



Public Investment, Growth, and Debt Sustainability: Putting Together the Pieces



PRESENTED BY

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A JOINT PROJECT WITH

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IMF CONFERENCE ON SUSTAINABLE INVESTMENT SCALING UP
IN LOW-INCOME COUNTRIES

WASHINGTON

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Introduction

Motivation

The Pieces

Outline of the project

Putting Them Together

Lessons

Motivation



- Many countries want to—and can—borrow to finance public investment spending
 - Needs are great, and higher aid will likely not be enough
- How much borrowing for public investment should countries do, and how much is sustainable?
 - The LIC DSF provides a framework for thinking about much of this
 - But the linkages are not articulated and the assumptions may be implicit



The Project



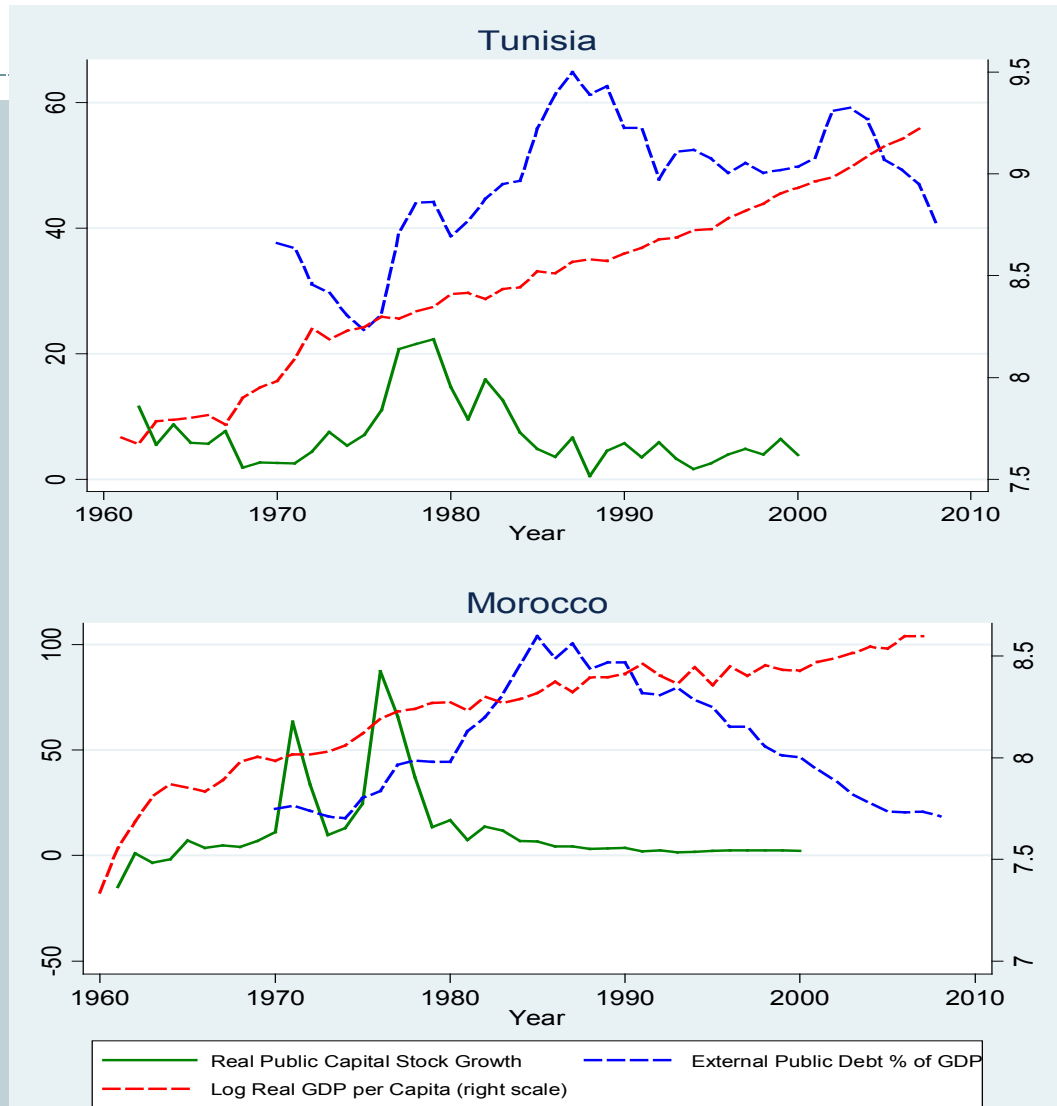
- Build a model to bring together the key elements
- Use the model to:
 - understand the linkages
 - systematically use empirical evidence
 - organize discussions
- Provide a tool to help analyze specific country cases

Overall Analytic Approach



- An optimistic but prudent framework for thinking about public capital:
 - Public capital is highly productive
 - We should not count on a growth takeoff that would ensure debt sustainability

Historically, public investment booms ≠ growth take-offs



Source for public capital: Arslanalp, Bornhorst, Gupta, and Sze (2010)

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Some Lessons

Public capital, output, and efficiency

Fiscal Adjustment

The Private Sector

Public capital helps drive output



- Increases in public capital raise growth and output

$$Y = AG^{\gamma} K^{\alpha} L^{1-\alpha}$$

- A key assumption is the rate of return on public capital
- There are some other features we are not using today, such as potential externalities associated with exports.
- Governments don't always convert \$1 of investment spending into \$1 of productive public capital

$$G_t = G_{t-1} - \delta G_{t-1} + eI_t^g$$

- We don't always assume $e=1$
- The “PIMI” can help us calibrate e .

Fiscal Adjustment



- Various fiscal policy decisions.
 - The path of public investment is a choice of the government
 - The path of aid is given
- Other spending and/or the tax rate adjust, if necessary, to stabilize the debt ratio.
 - How much they need to change depends on the rate of return etc.
 - And when they need to change depends on whether the country borrows to smooth the transition.

The Private Sector Responds to Higher Public Capital



- Crowding in
 - More public capital raises marginal product of private capital
- Crowding out
 - When the government uses domestic resources to invest, these resources are not available for private investment and consumption.
- The Balance depends . . .
 - In the long run, there is always crowding in if the projects are good
 - In the transition, crowding out may dominate, especially early on and especially if there is not enough foreign financing.

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Next Steps

Long-Run

Tax-Financed Transition

Nonconcessional External
Borrowing

Nonconcessional Domestic
Borrowing

A Baseline Scenario

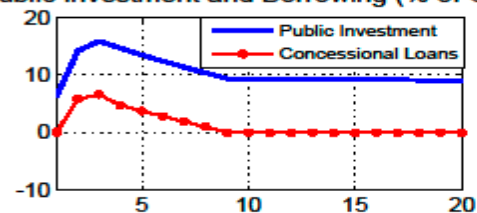


- A Baseline calibration to a typical SSA LIC with good and well-executed public investment projects
 - Rate of return to newly installed public capital of 25%
 - Fully efficient public investment process ($e=1$)
 - 50% of recurrent costs are covered through user fees

Higher public capital: great long run but a challenging transition



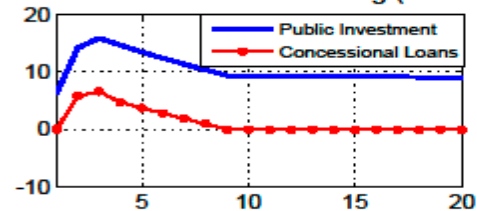
Public Investment and Borrowing (% of GDP)



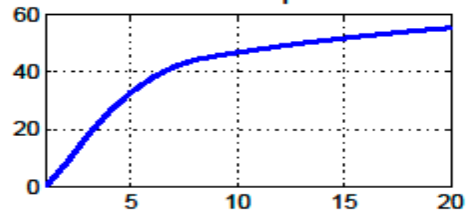
Higher public capital: great long run but a challenging transition



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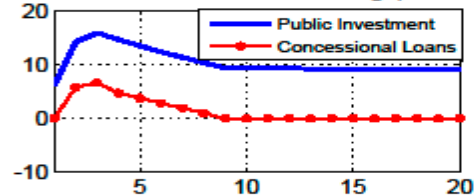
Public Capital



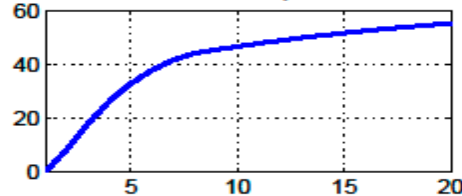
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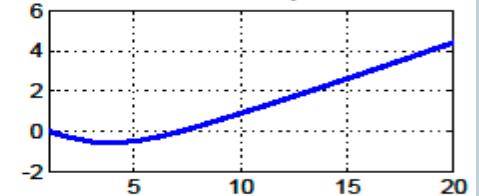
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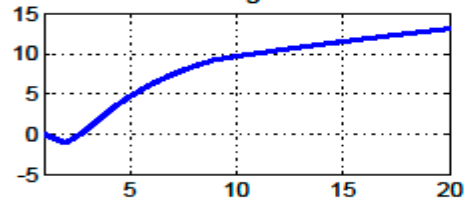
Public Capital



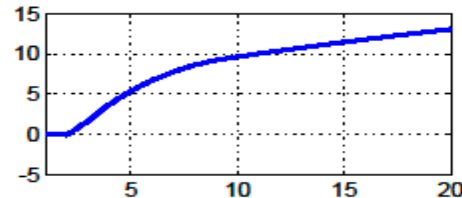
Private Capital



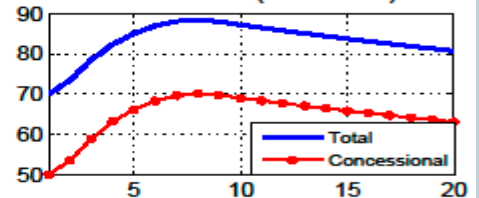
Wages



Real GDP



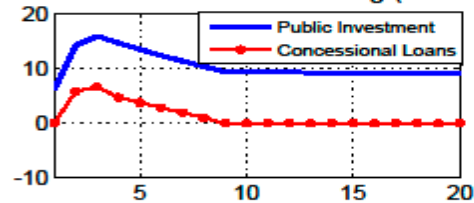
Public Debt (% of GDP)



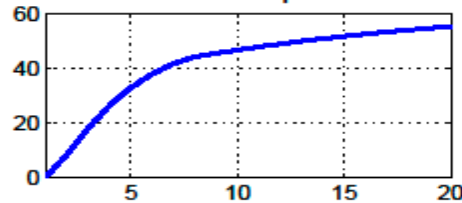
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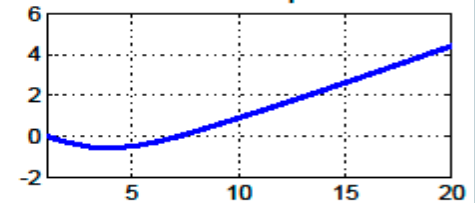
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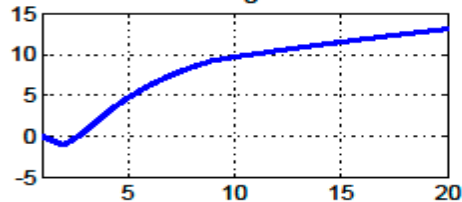
Public Capital



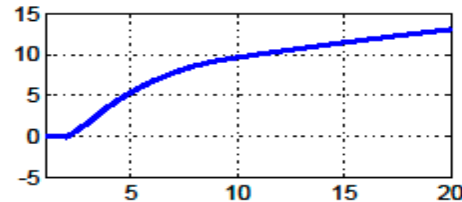
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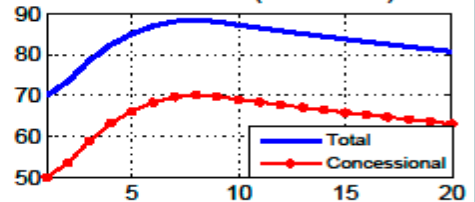
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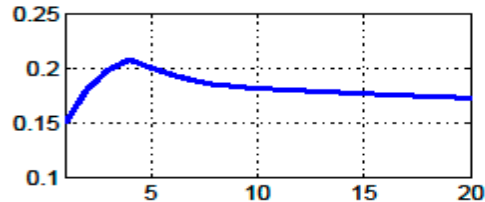
Real GDP



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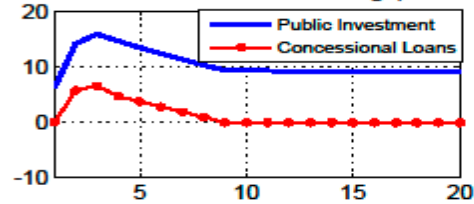
Taxes



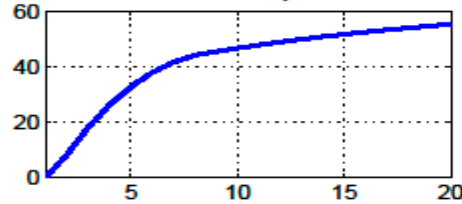
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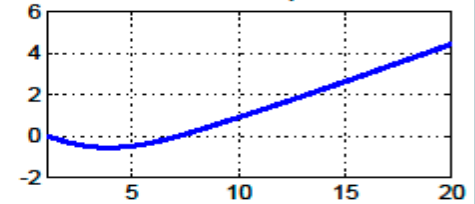
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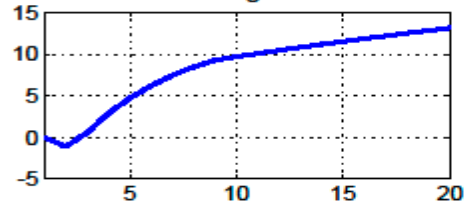
Public Capital



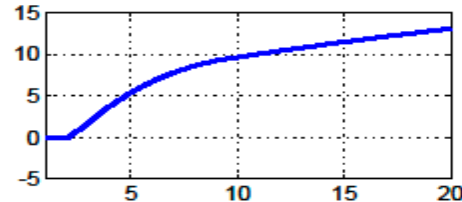
Private Capital



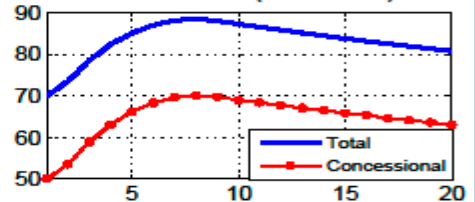
Wages



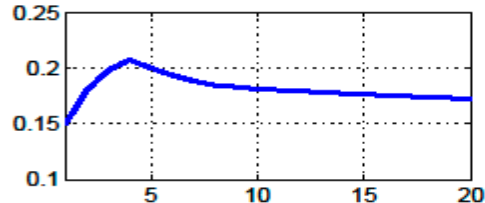
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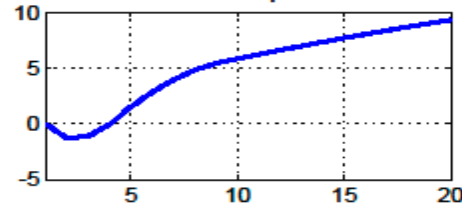
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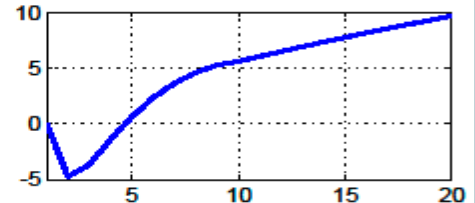
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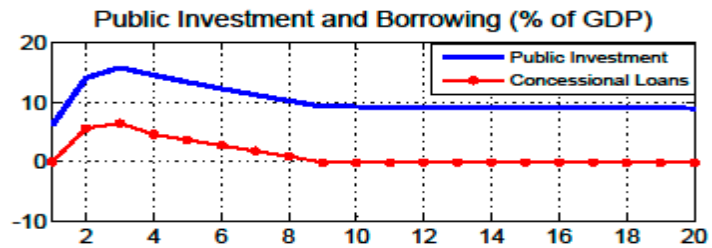
Consumption



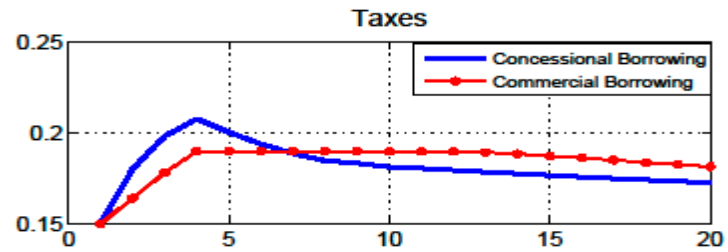
Private Investment



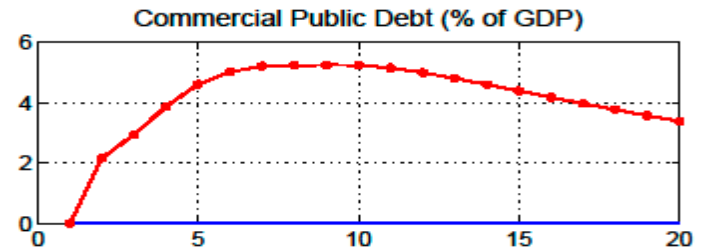
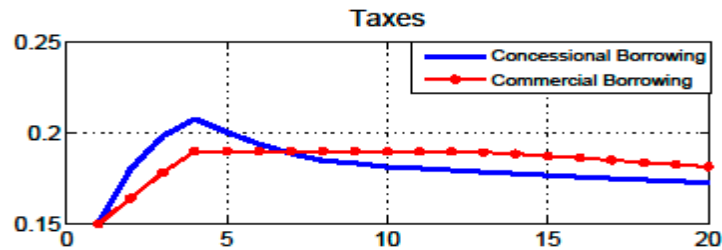
Commercial external borrowing can smooth the transition . . .



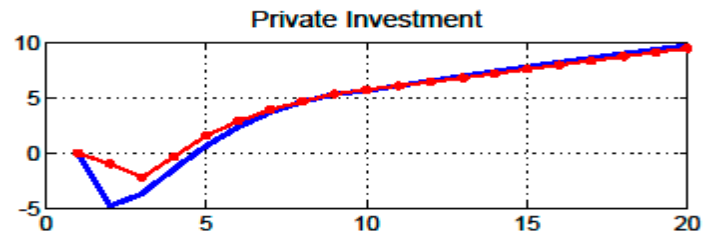
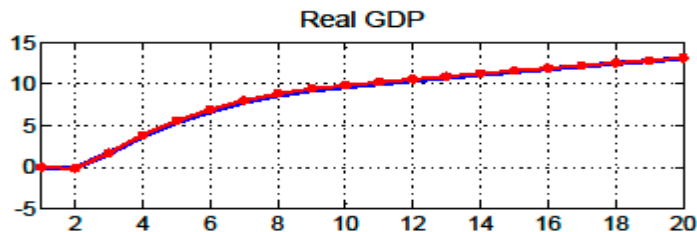
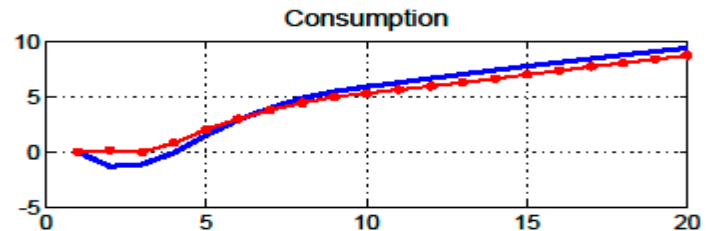
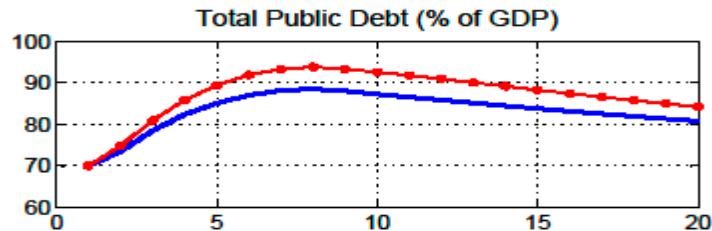
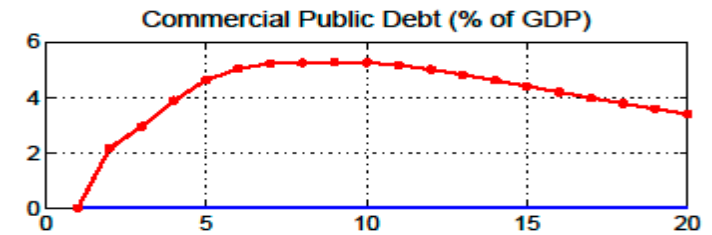
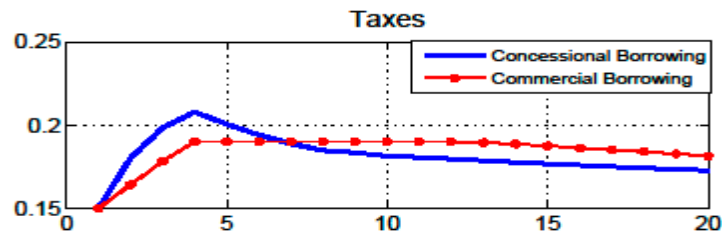
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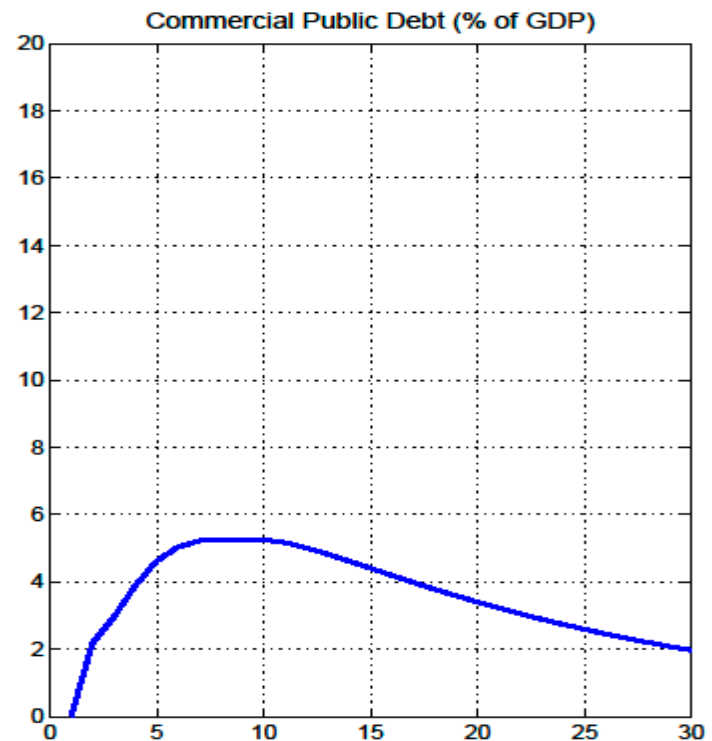
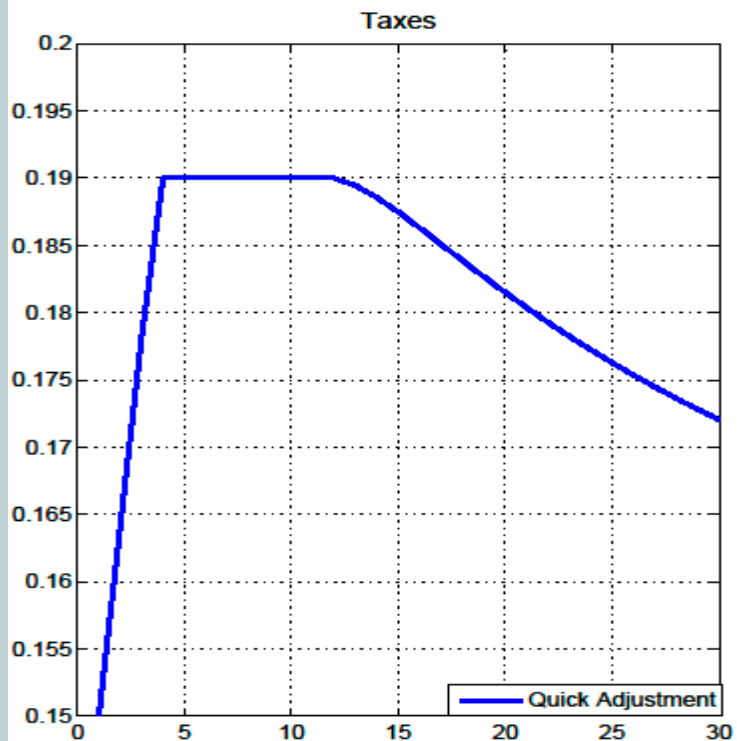
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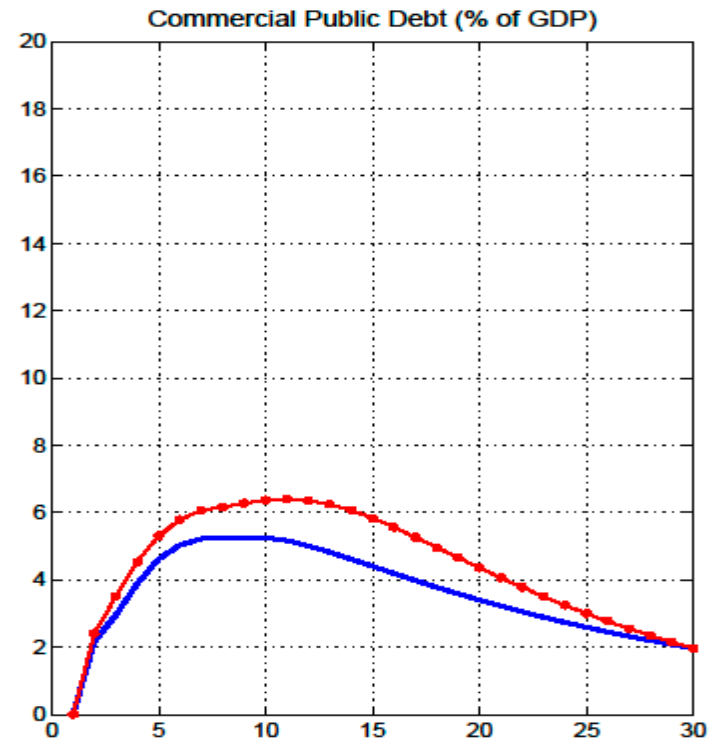
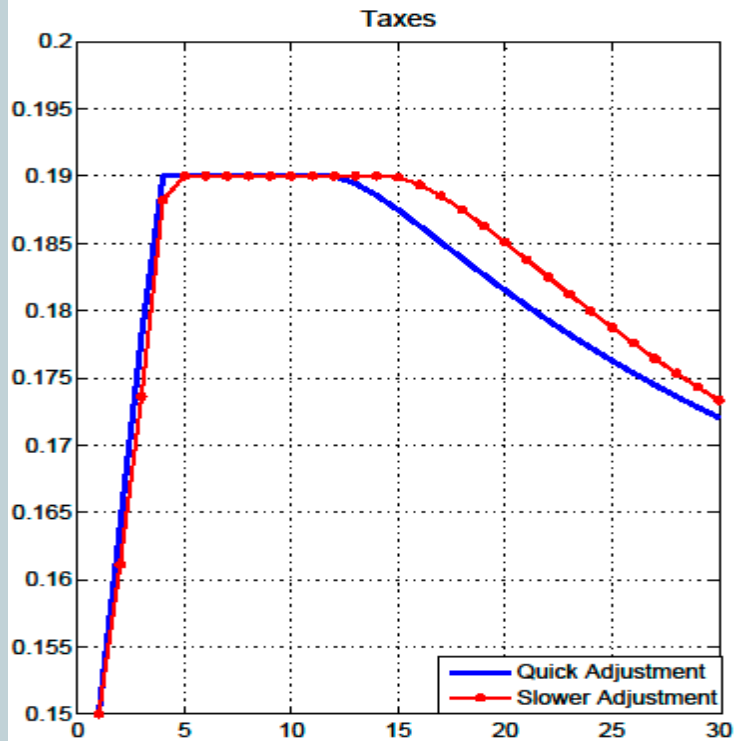
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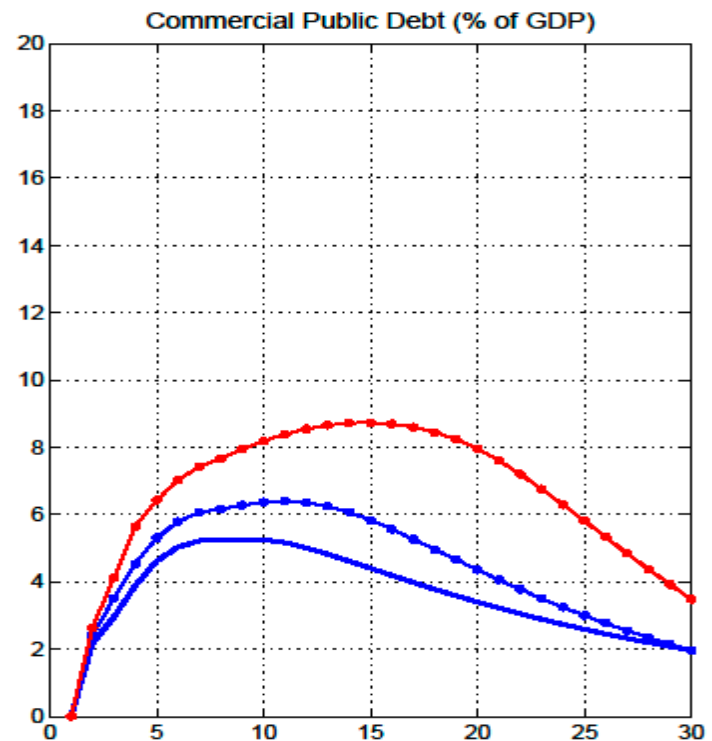
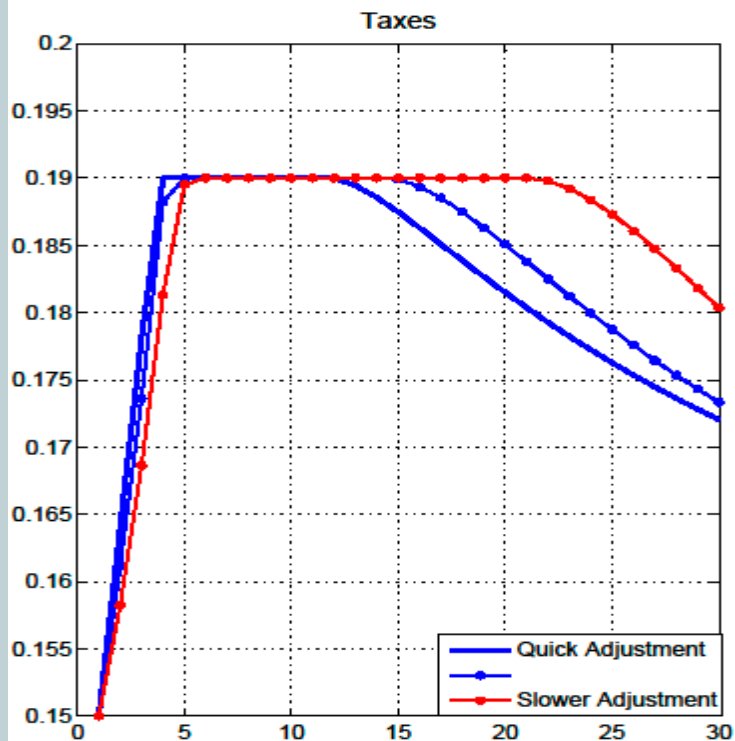
... But it raises the stakes



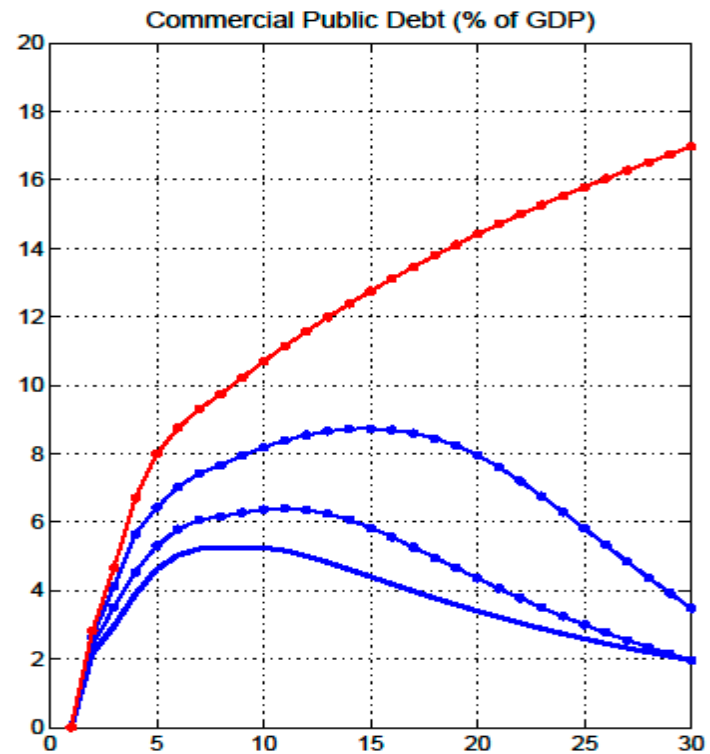
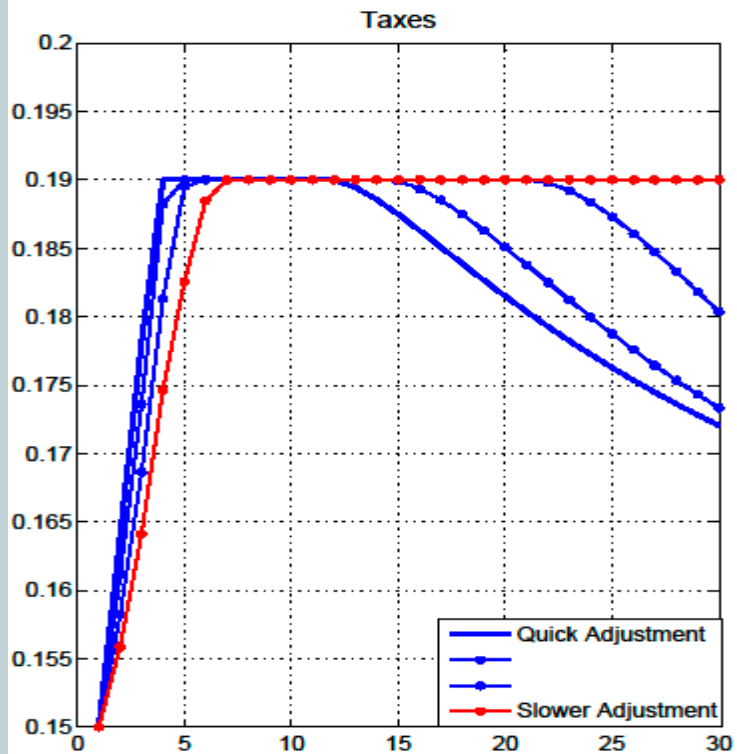
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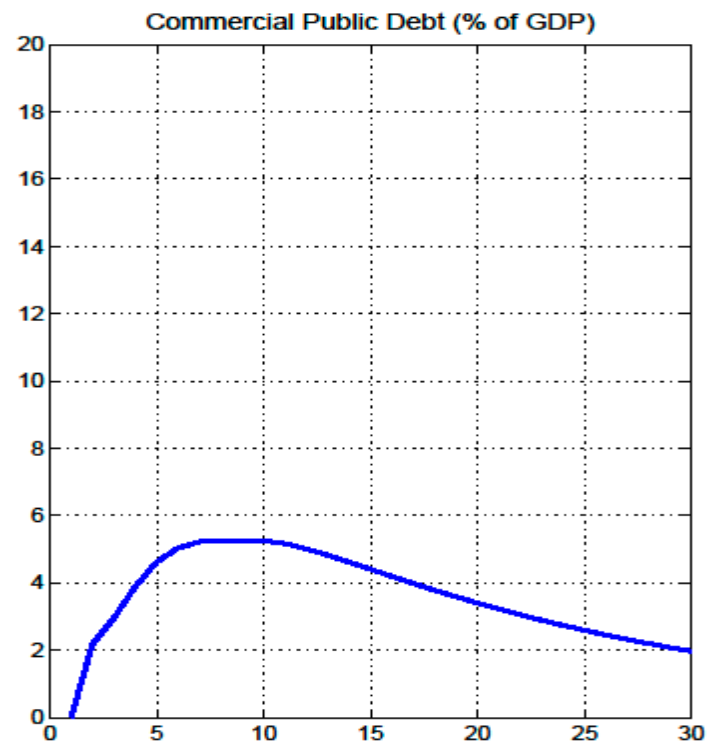
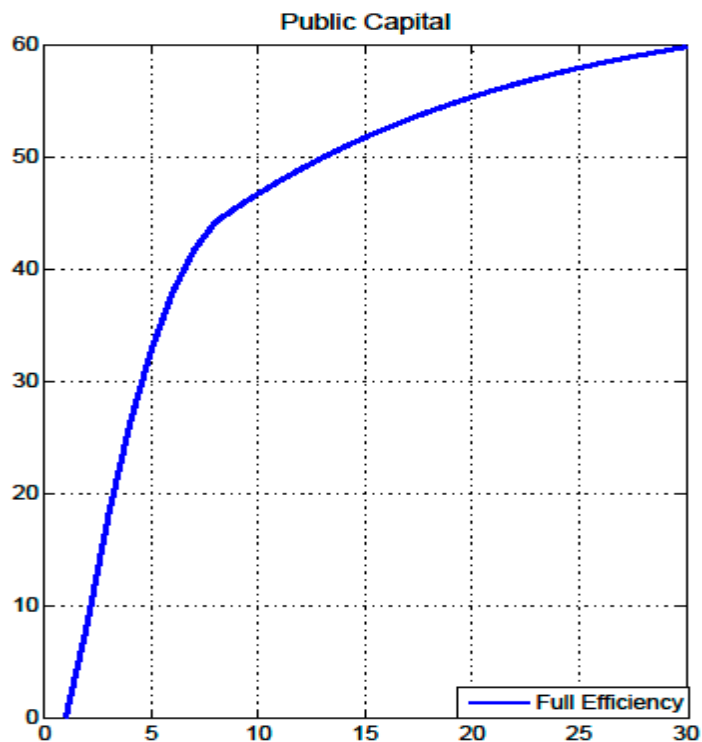
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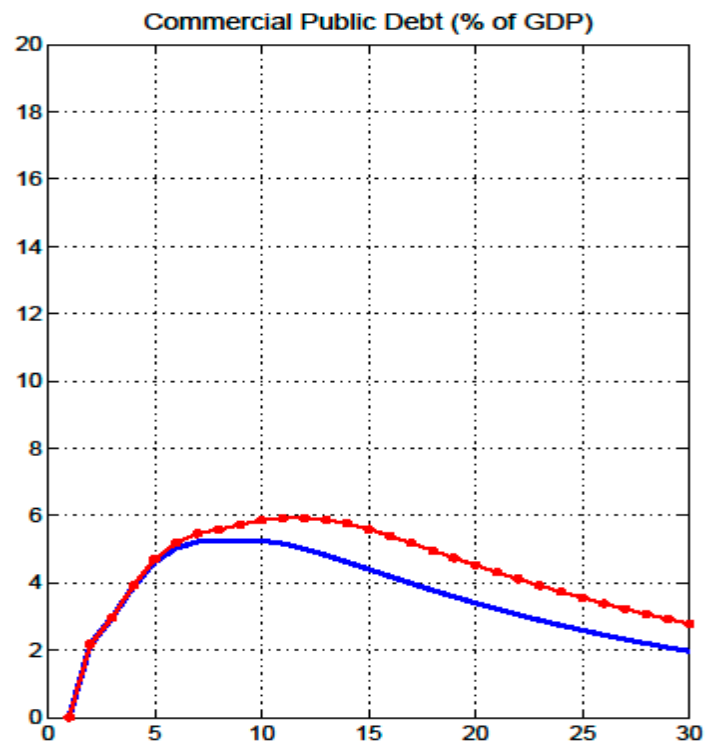
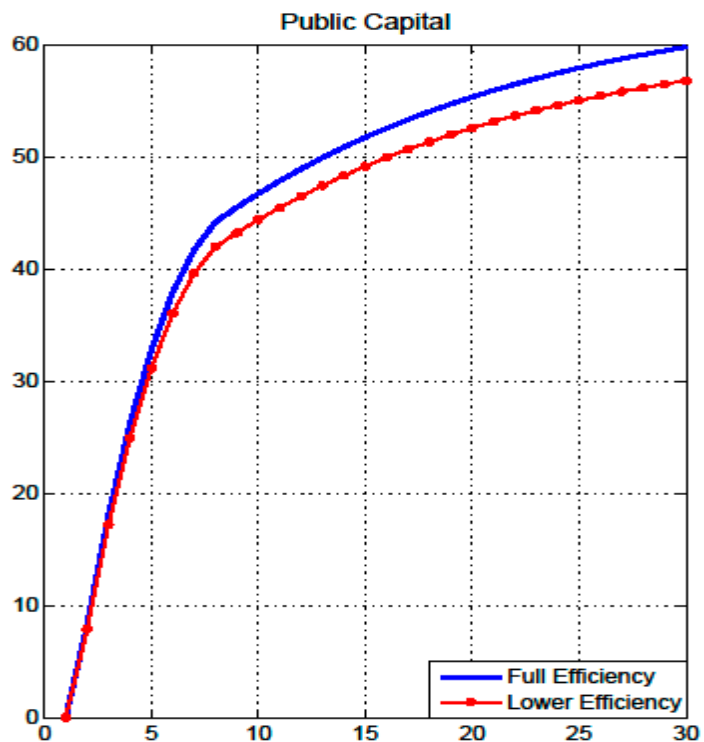
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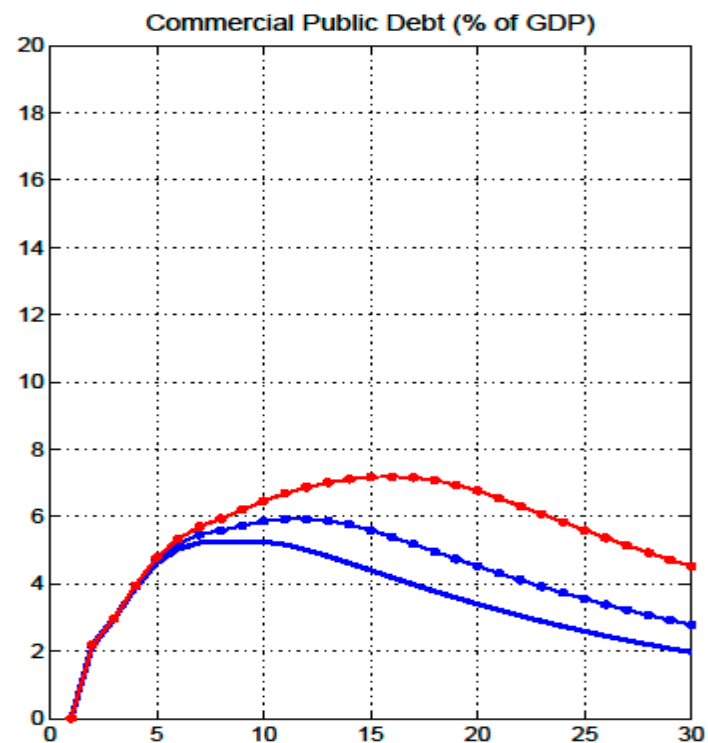
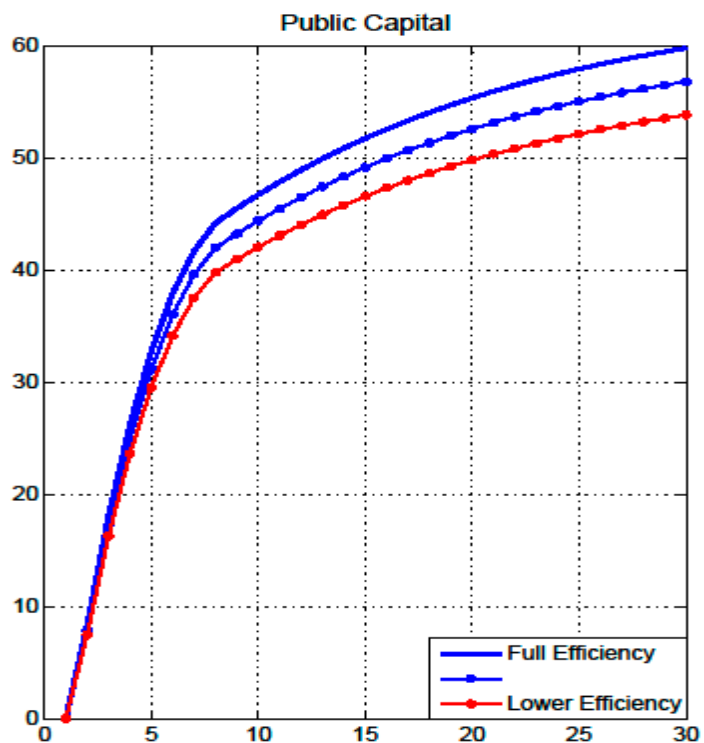
... including for investment efficiency



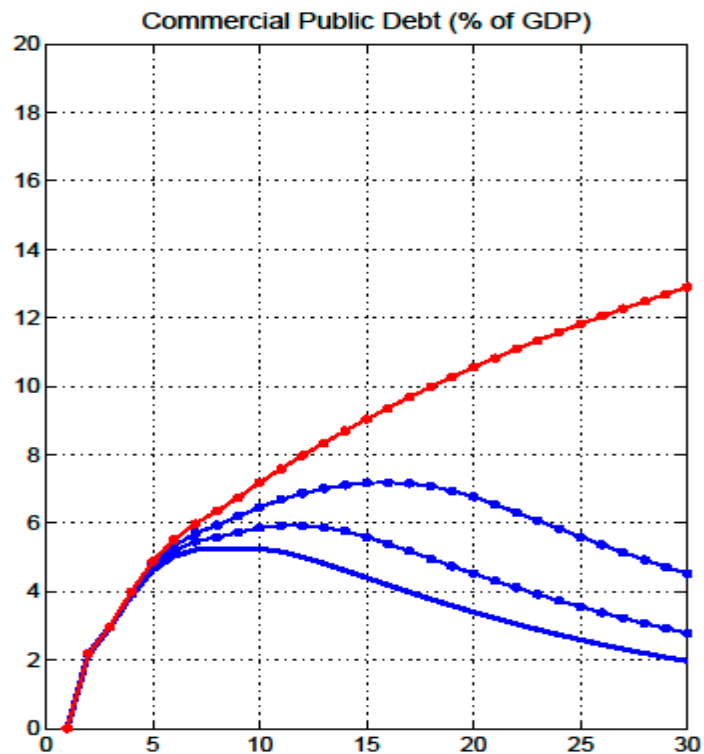
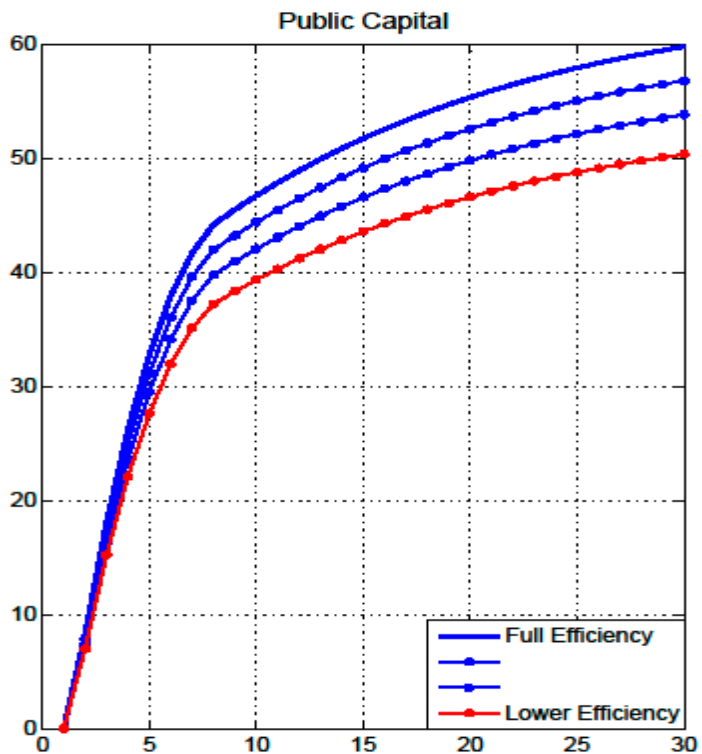
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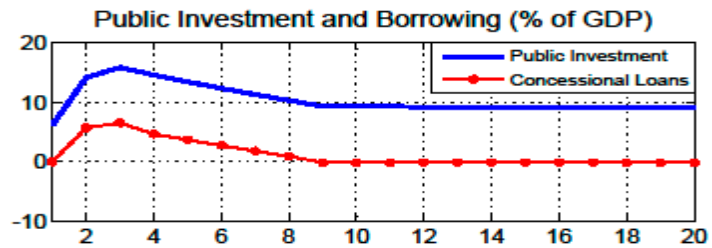
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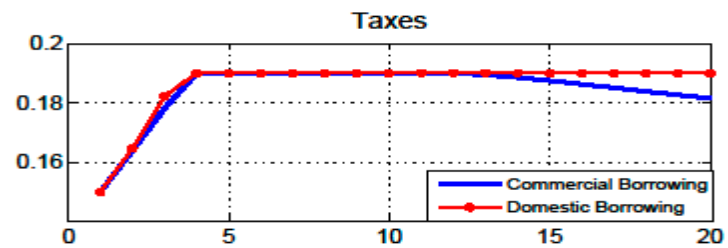
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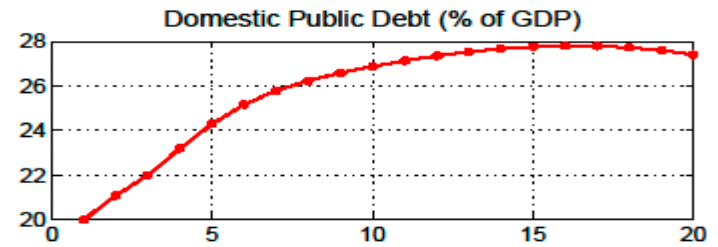
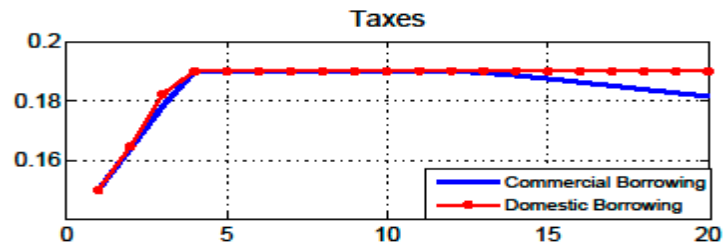
Domestic borrowing may not smooth the transition



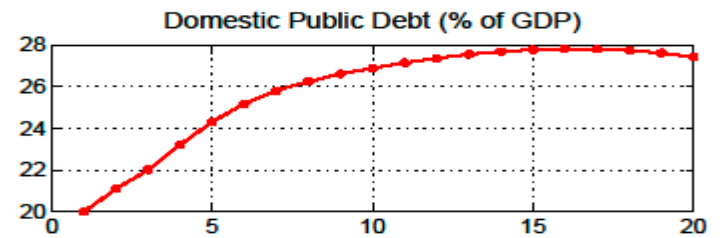
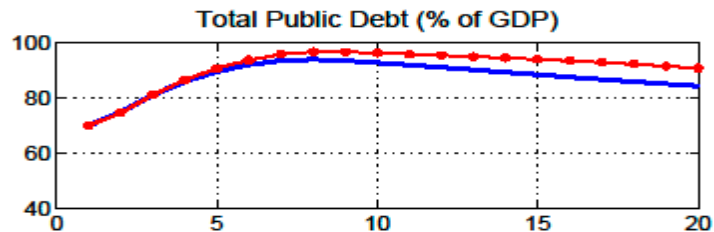
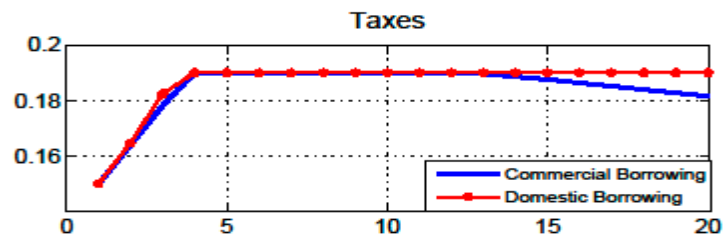
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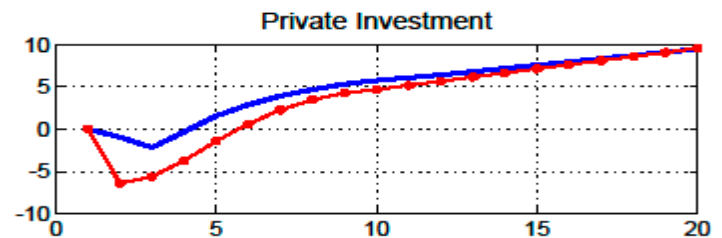
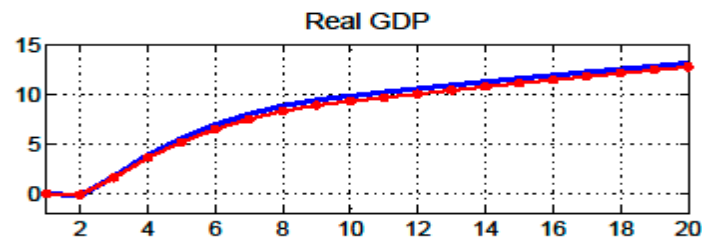
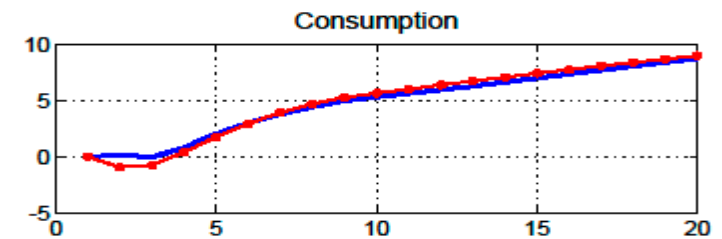
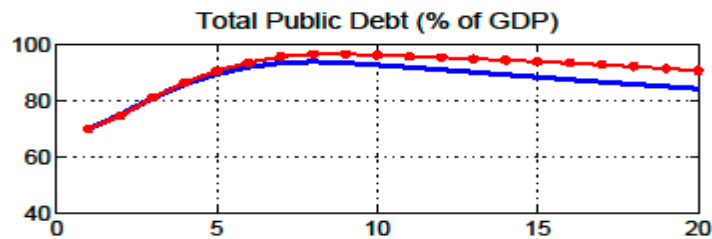
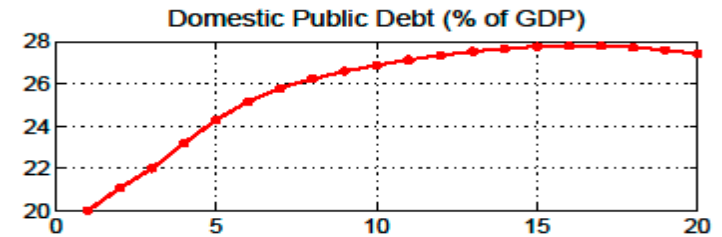
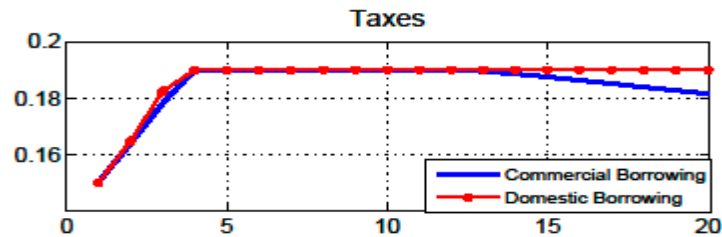
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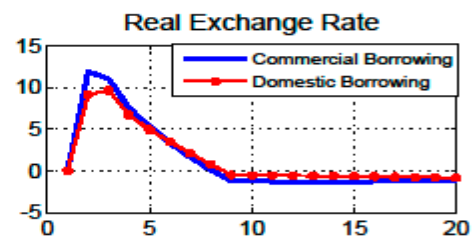
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Domestic borrowing may not smooth the transition





Introduction

The Pieces

Putting Them Together

Conclusion

Lessons

Next Steps



Summary of Lessons



- It's not enough to have good projects
 - There is a potential long-run fiscal problem
 - The transition can be very challenging: high taxes, cuts in private consumption and investment
- External nonconcessional borrowing raises the stakes
 - It can support smooth adjustment and hence successful scaled up public capital
 - But it can easily become explosive
- Domestic borrowing may be less useful
 - It does not provide the country with resources to smooth the transition

Next Steps



- Develop readily-usable version of model
 - Analyze different scenarios for public investment and financing
- Uncertainty and risk
 - Explore range of assumptions that support non-explosive debt
 - E.g., what happens if a negative shock happens (unexpectedly) along trajectory? E.g., real exchange rate or growth shocks.

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