Sudden Stop



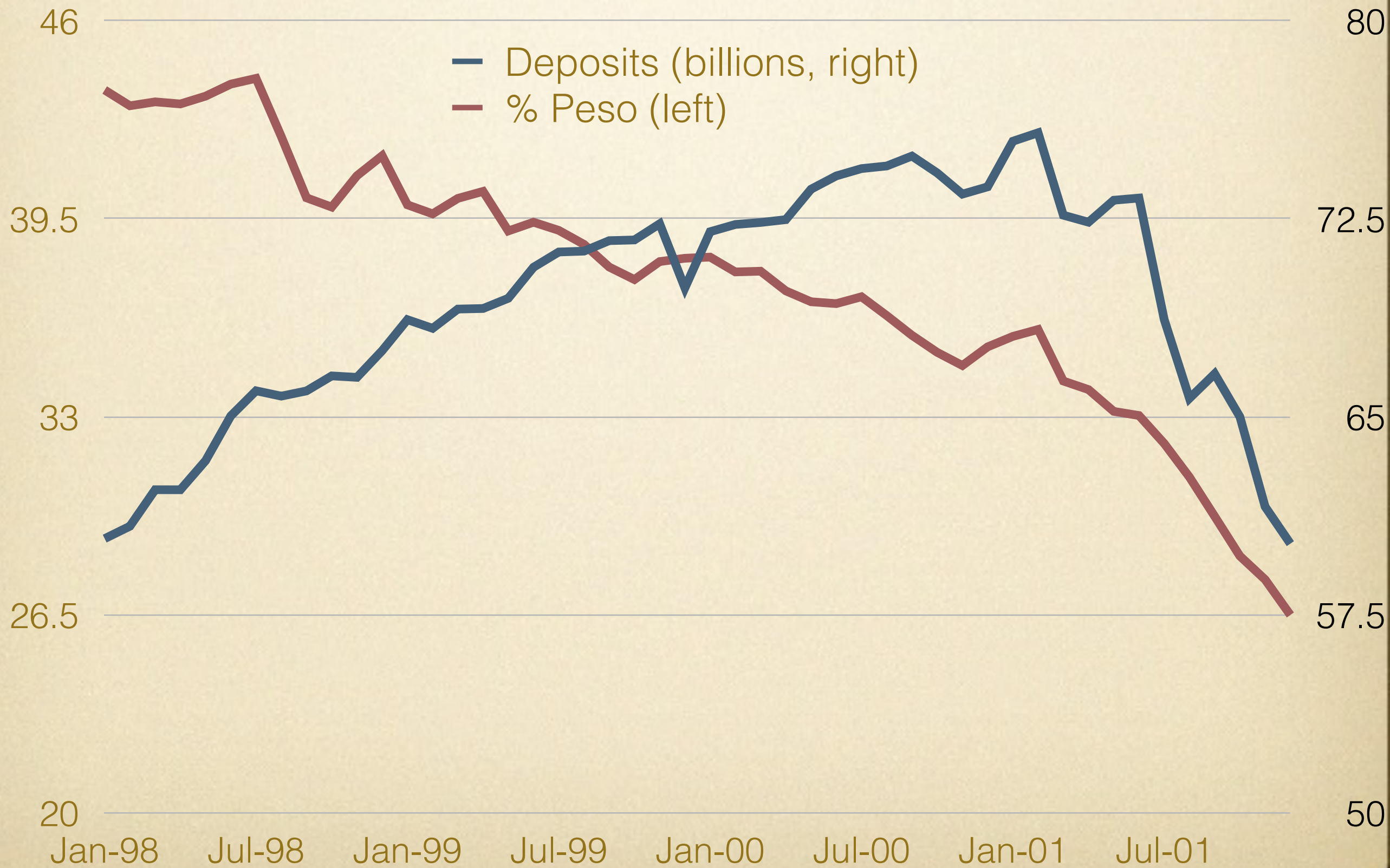
Exchange Rate



Shocks: Terms of Trade



Deposits



2. Model

Model

- Open economy model
- Goods...
 - differentiated non-traded goods
 - differentiated traded goods
 - commodities
- Sticky plans prices and wages (Mankiw-Reis)
- Fraction hand-to-mouth agents (Campbell-Mankiw)
- Capital flows
 - risk premia
 - borrowing constraints

Calibration

	value
imports / GDP	12.5%
% commodities	50%
annual interest rate	6%
export elasticity	2
N vs T elasticity	0.5
H vs F elasticity	1
intertemporal elasticity	1
labor elasticity	2
% hand to mouth	40%
% adjusting plans	25%

	value
sudden stop	10% interest rate
sudden stop II	3% TB / GDP
appreciation	20%
G shock	dY / dG
expected devaluation	20%
terms of trade	50% export value
corralito	future reduction C opt by 5%

Calibration

	value
imports / GDP	12.5%
% commodities	50%
annual interest rate	6%
export elasticity	2
N vs T elasticity	0.5
H vs F elasticity	1
intertemporal elasticity	1
labor elasticity	2
% hand to mouth	40%
% adjusting plans	25%

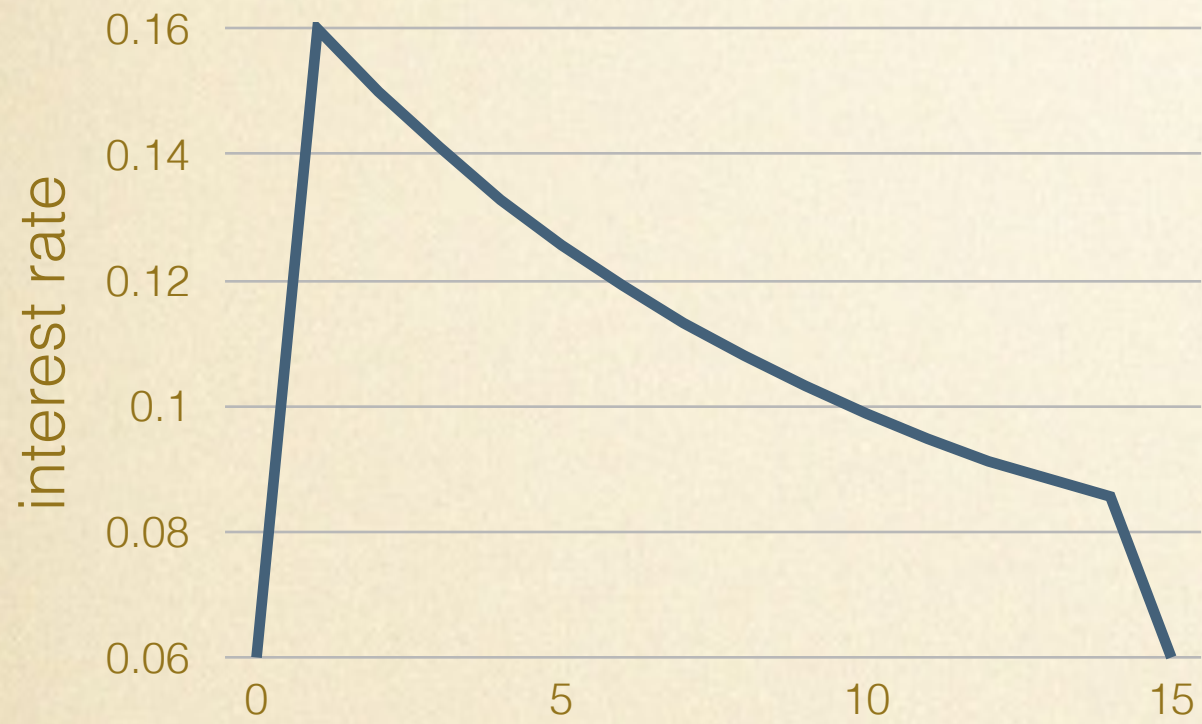
	value
sudden stop	10% interest rate
sudden stop II	3% TB / GDP
appreciation	20%
G shock	dY / dG
expected devaluation	20%
terms of trade	50% export value
corralito	future reduction C opt by 5%

Calibration

	value
imports / GDP	12.5%
% commodities	50%
annual interest rate	6%
export elasticity	2
N vs T elasticity	0.5
H vs F elasticity	1
intertemporal elasticity	1
labor elasticity	2
% hand to mouth	40%
% adjusting plans	25%

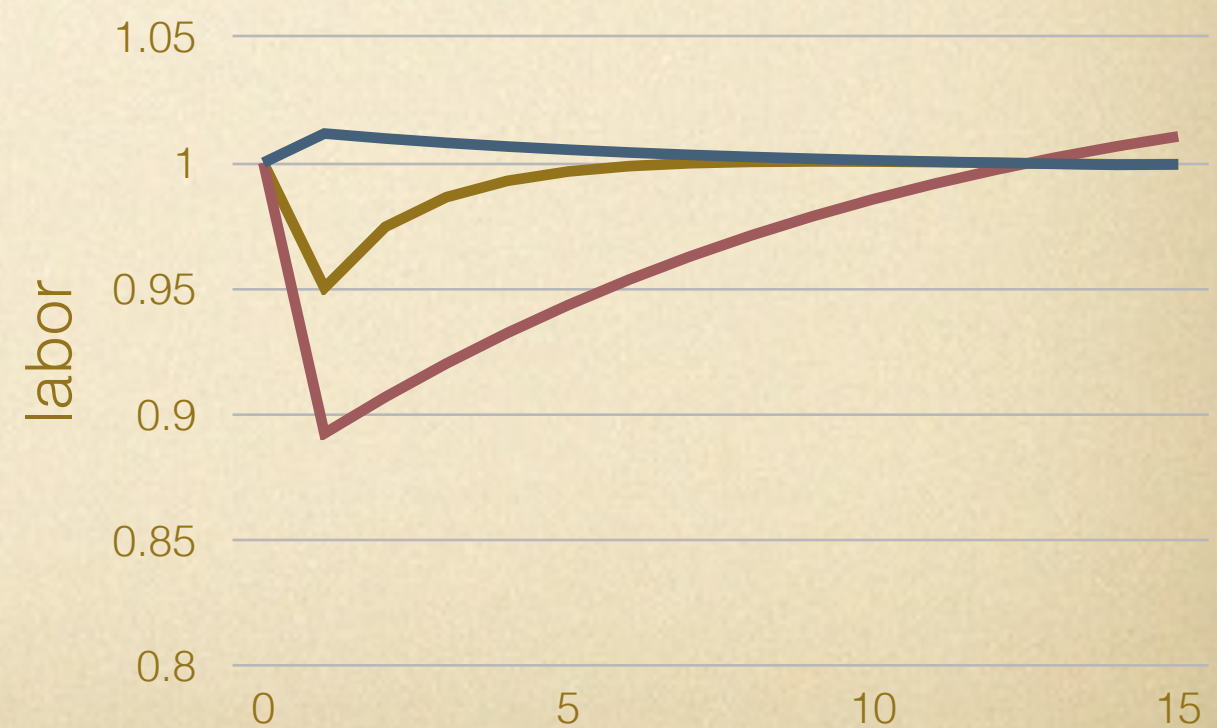
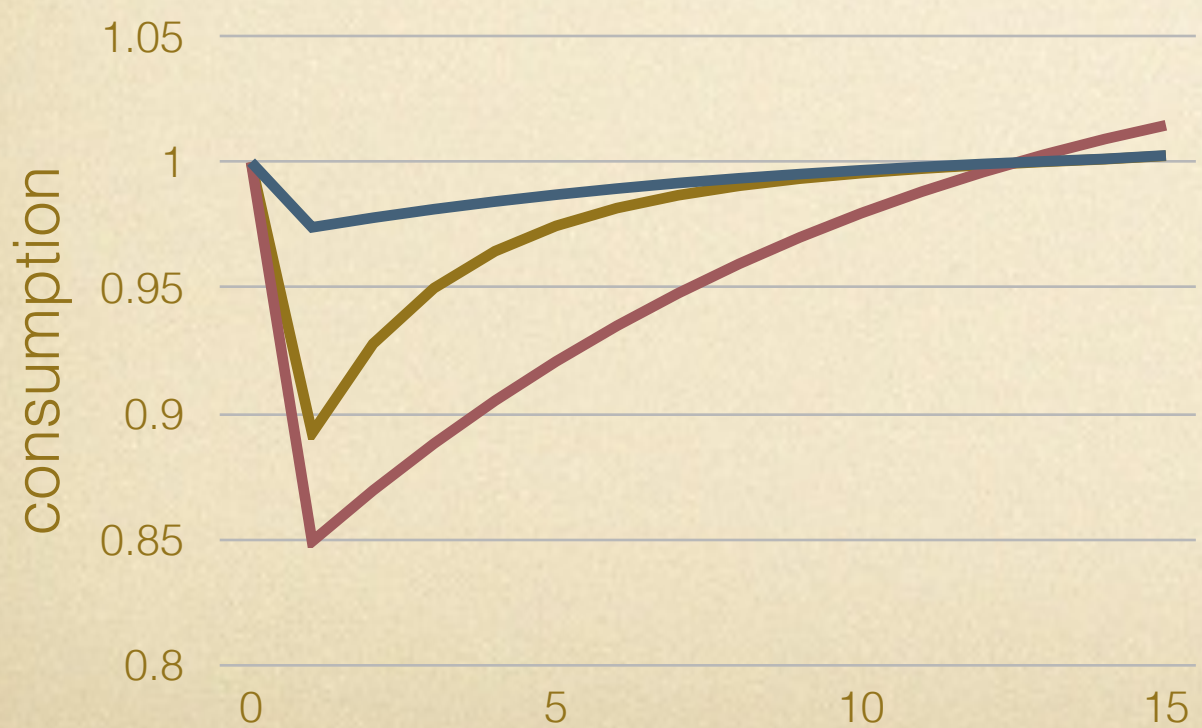
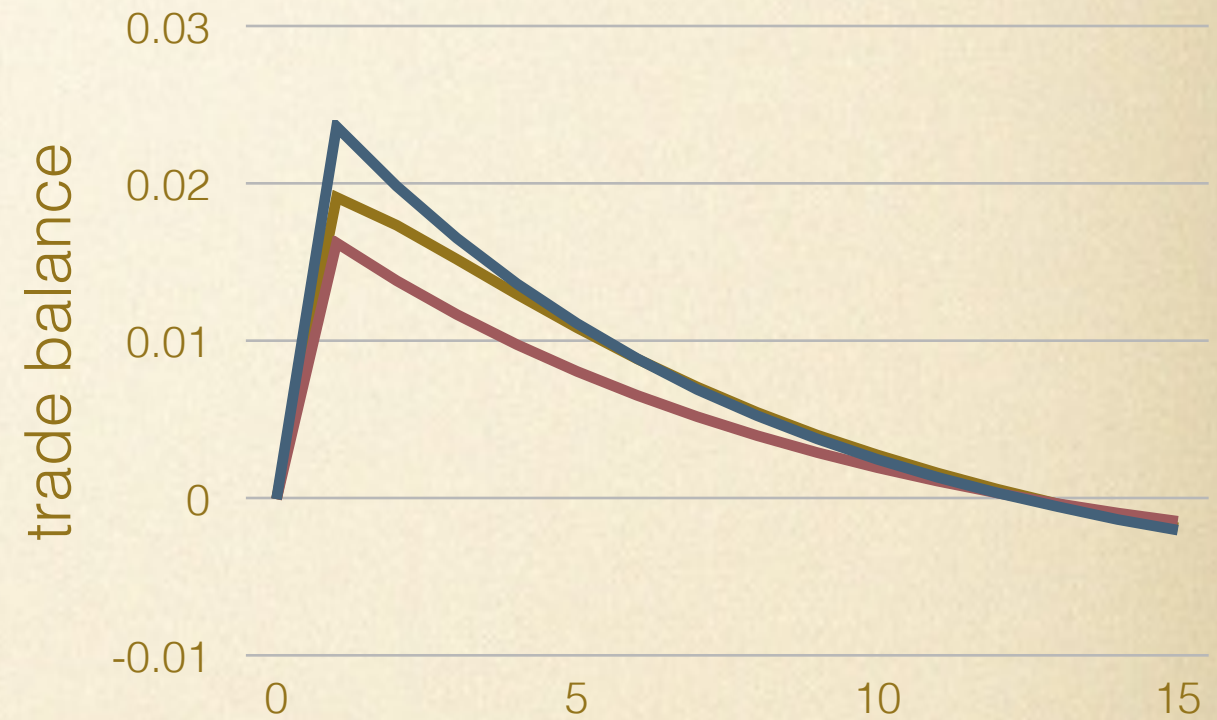
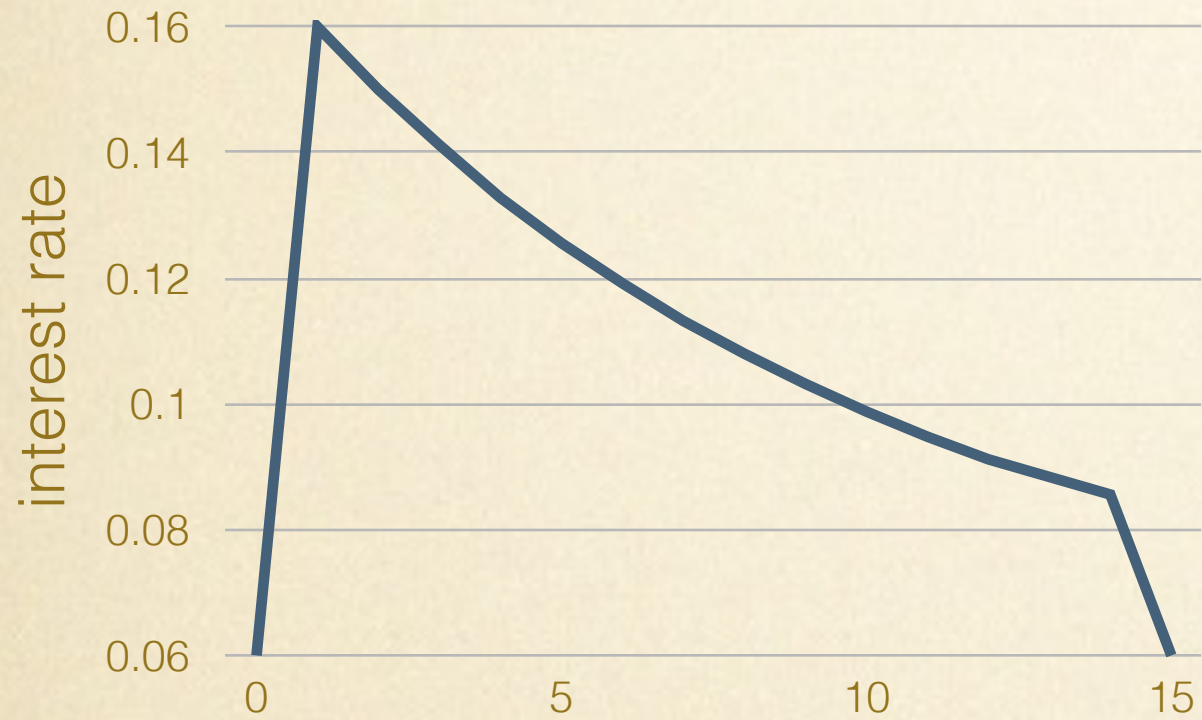
	value
sudden stop	10% interest rate
sudden stop II	3% TB / GDP
appreciation	20%
G shock	dY / dG
expected devaluation	20%
terms of trade	50% export value
corralito	future reduction C opt by 5%

Sudden Stop: Risk Premium

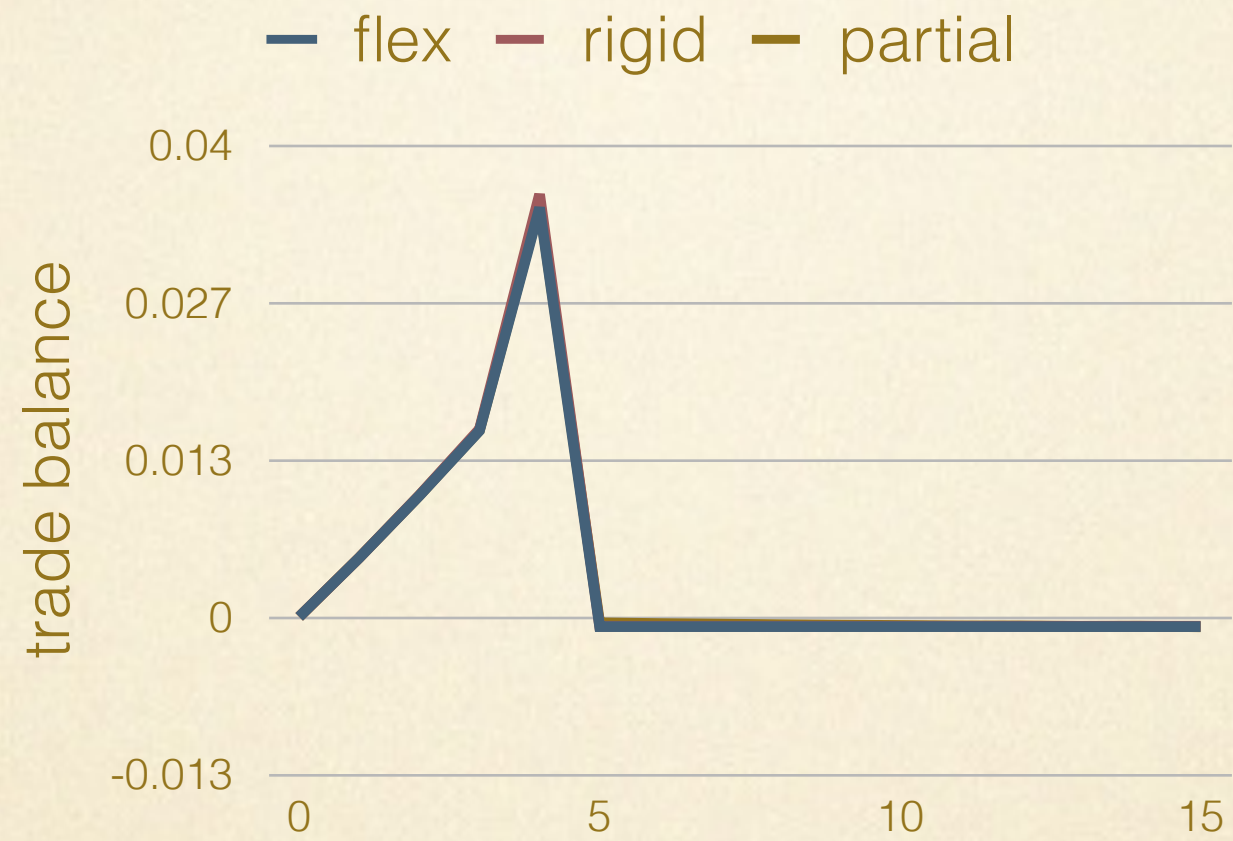


Sudden Stop: Risk Premium

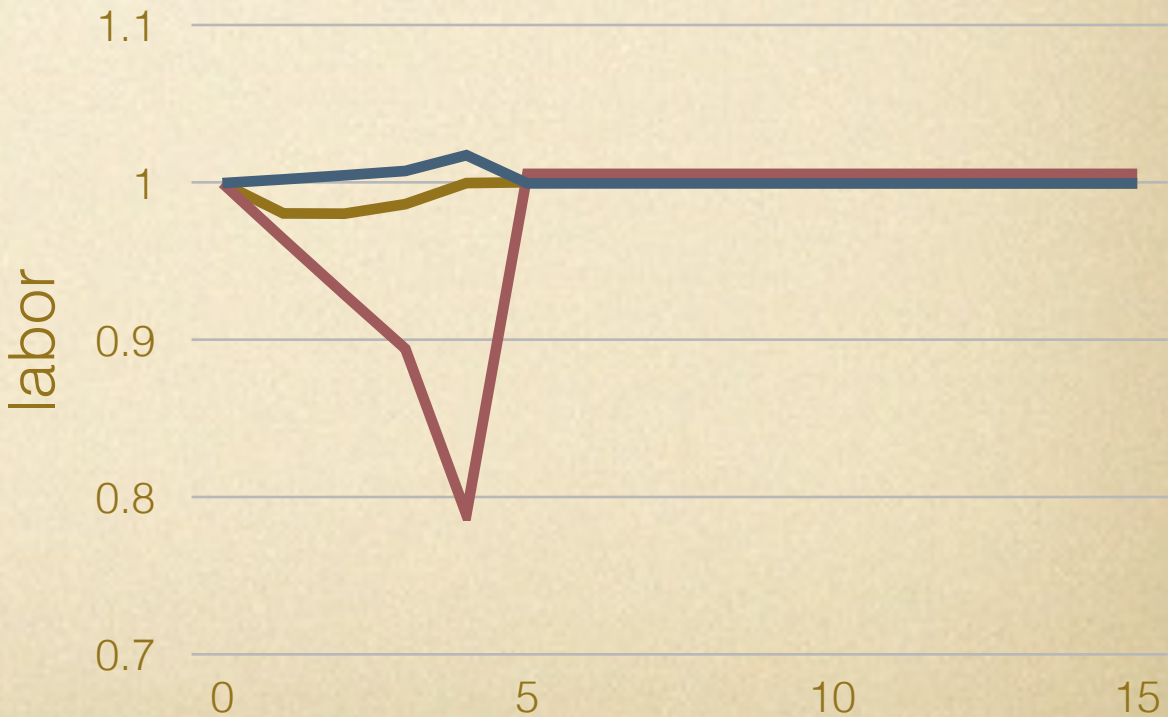
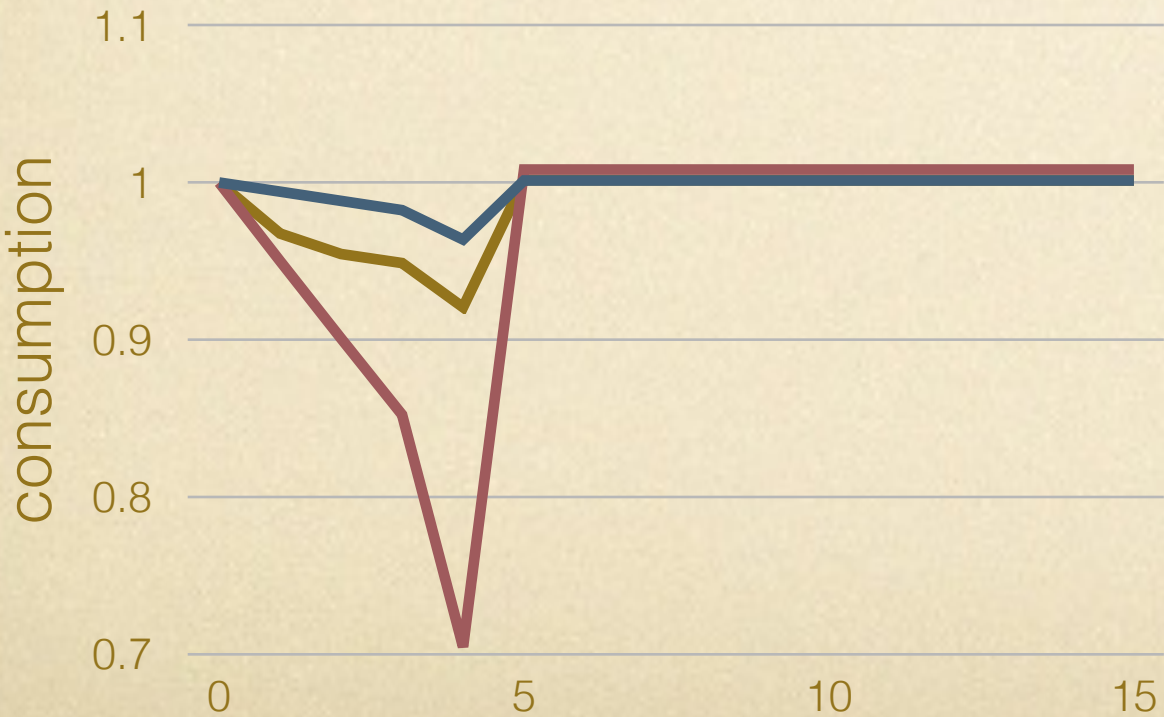
flex rigid partial



Sudden Stop: Borrowing Constraint



Sudden Stop: Borrowing Constraint

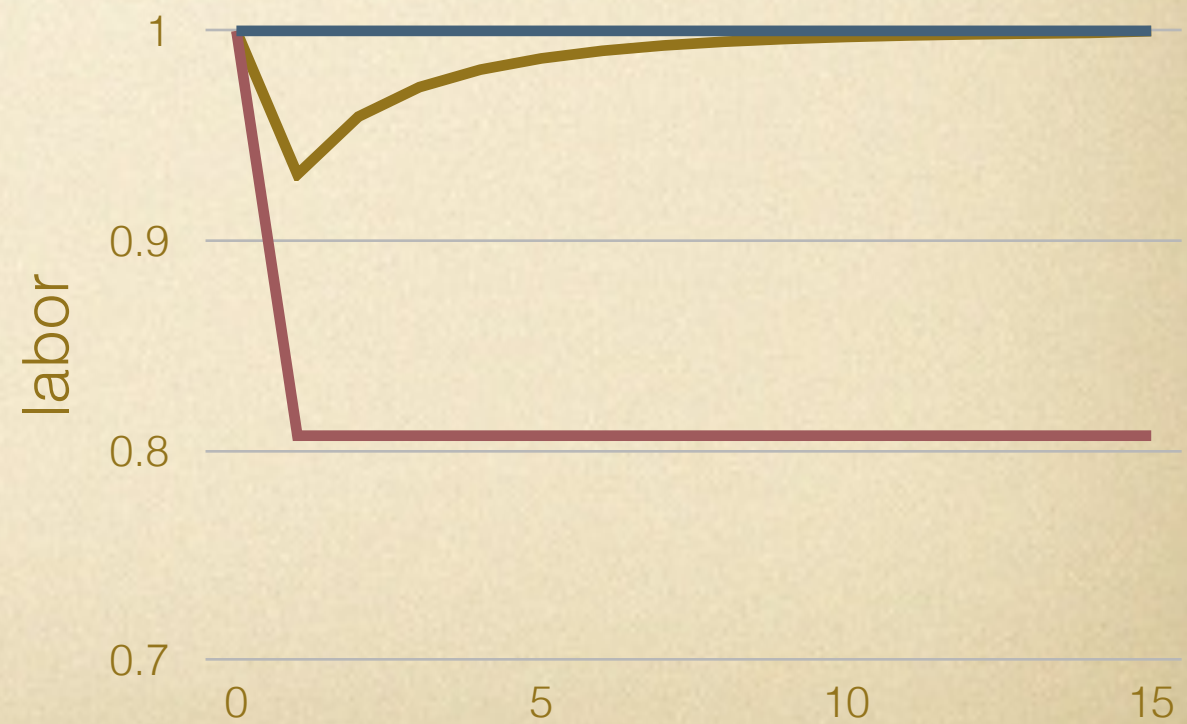
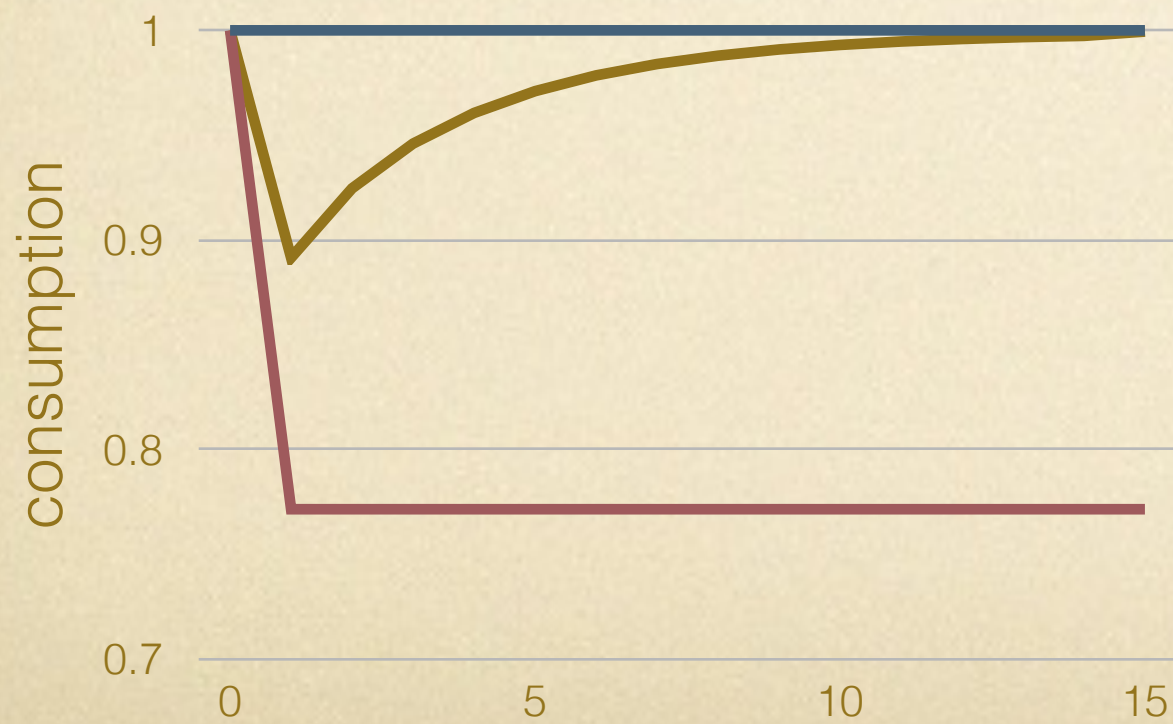
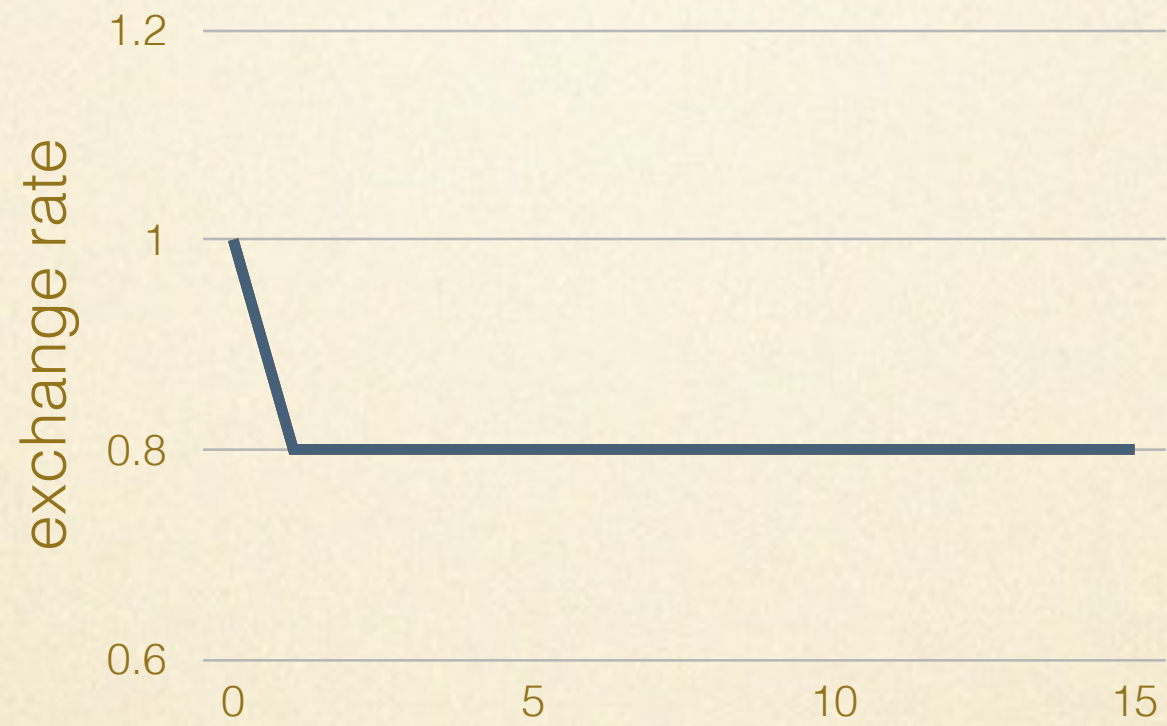


Appreciation



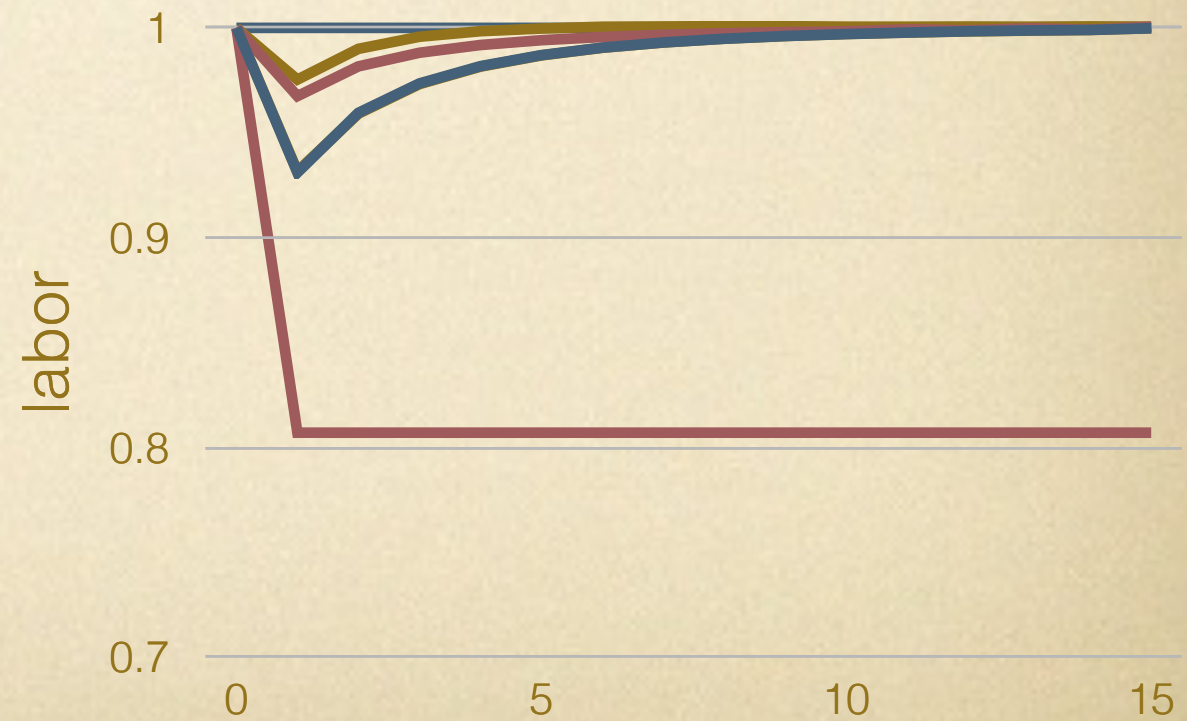
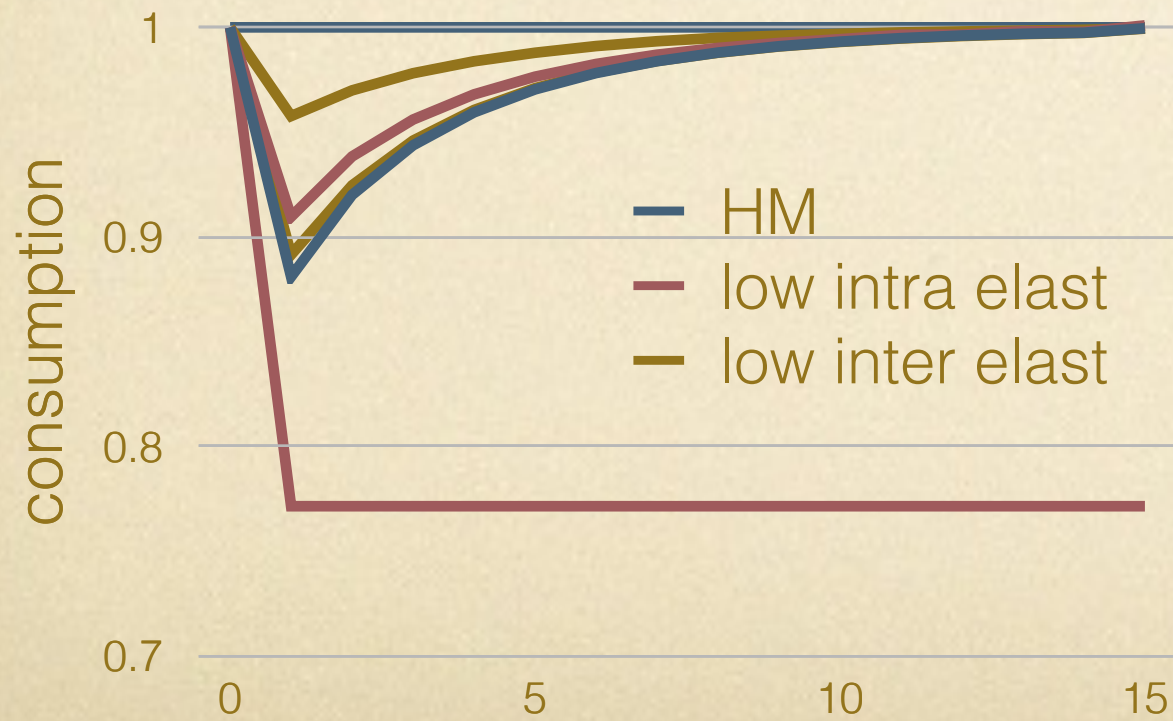
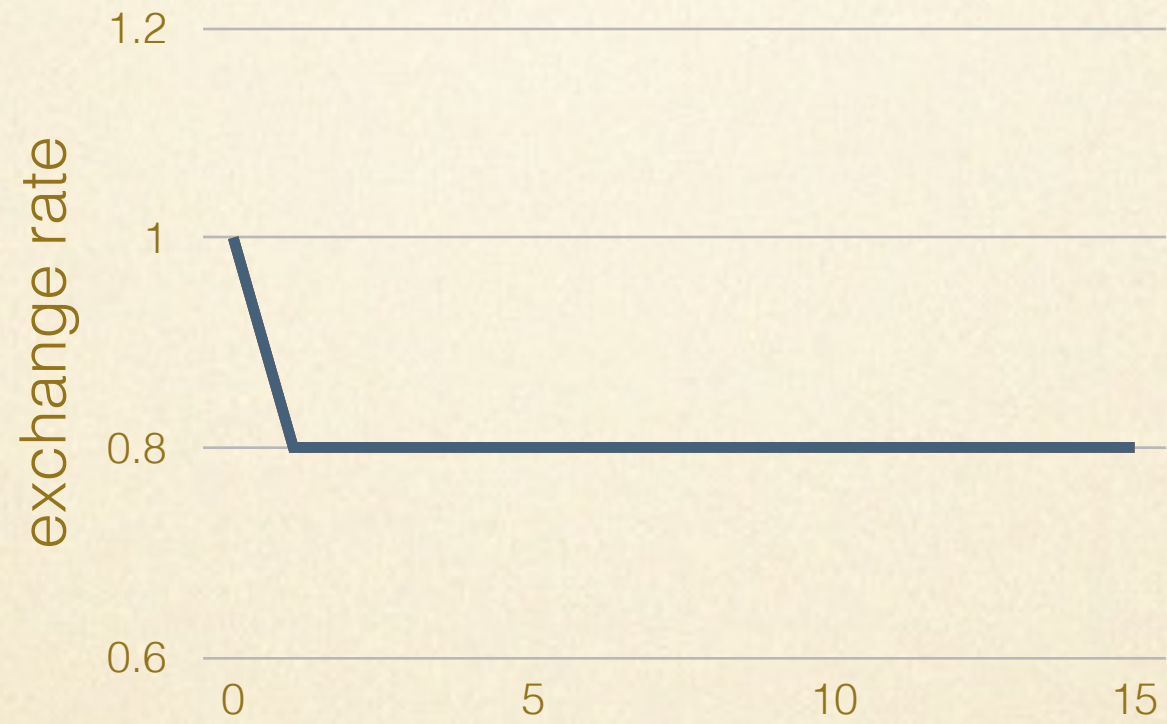
Appreciation

flex rigid partial

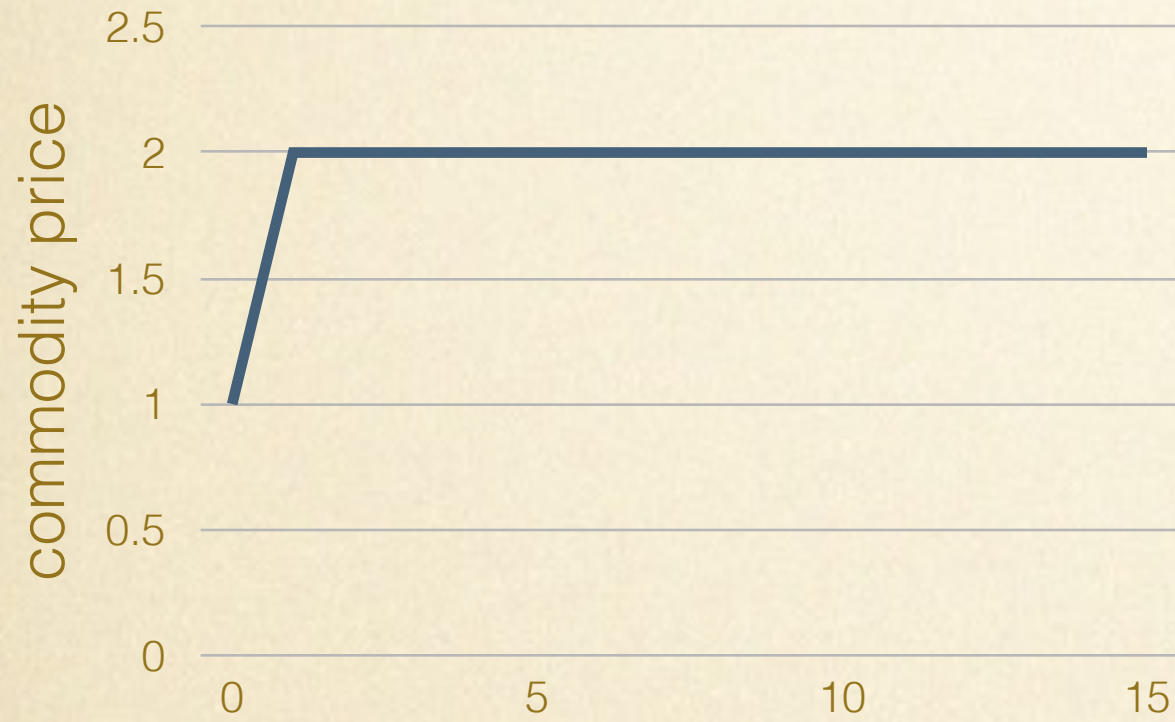


Appreciation

flex rigid partial

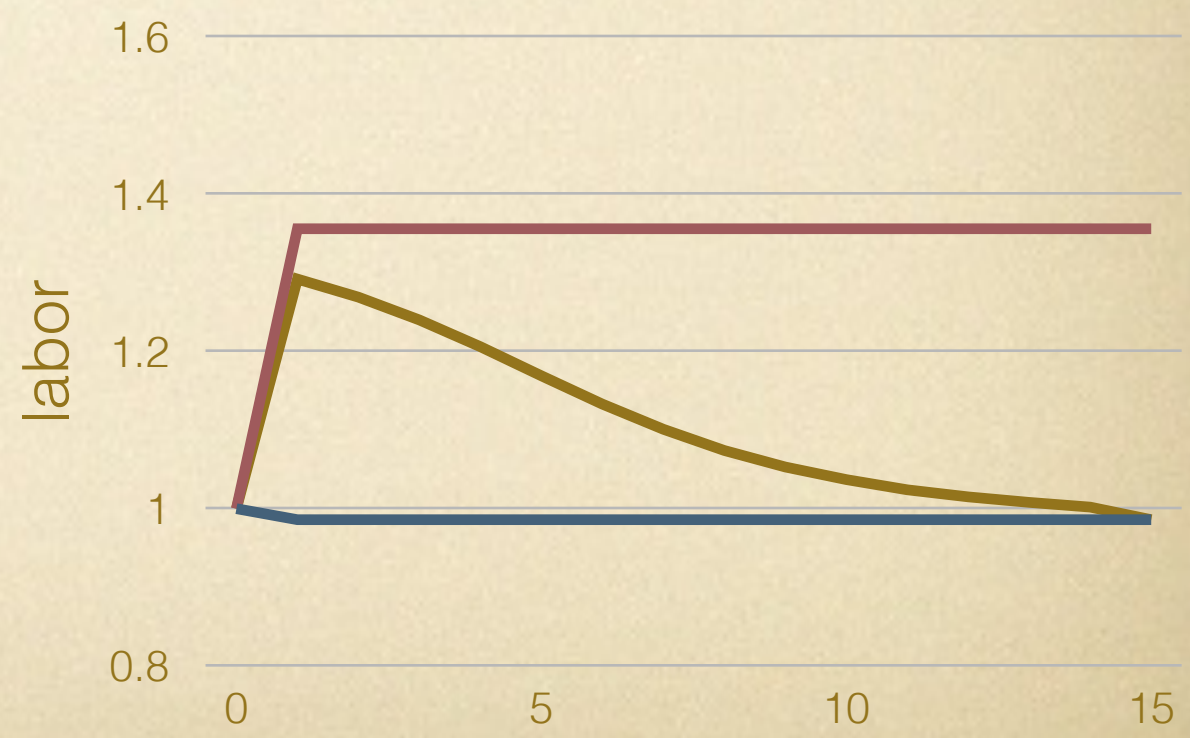
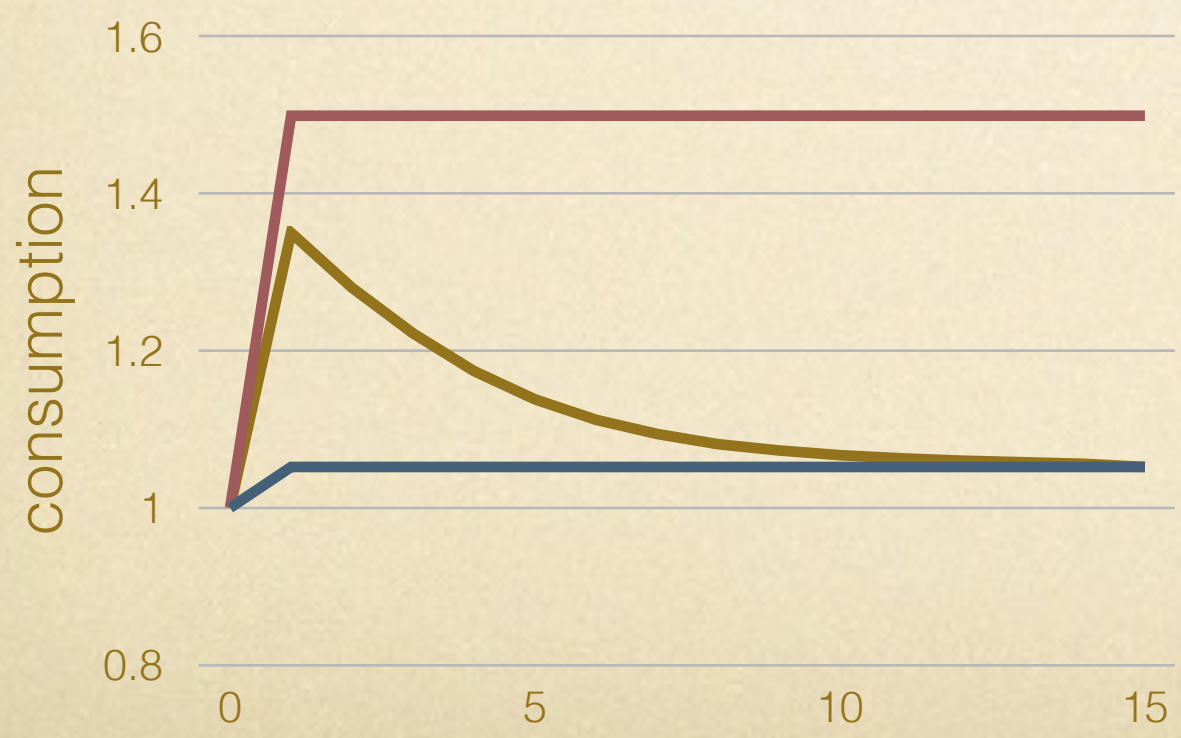
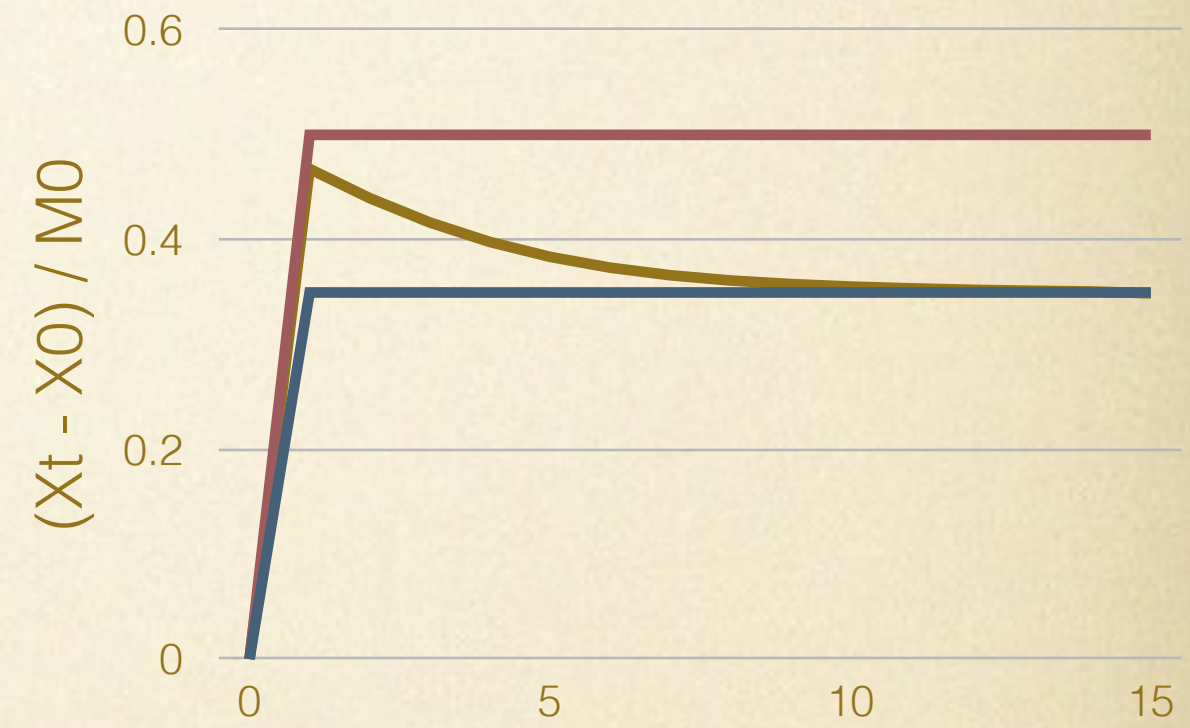
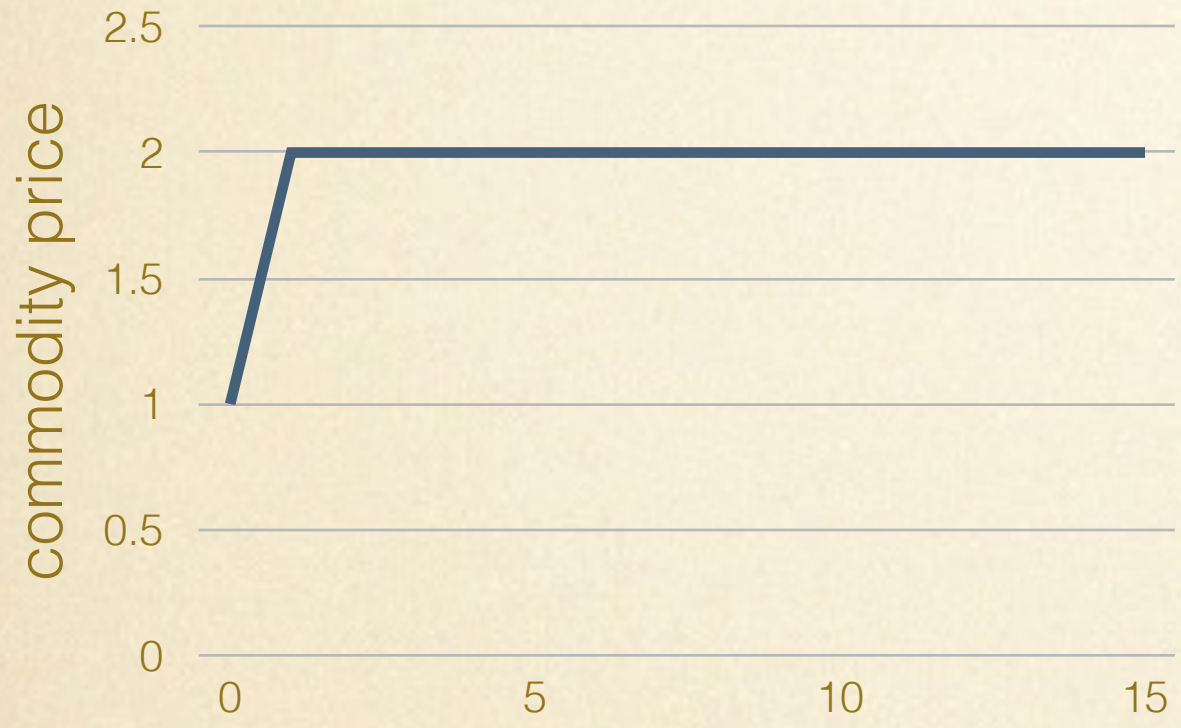


Terms of Trade Shock



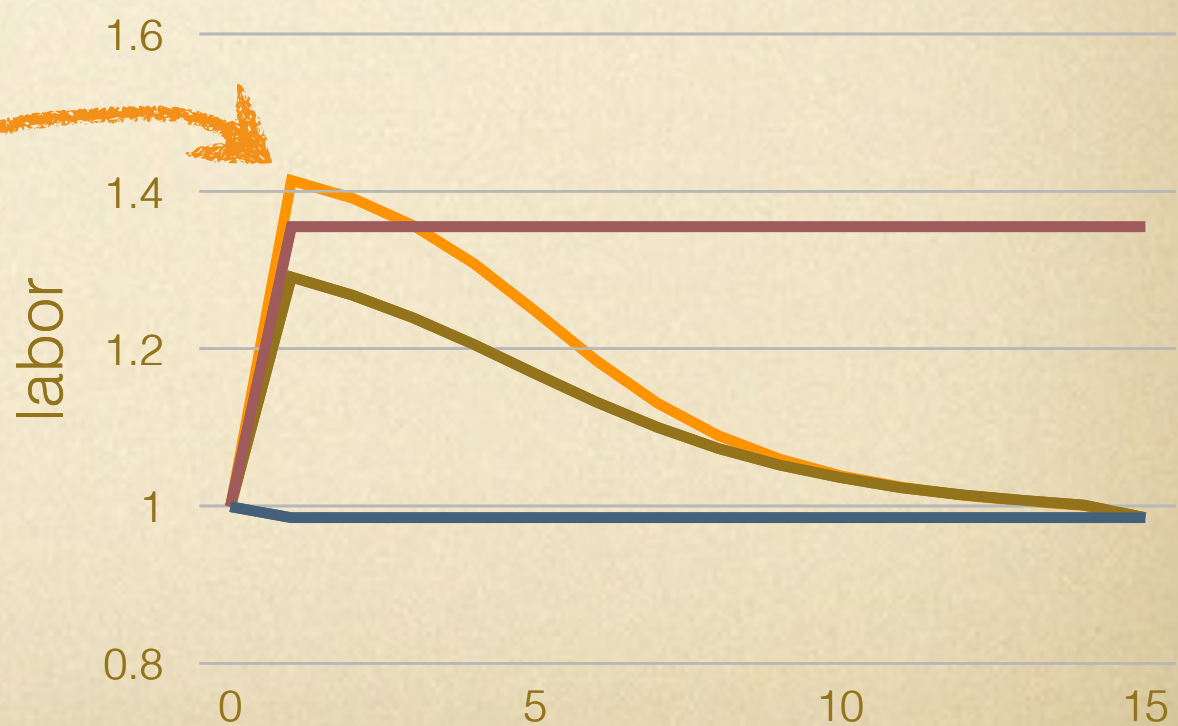
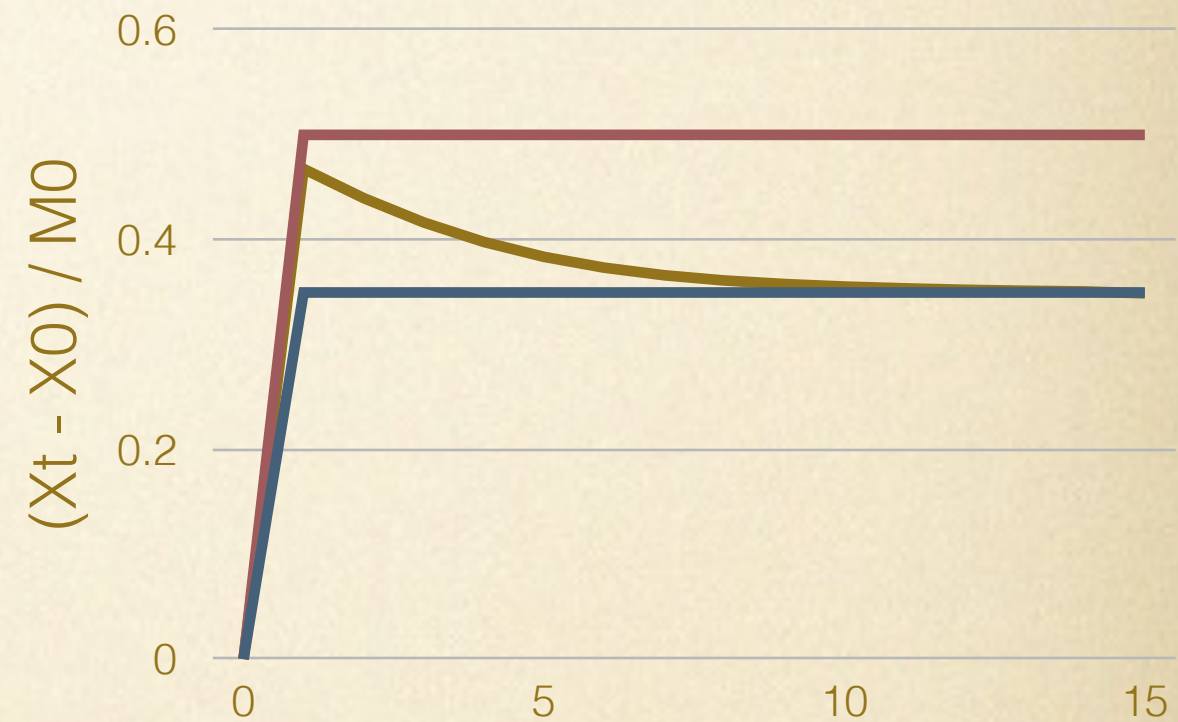
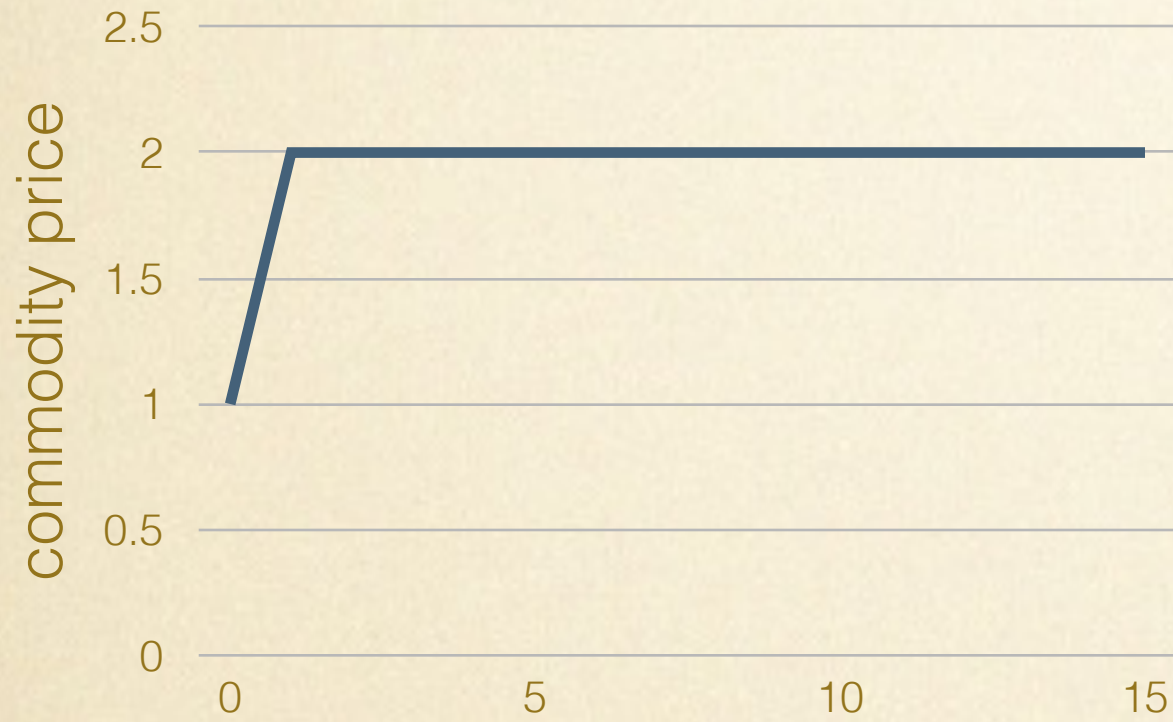
Terms of Trade Shock

flex rigid partial



Terms of Trade Shock

flex rigid partial



4. Corralito

4. Corralito



Corralito Model

- Corralito / Corralón...
 - limits on extractions
 - bank holiday
 - “pesification” of dollar deposits
- Big, uncertain and slow redistribution
- At $t=0$ announced that
 - savers will be taxed at $t=1$
 - hand to mouth get transfer at $t=1$

optimizers

$t = 1$

$t = 2$



hand to mouth

optimizers

$t = 1$

$\uparrow T$

$t = 2$

$\downarrow T$

hand to mouth



optimizers

$t = 1$

$\downarrow C$

$\uparrow T$

$t = 2$

$\downarrow T$

$\uparrow C$

hand to mouth



optimizers

$\downarrow C$

$t = 1$



$\downarrow C$

$\uparrow T$

$t = 2$



$\downarrow T$

$\uparrow C$

hand to mouth

optimizers

$\downarrow C$

$t = 1$



\bar{C}

$\downarrow C$

$\uparrow T$

$t = 2$



$\downarrow T$

$\uparrow C$

hand to mouth

optimizers

$\downarrow W$

$\downarrow C$

$t = 1$



\bar{C}

$\downarrow C$

$\uparrow T$

$t = 2$



$\downarrow T$

$\uparrow C$

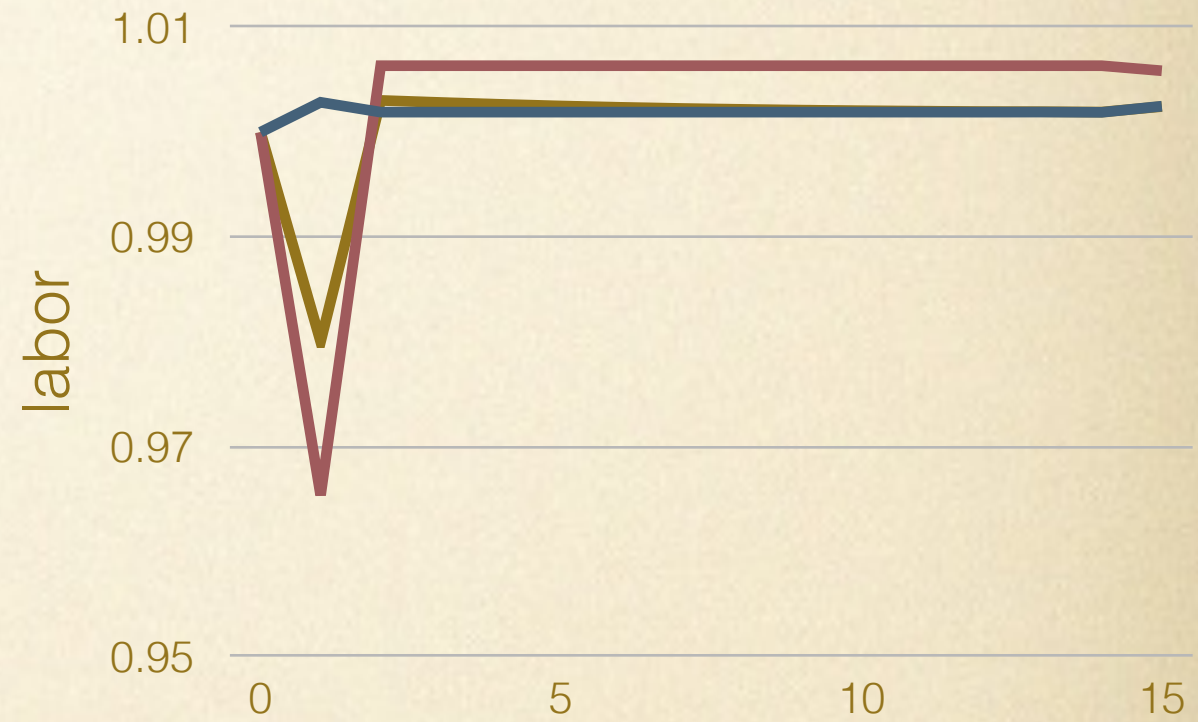
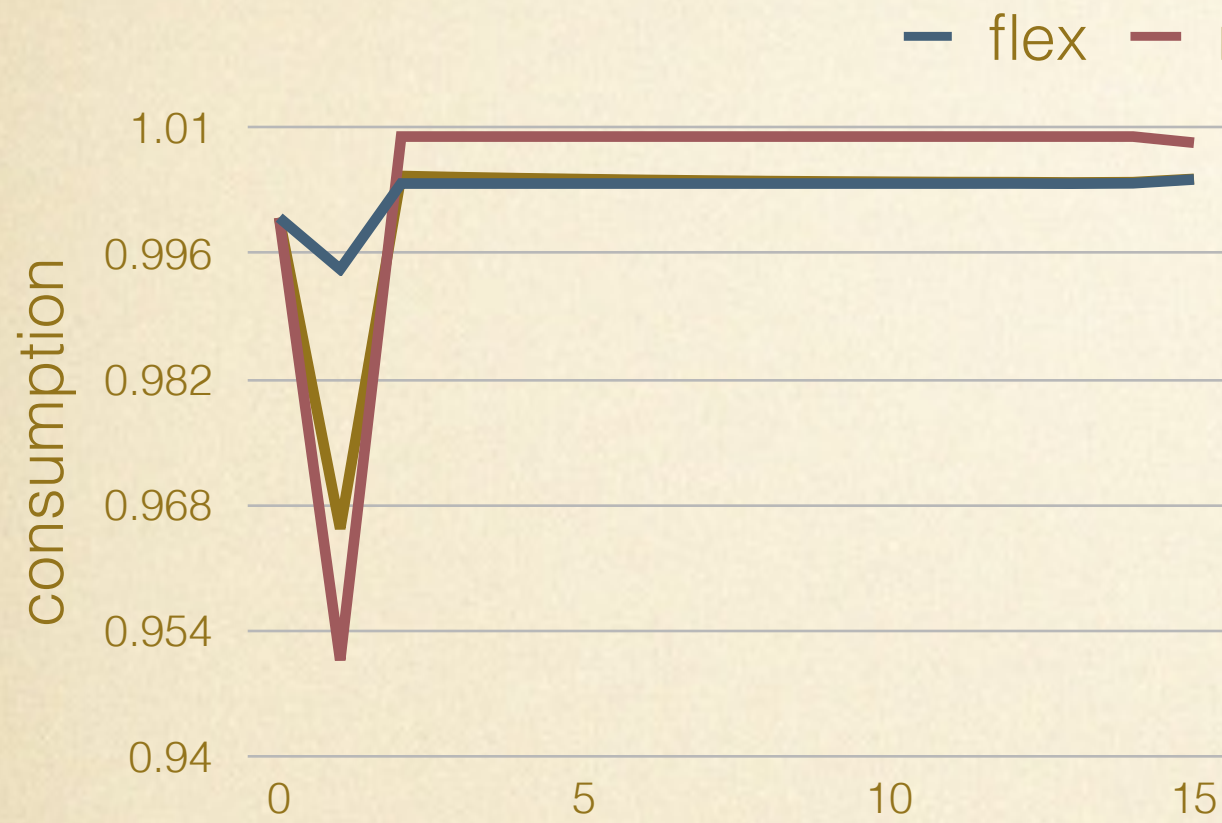
hand to mouth

optimizers

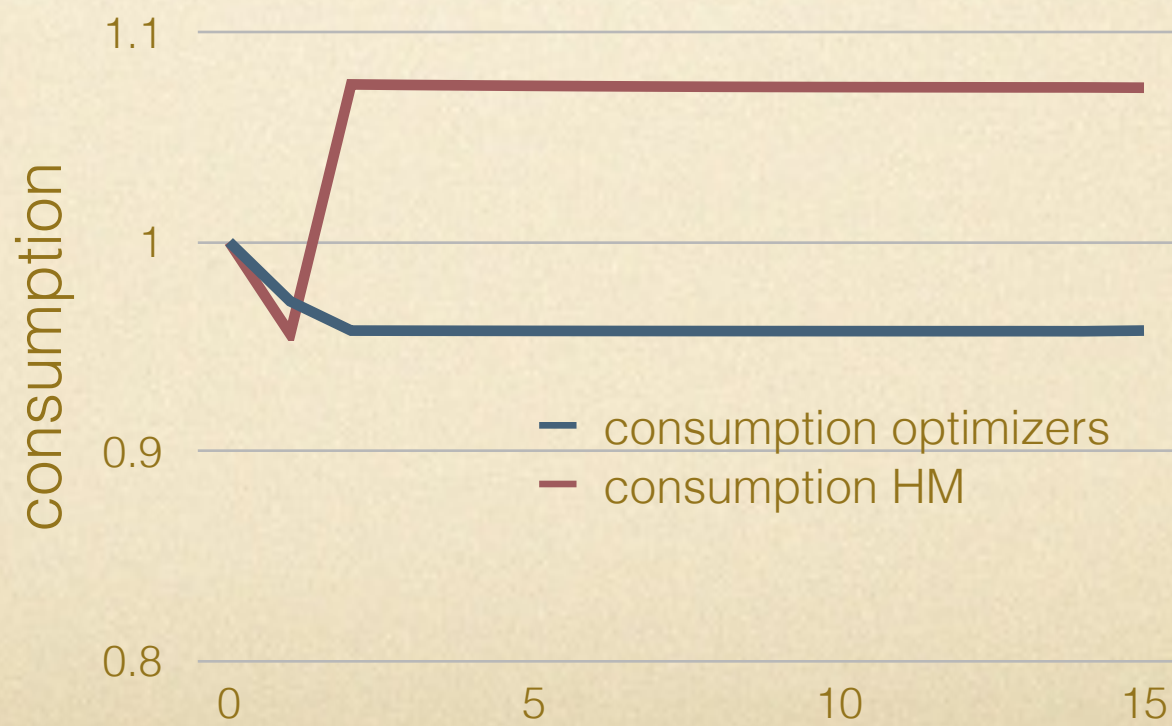
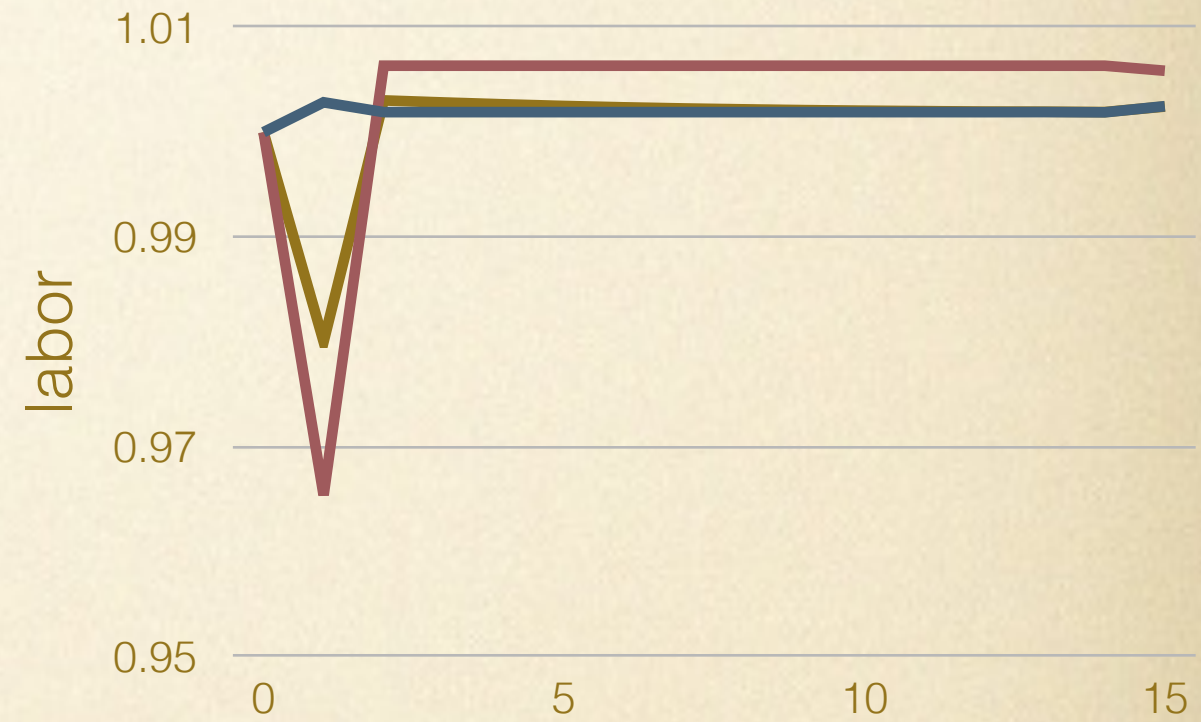
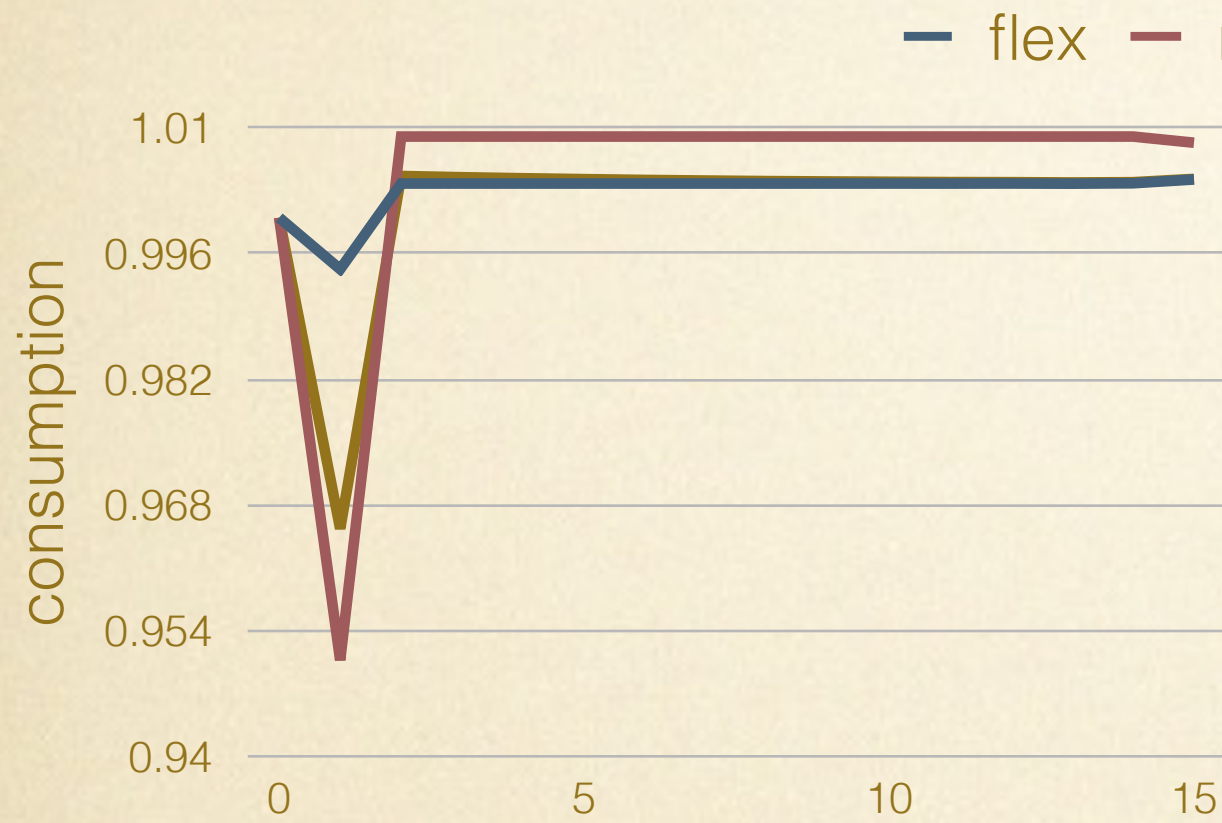


hand to mouth

Corralito



Corralito

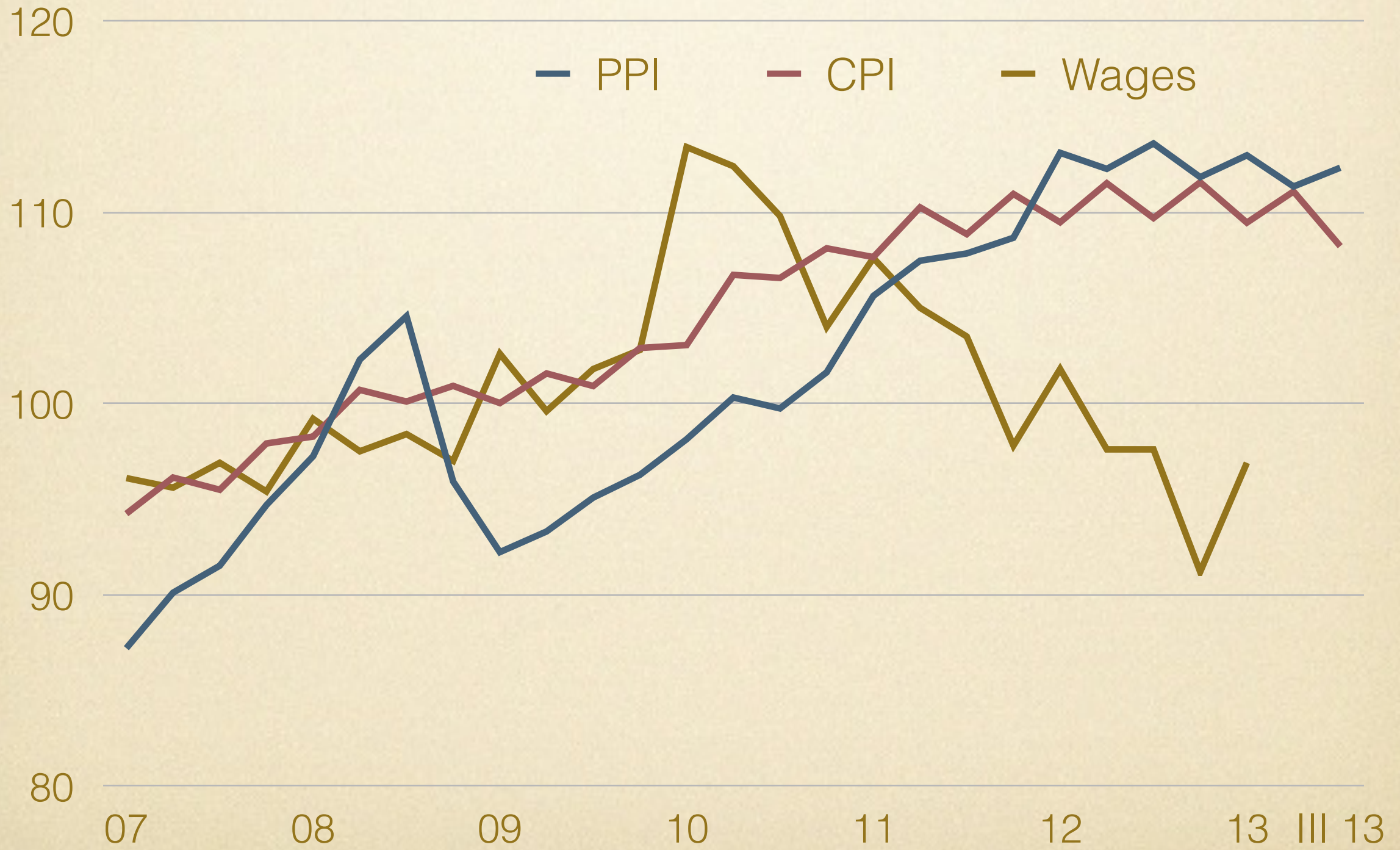


Conclusion

- Fixed exchange rate can explain Argentina's vulnerability to various shocks
 - sudden stop
 - terms of trade
 - appreciation
 - corralito
- Some shocks partly endogenous:
 - fixed exchange + fiscal indiscipline...
 - ➔ credibility problems
 - **feedback loop:** social crisis, political crisis and macroeconomic crisis...

Europe Today

Greece: Prices and Wages

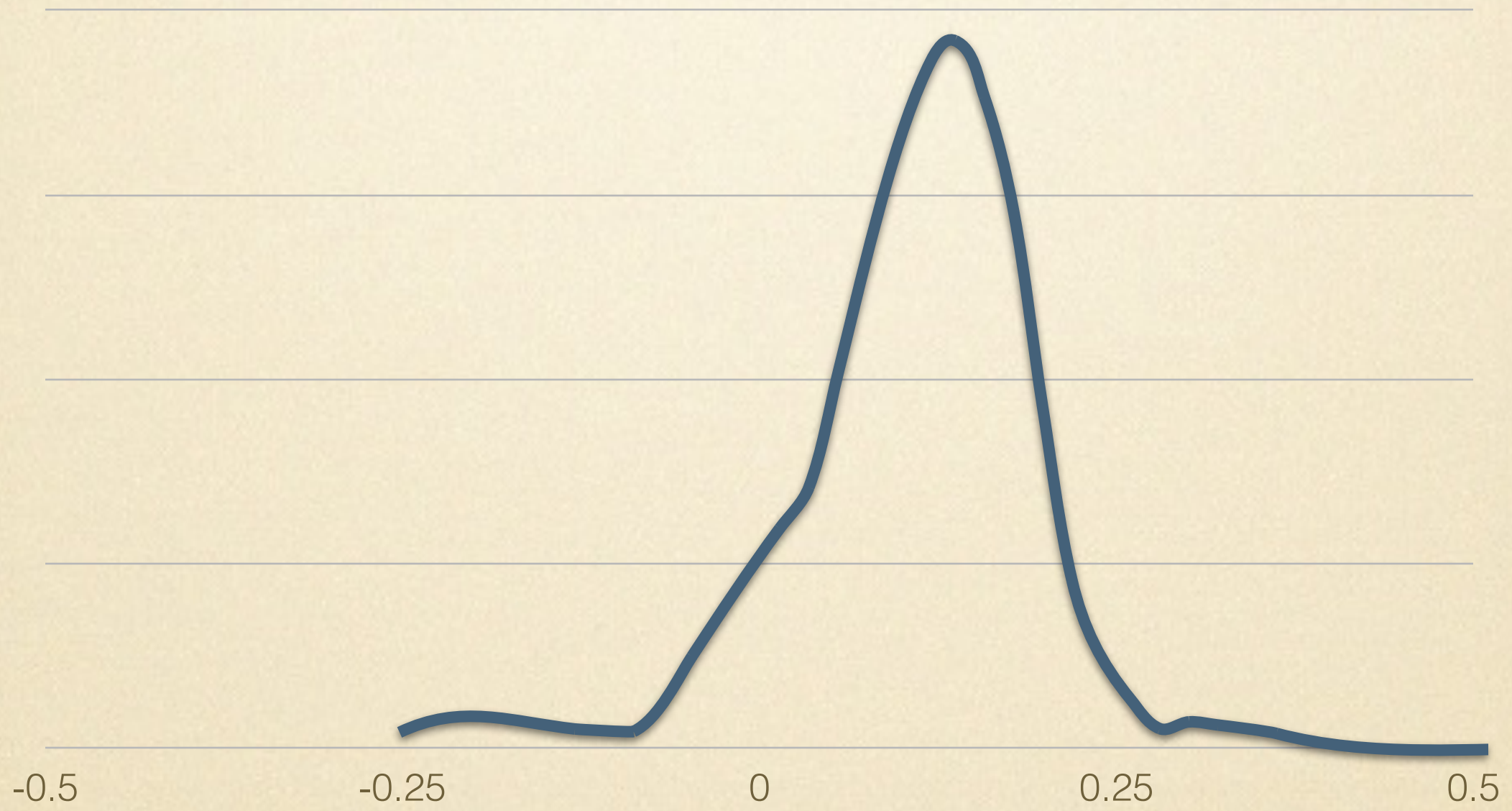


Greece CPI

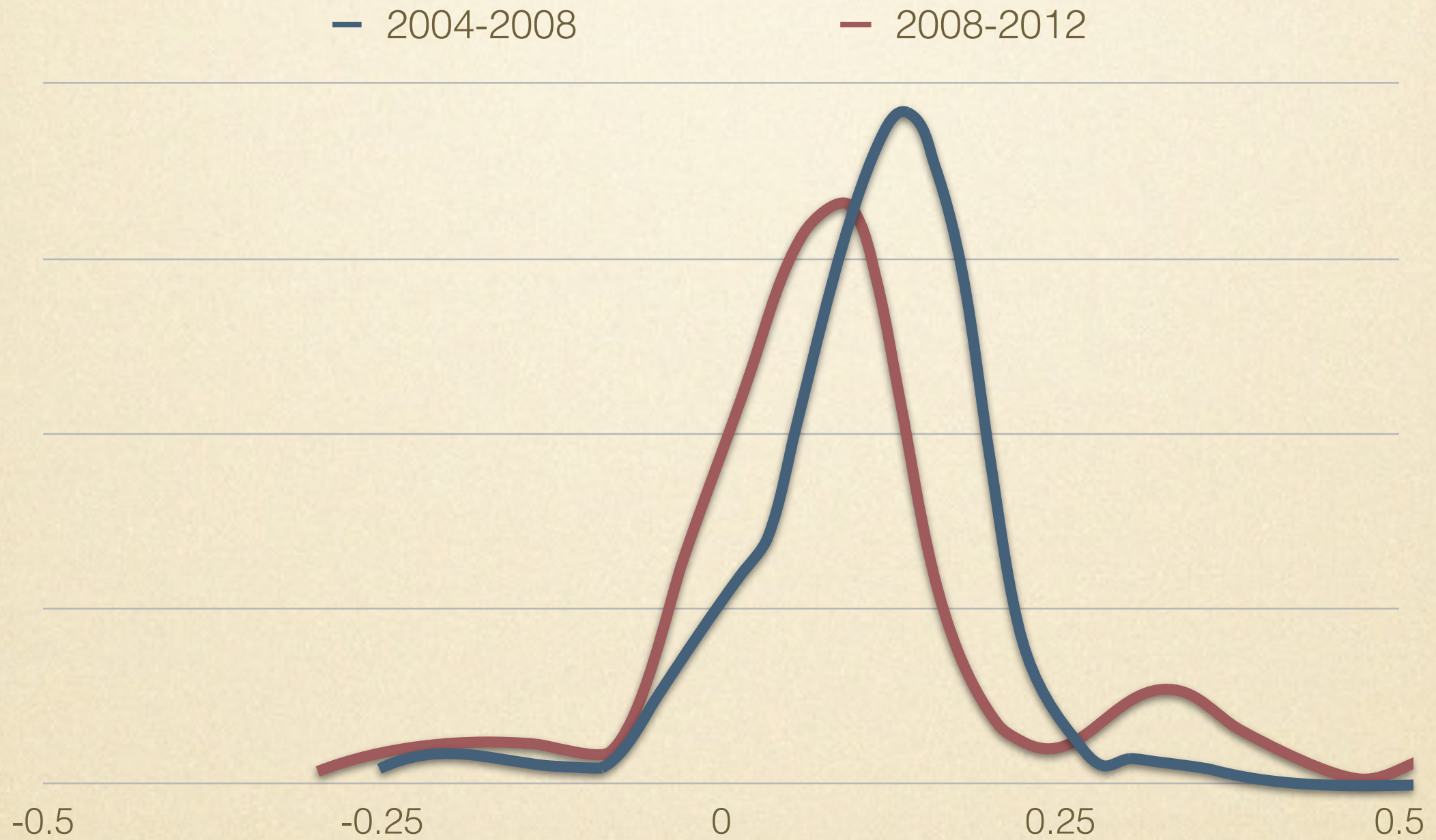
Greece CPI

— 2004-2008

— 2008-2012



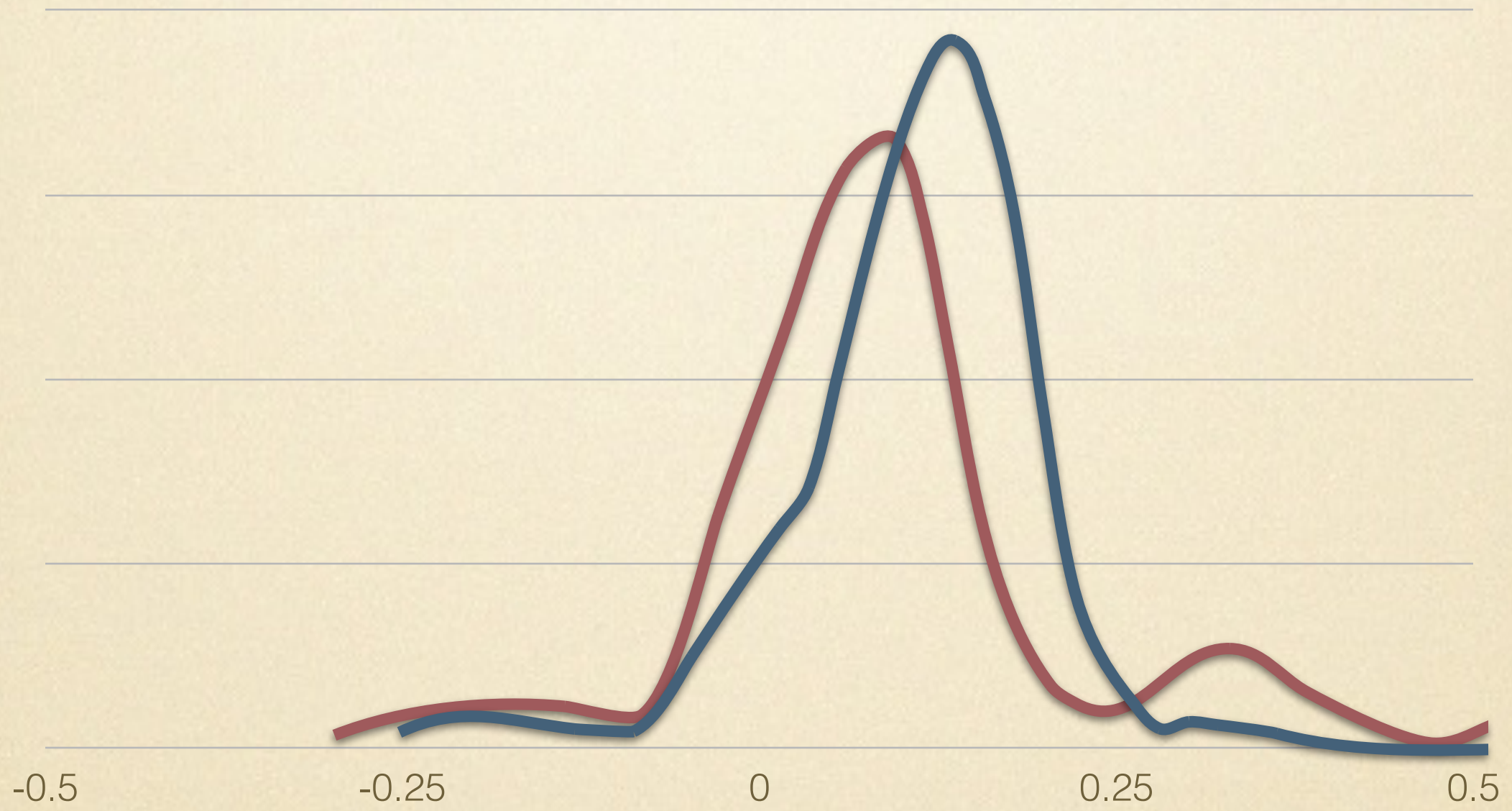
Greece CPI



Greece CPI

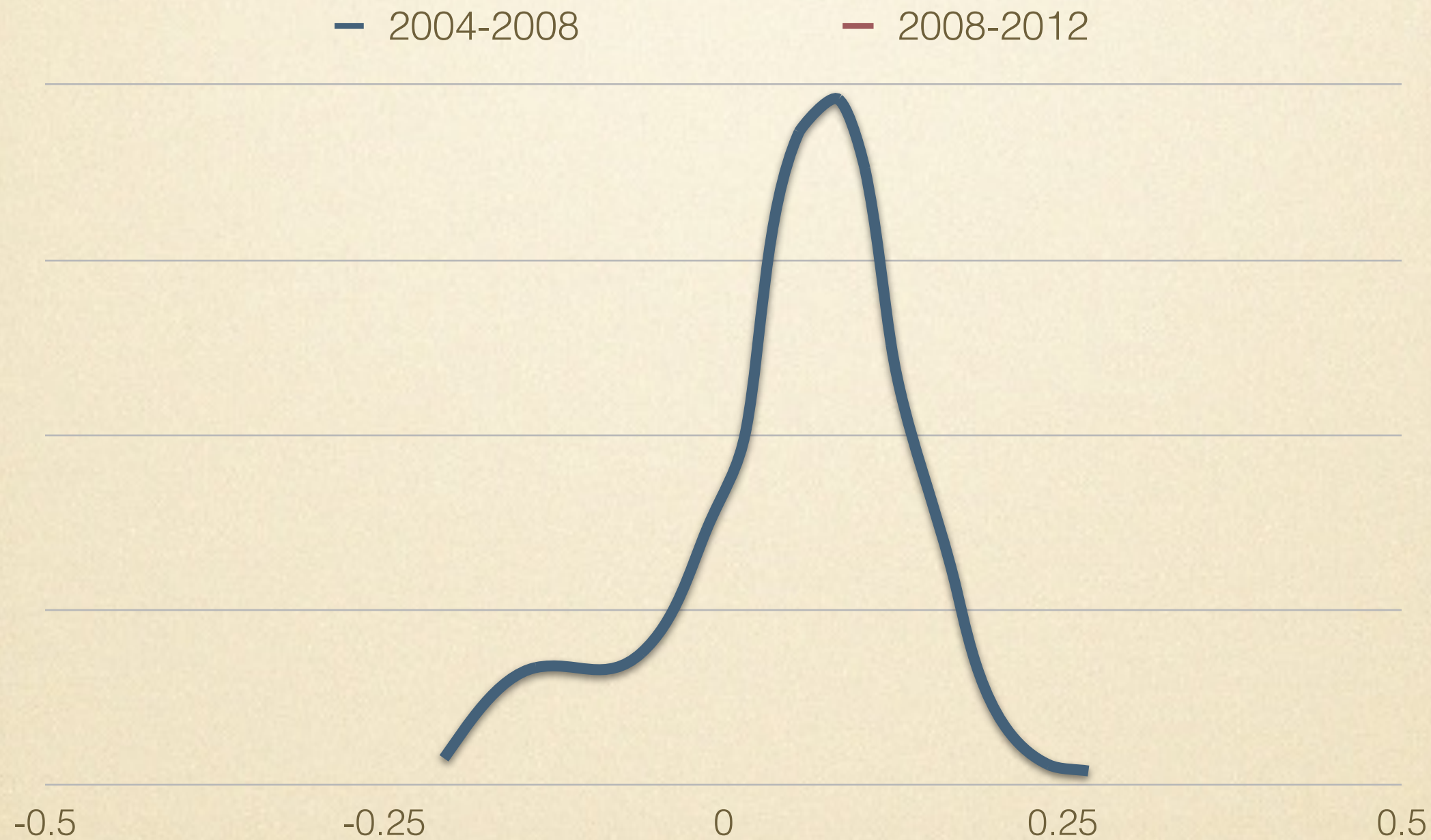
— 2004-2008

— 2008-2012

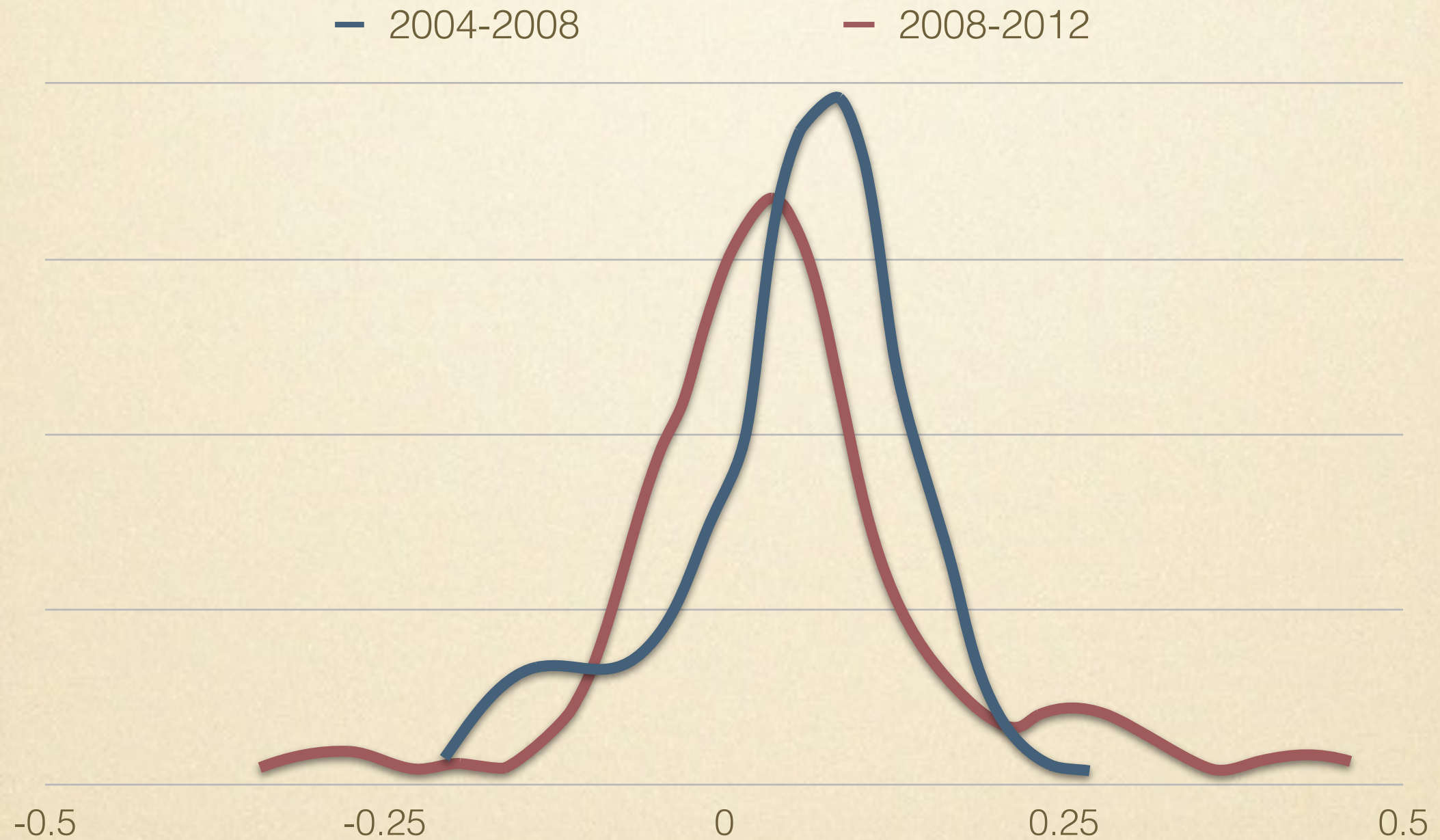


Greece RER

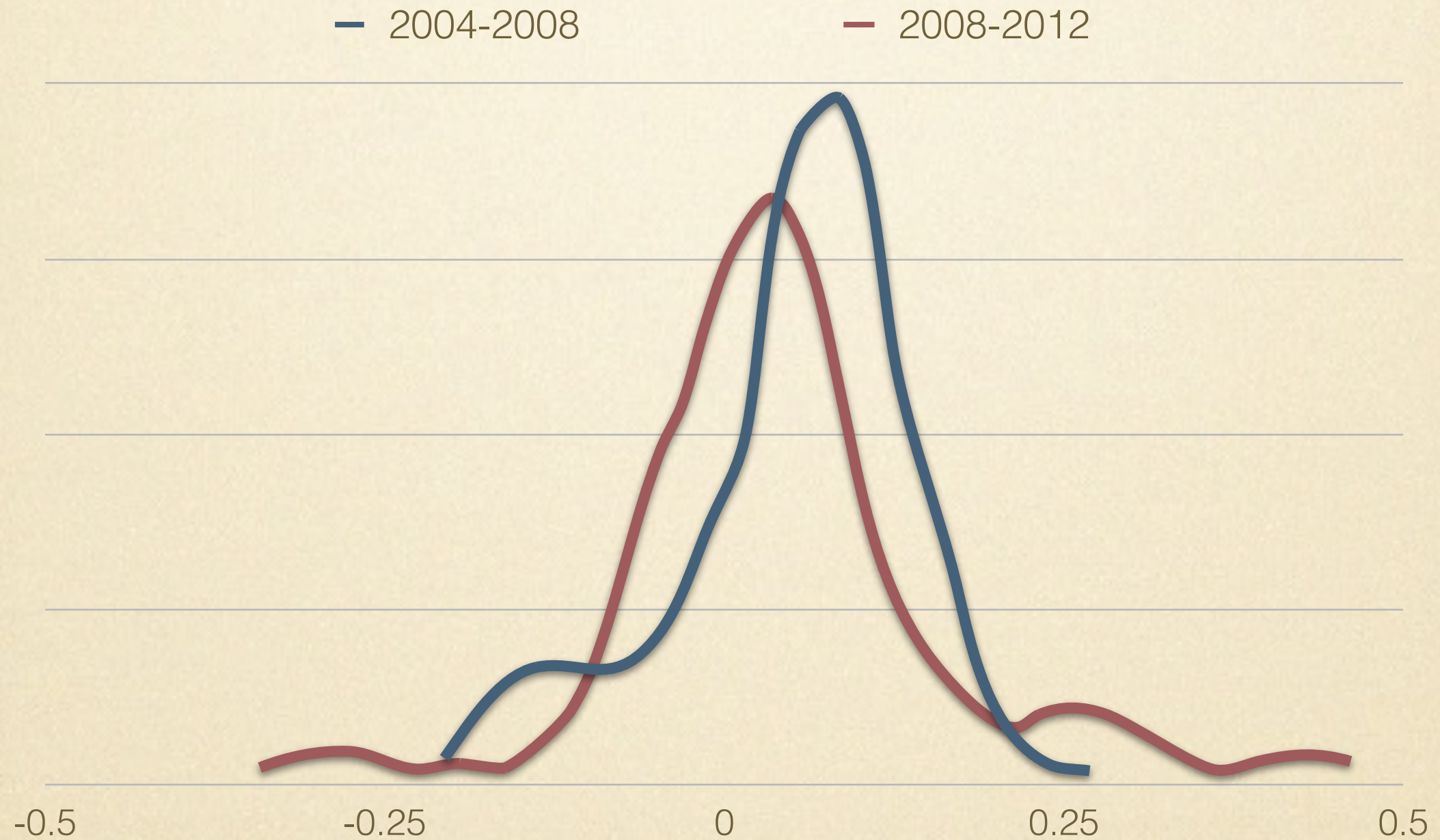
Greece RER



Greece RER



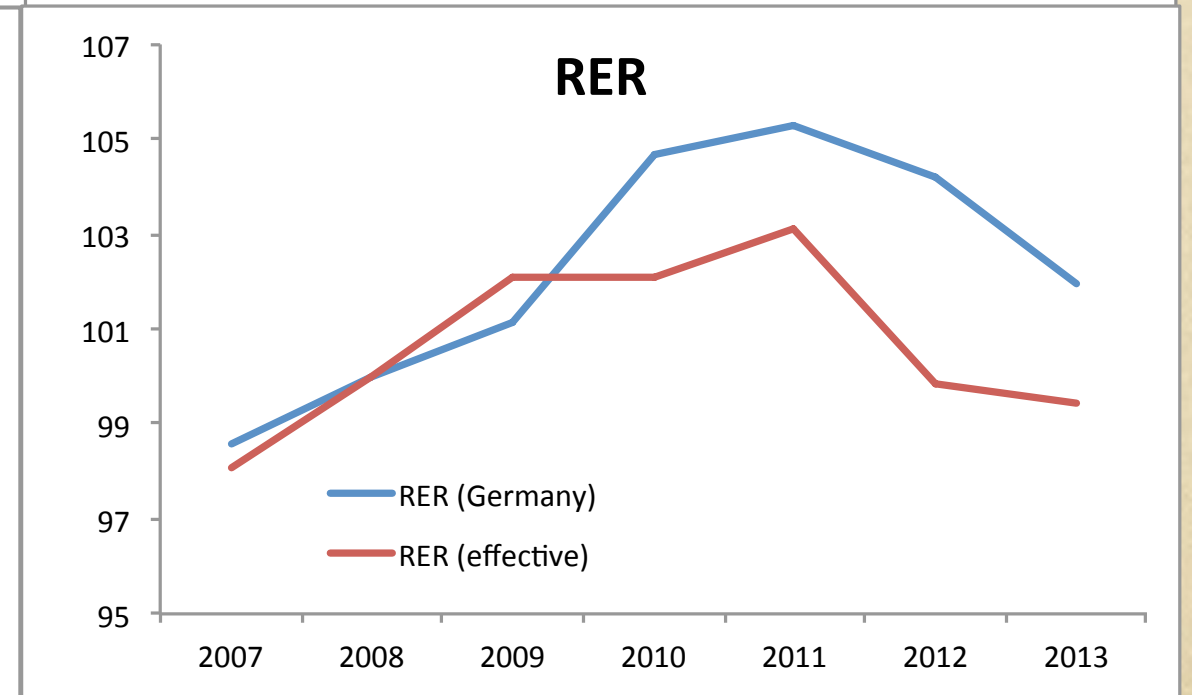
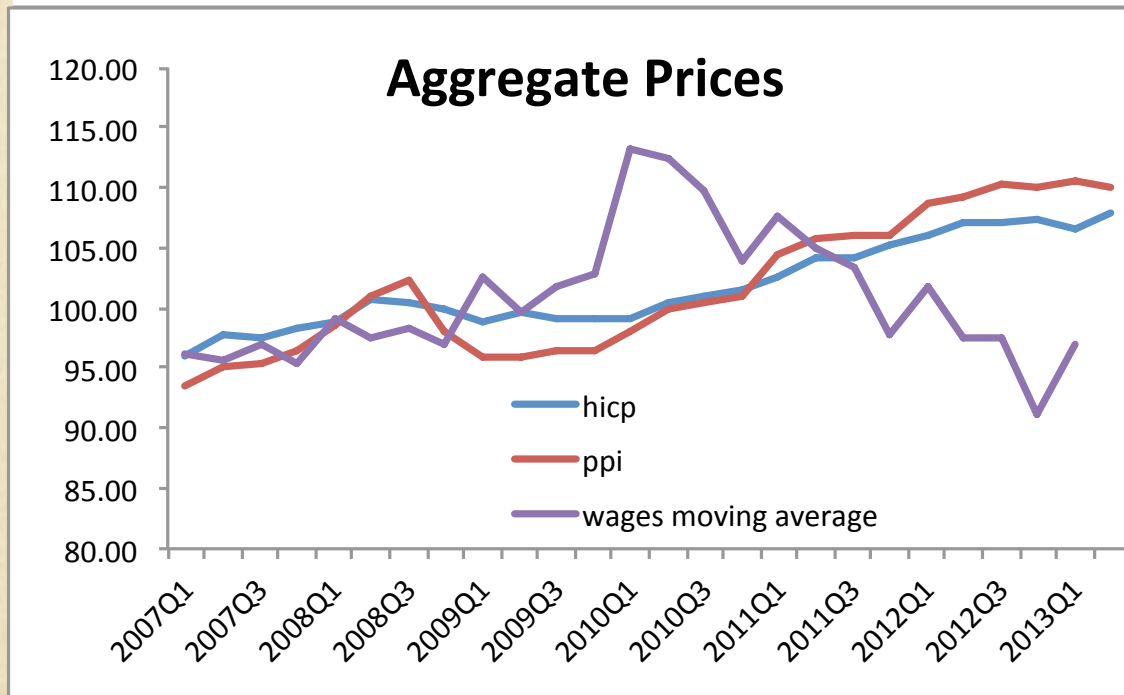
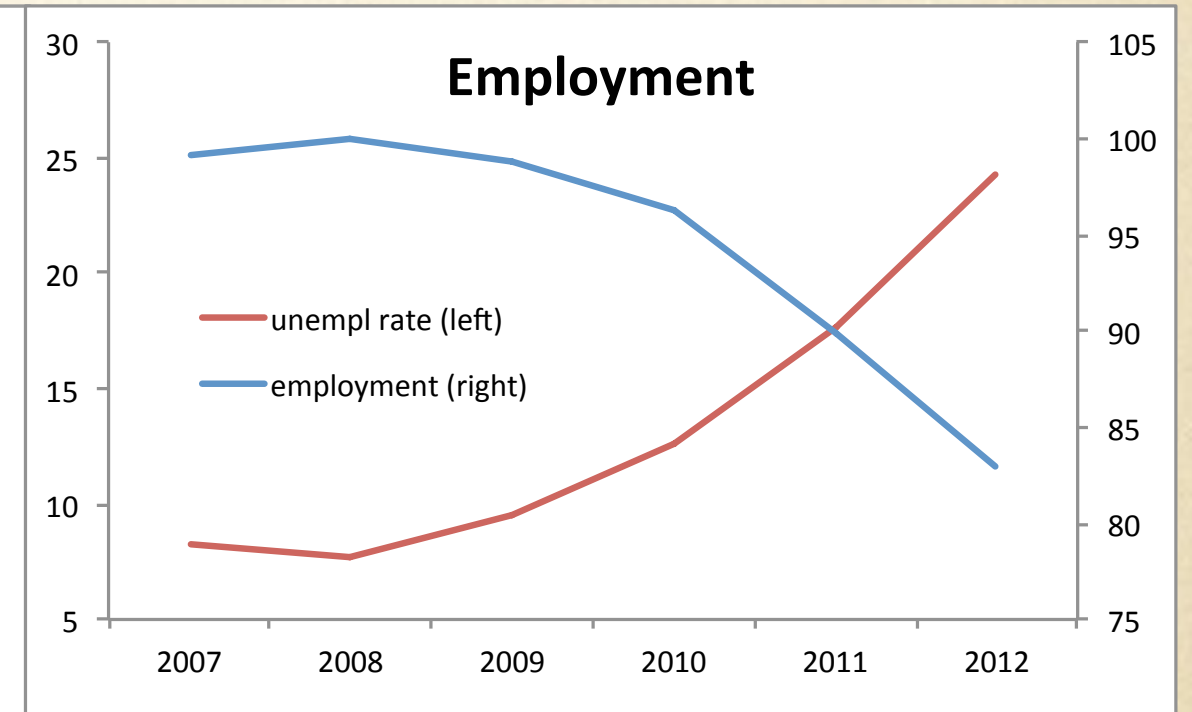
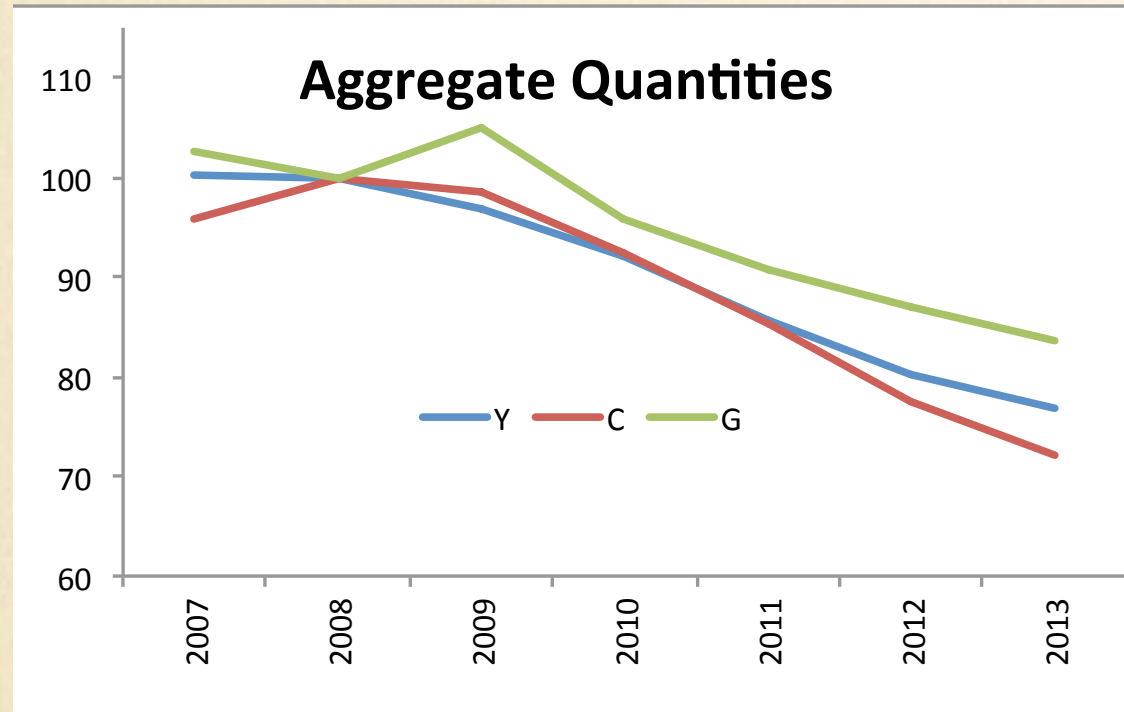
Greece RER



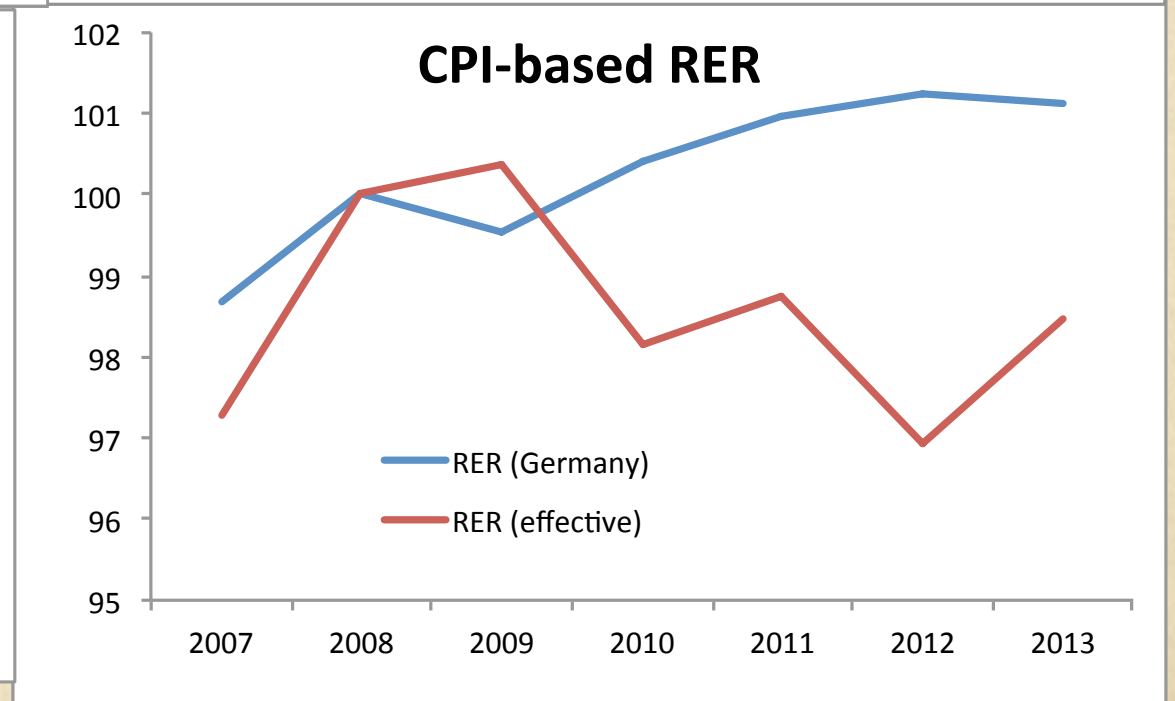
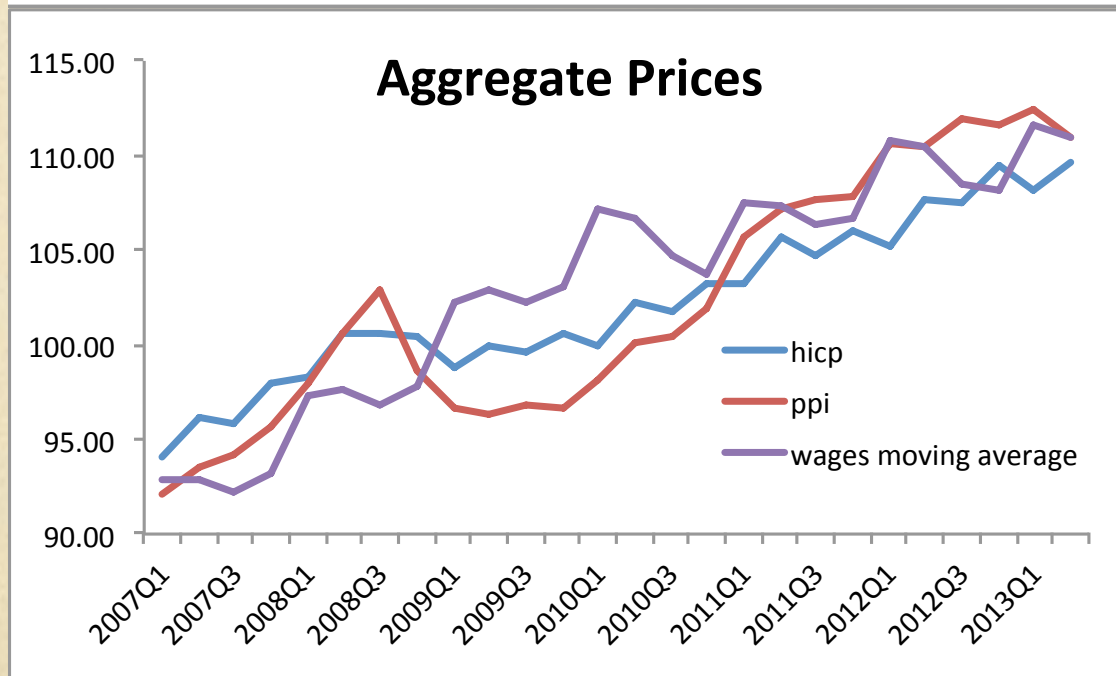
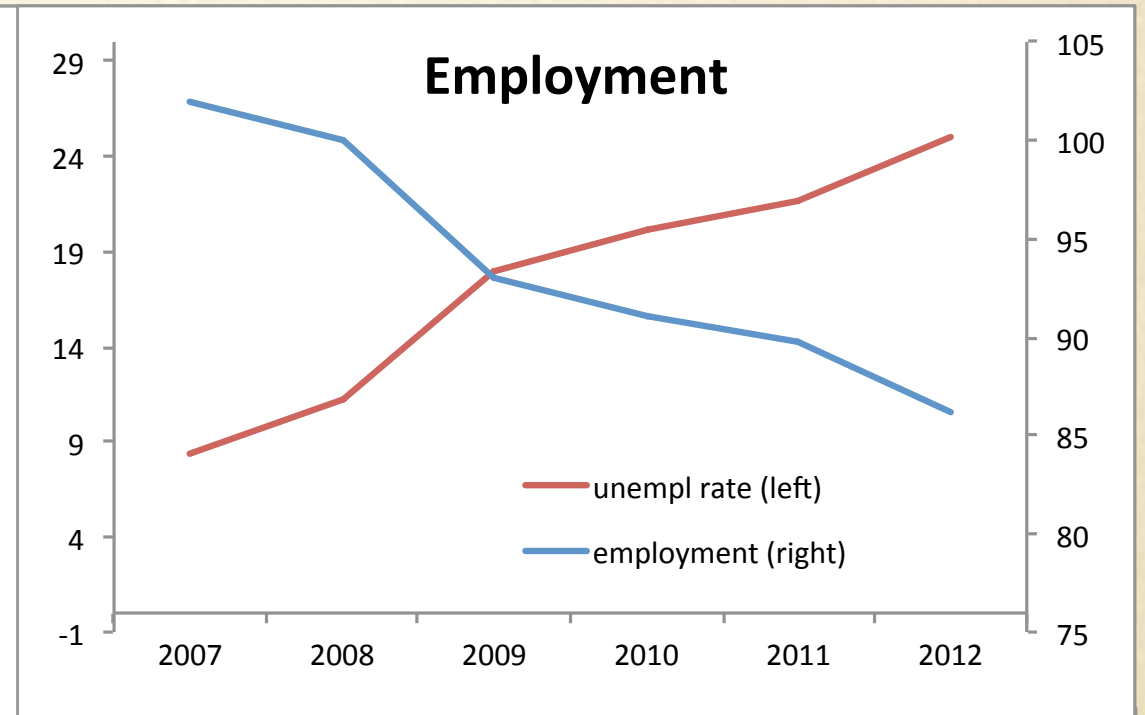
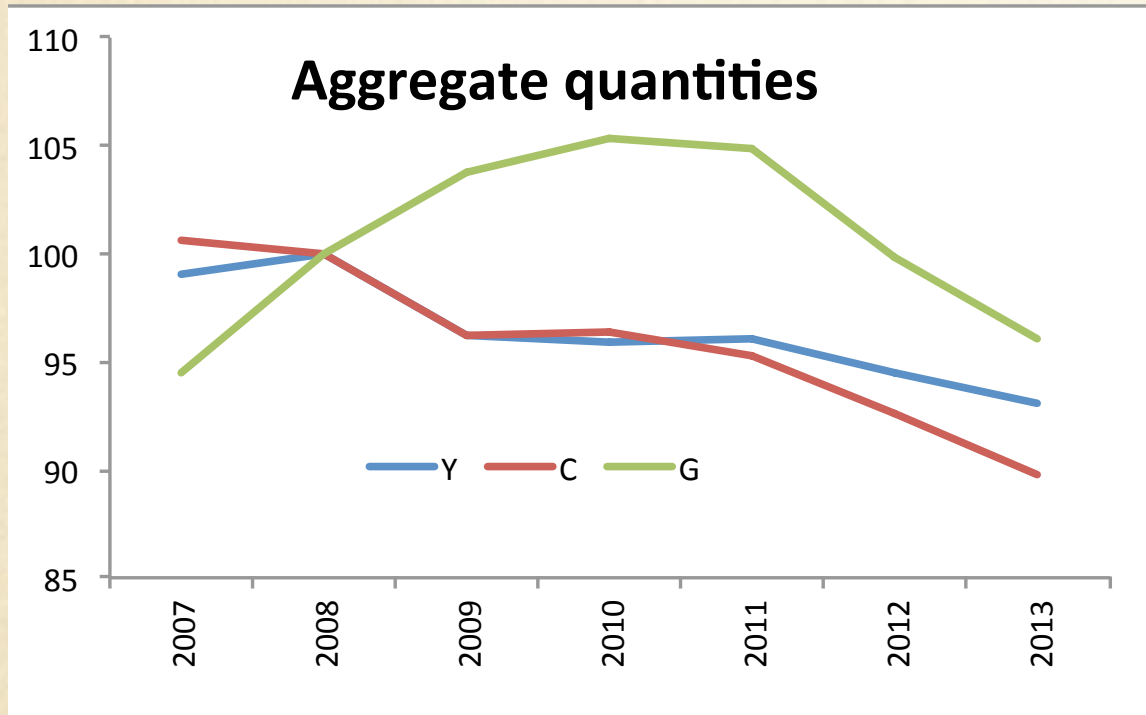
Greece: Disaggregated RER CPI

Items with largest depreciation	$\Delta \log RER$		Items with largest depreciation	$\Delta \log RER$
Pharm products	-0.36		Hospital services	0.14
Accomm services	-0.25		Financial services n.e.c.	0.16
Oils and fats	-0.15		Tobacco	0.18
Newspapers, periodicals	-0.12		Passenger transport by road	0.23
Passenger transp by water	-0.10		Insurance transport	0.24
Durables for ind,outdoor recr.	-0.10		Other services pers. transp. equip.	0.27
Motor cycles, bicycles and	-0.10		Liquid fuels	0.27
Motor cars	-0.09		Fuels, lubric personal transp. equip	0.28
Fruit	-0.08		Combined passenger transport	0.29
Passenger transport by air	-0.07		Spirits	0.30
Solid fuels	-0.07		Gas	0.36
Package holidays	-0.07		Passenger transport by railway	0.43

Greece



Spain



Cyprus Deposits

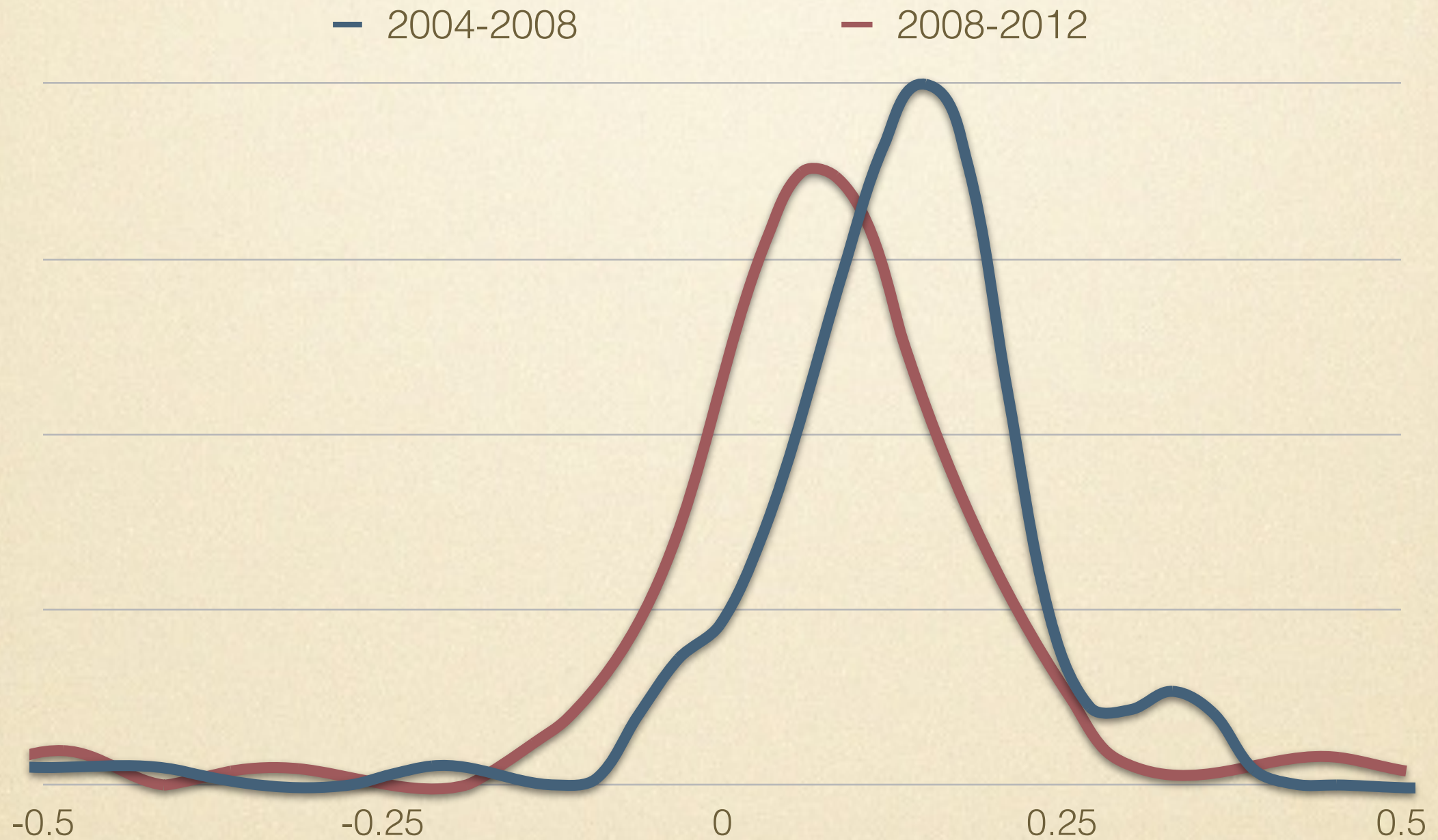


Spain CPI

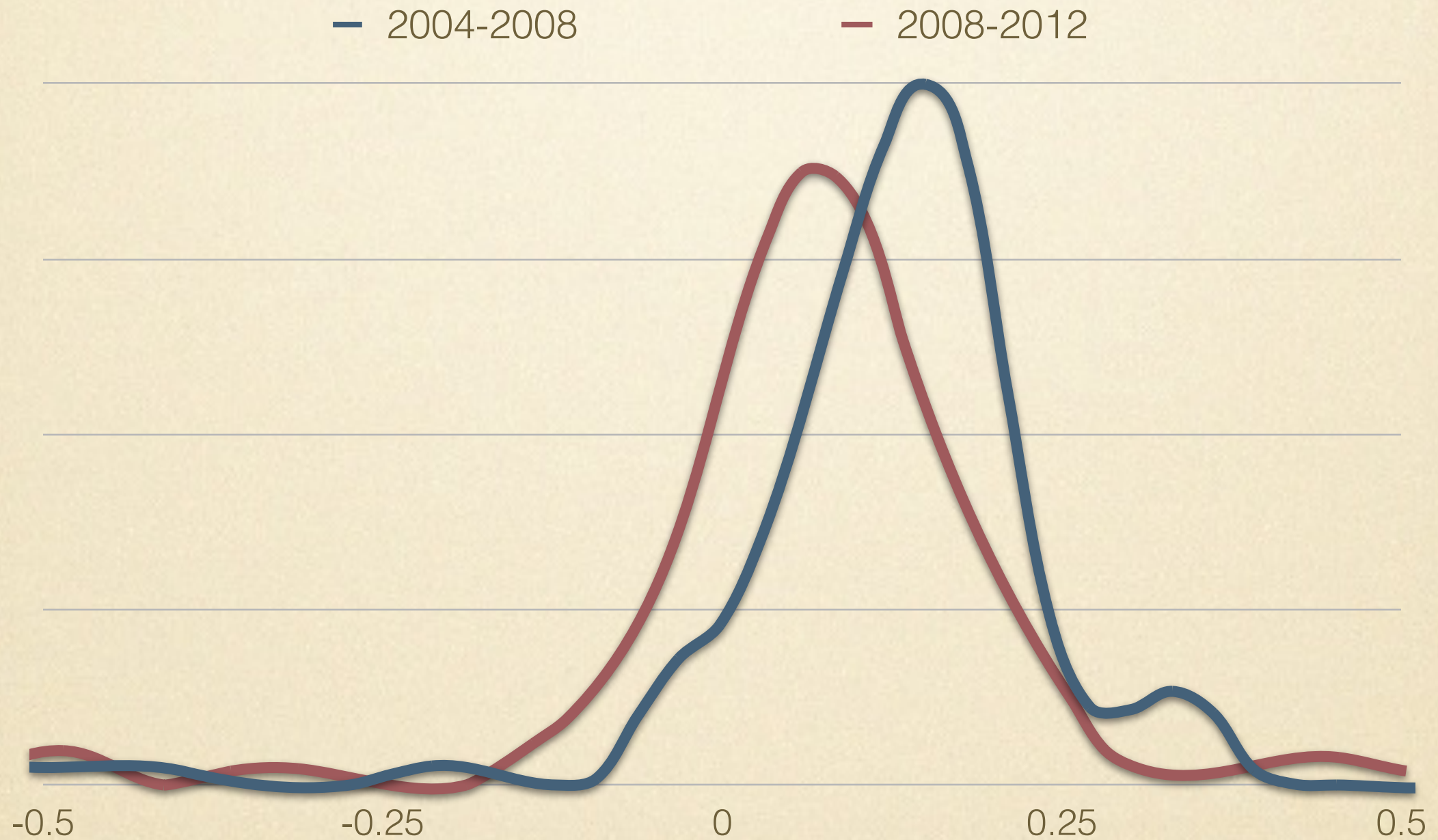
Spain CPI



Spain CPI

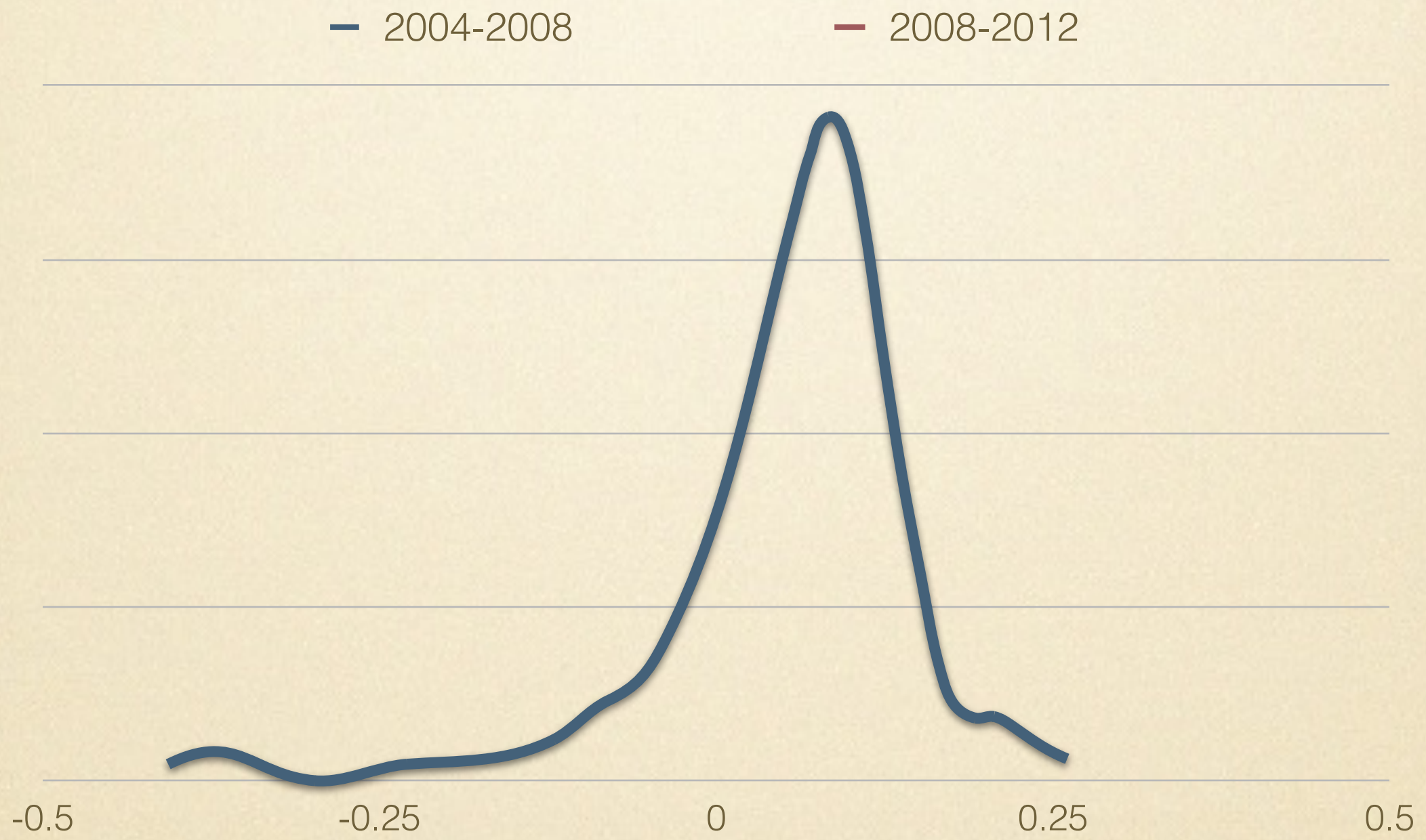


Spain CPI

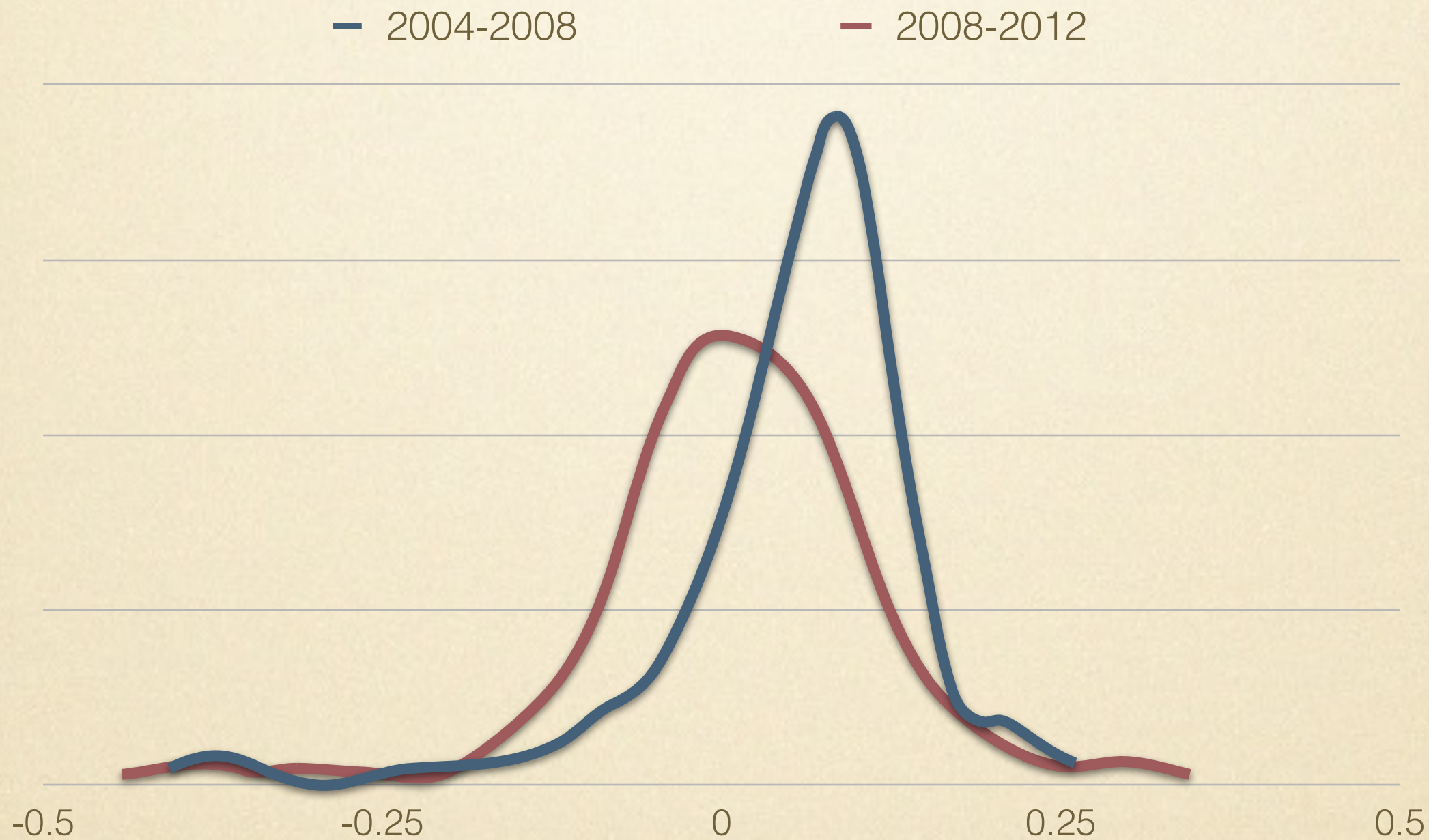


Spain RER

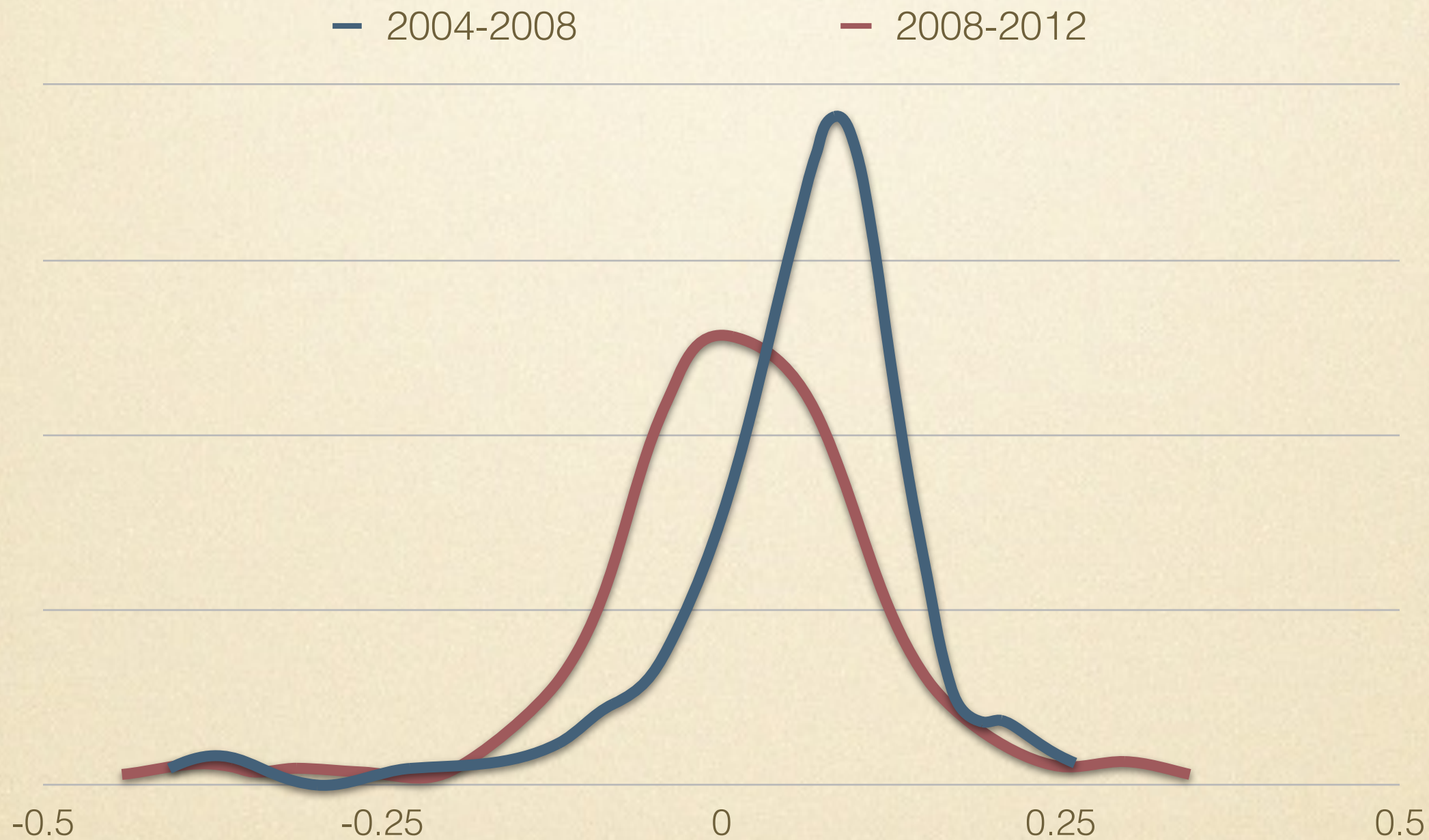
Spain RER



Spain RER



Spain RER

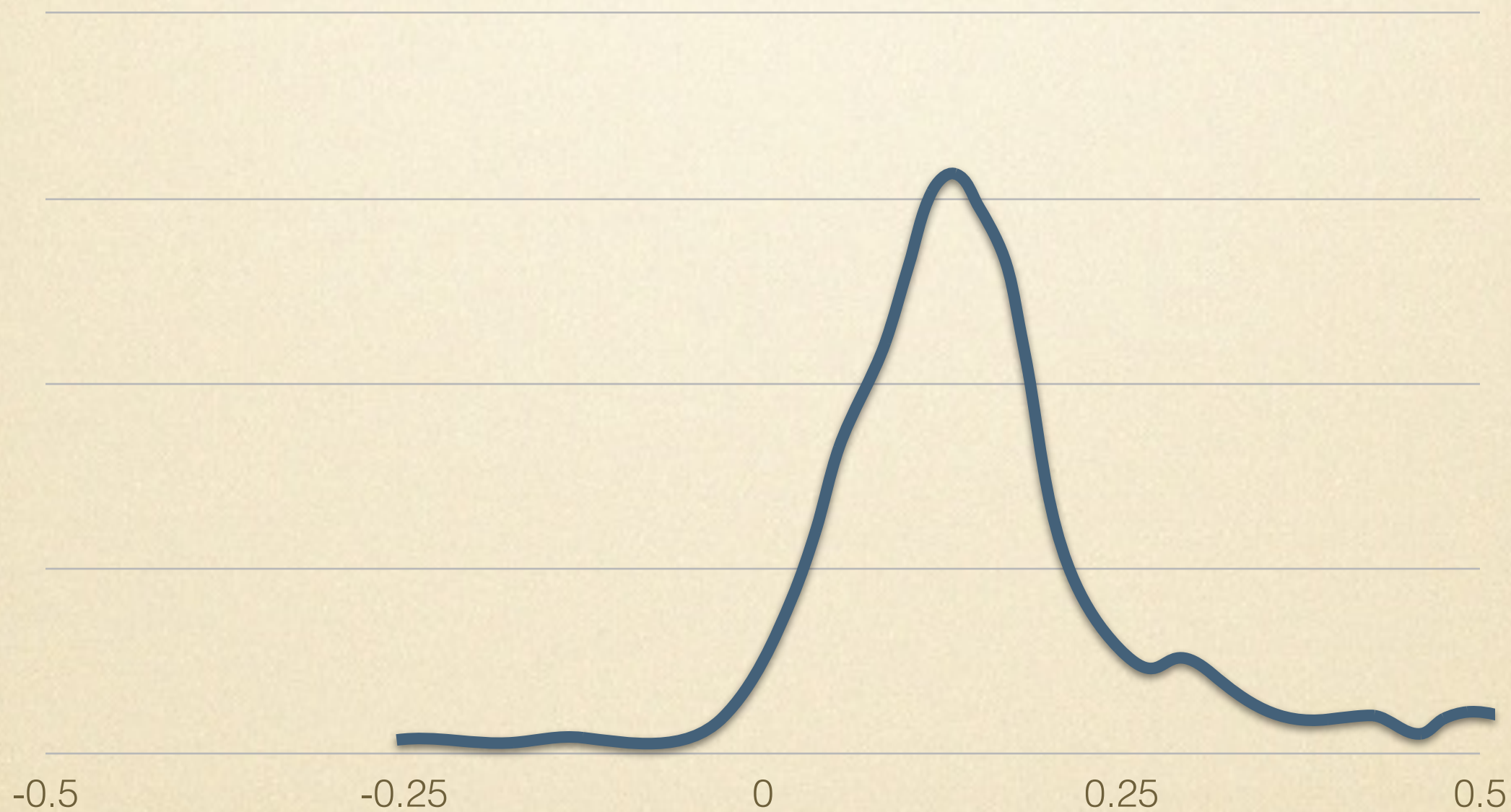


Spain PPI

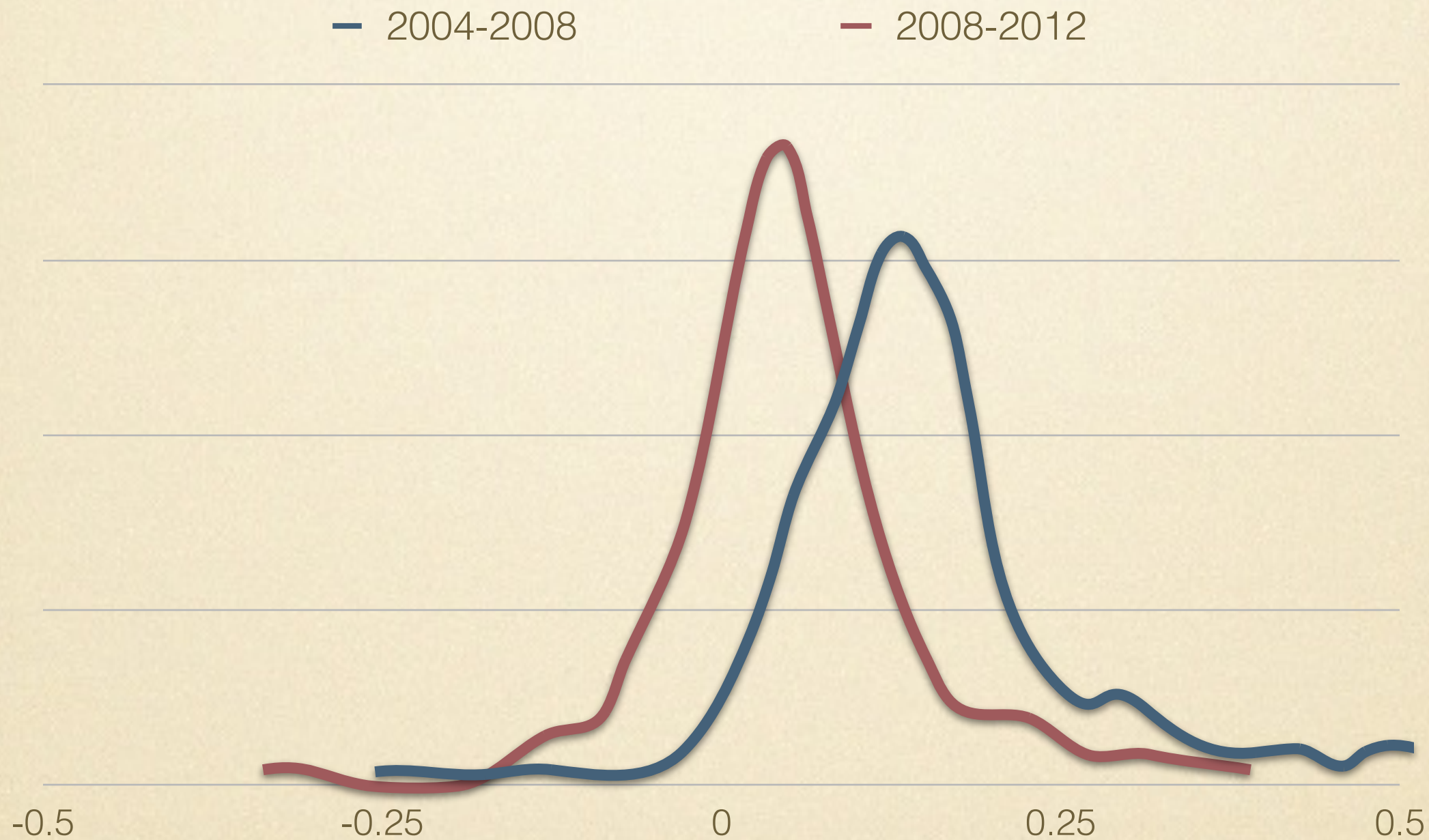
Spain PPI

— 2004-2008

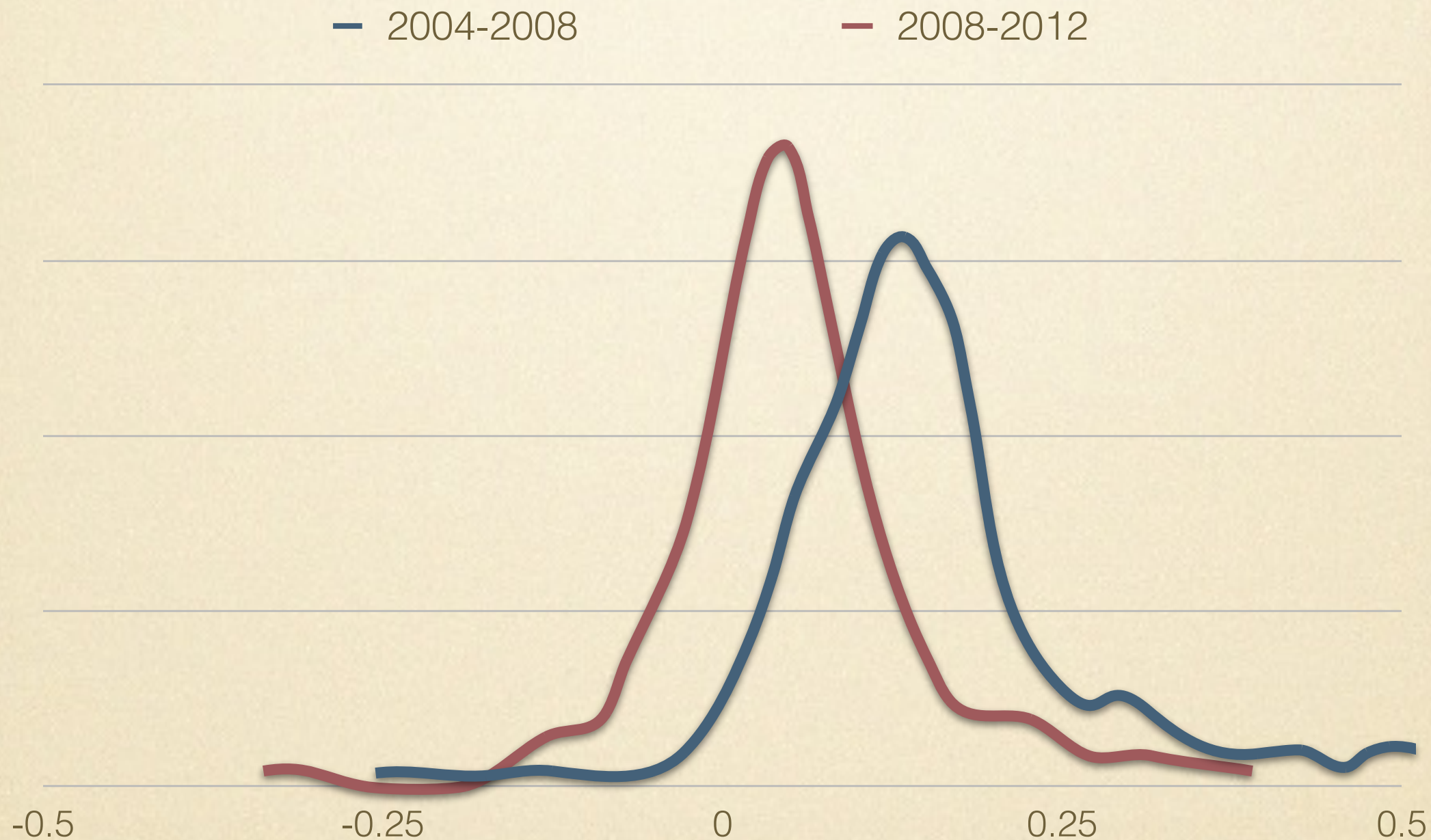
— 2008-2012



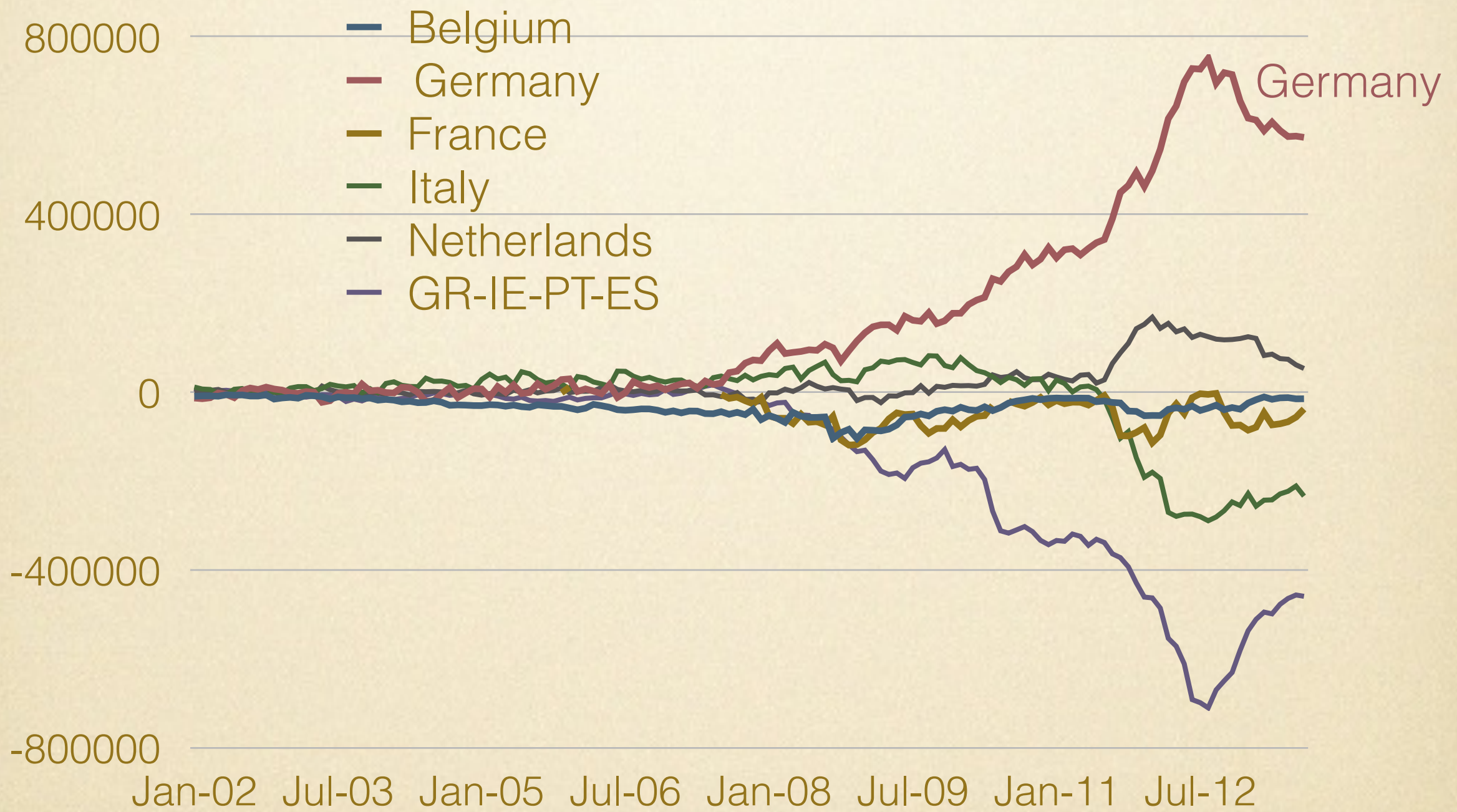
Spain PPI



Spain PPI

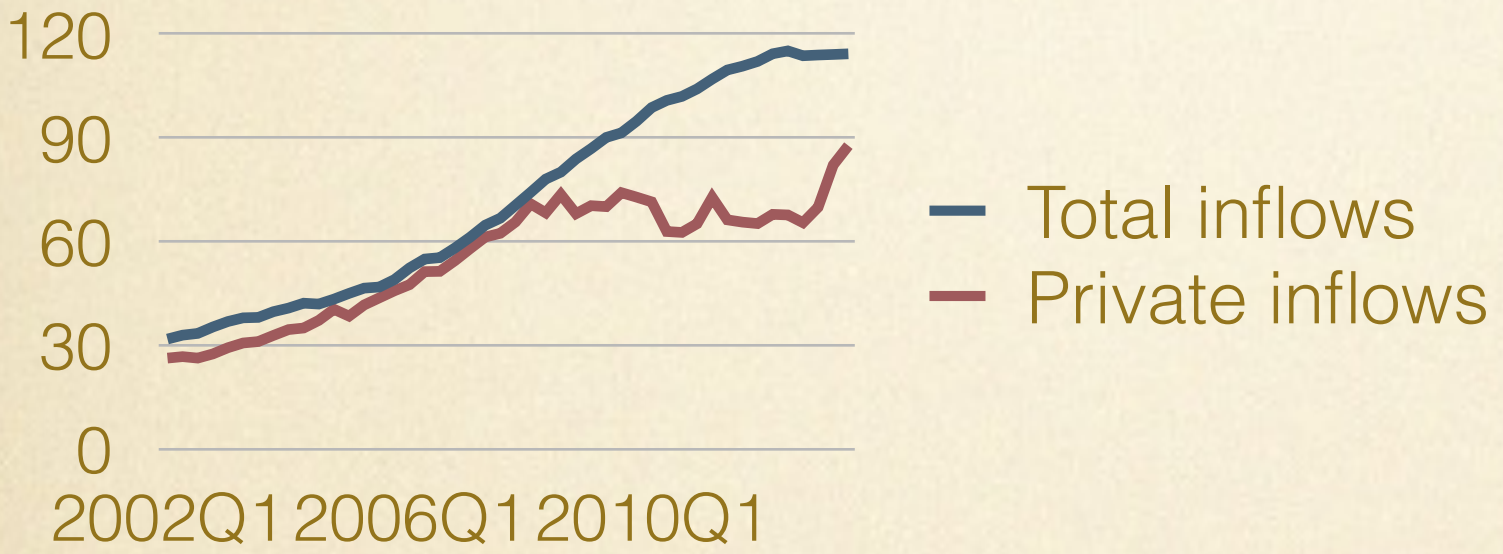


Europe: Target2

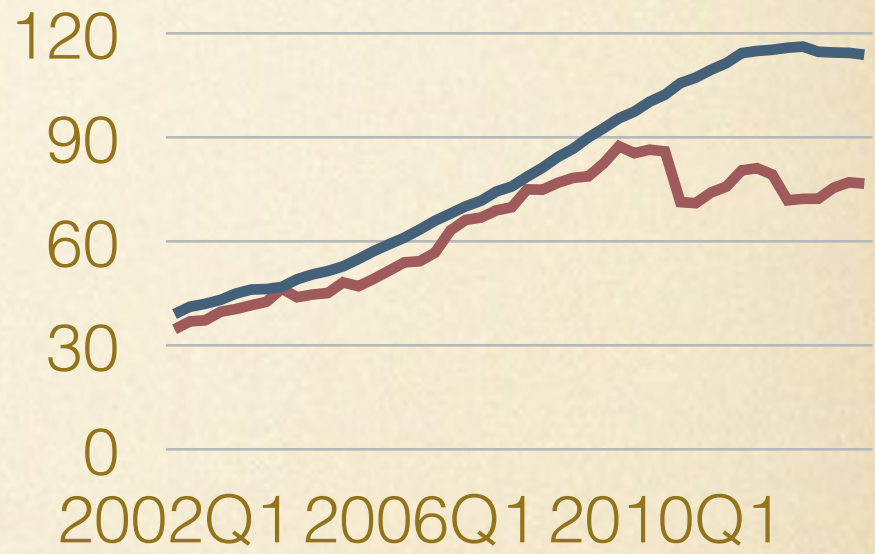


Capital Flows: Total vs. Private

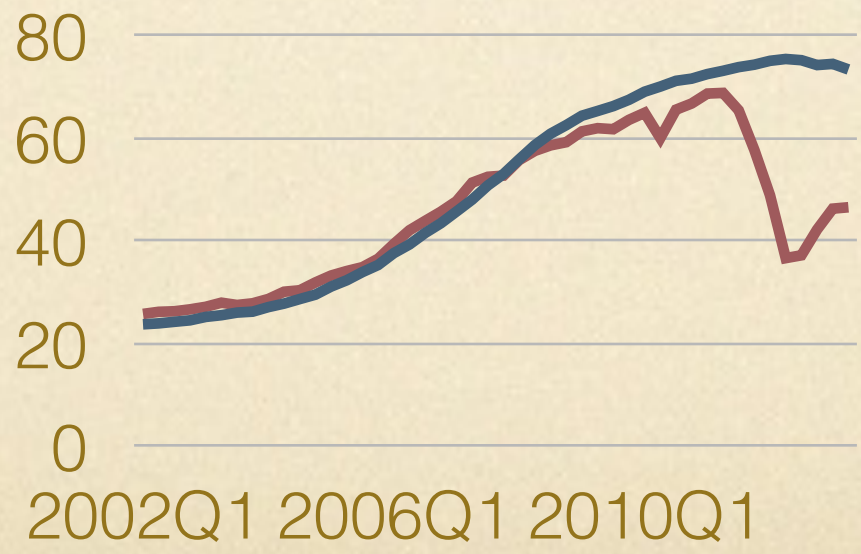
Greece



Portugal



Spain



Time Deposit Rates



Lending Rates

