Dealing with the Public Debt Burden

A system dynamics approach to implementing sustainable financial policies in the Italian State

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Presentation Agenda

1. **Introduction**: debt background, literature, dynamic problem and involved stakeholders

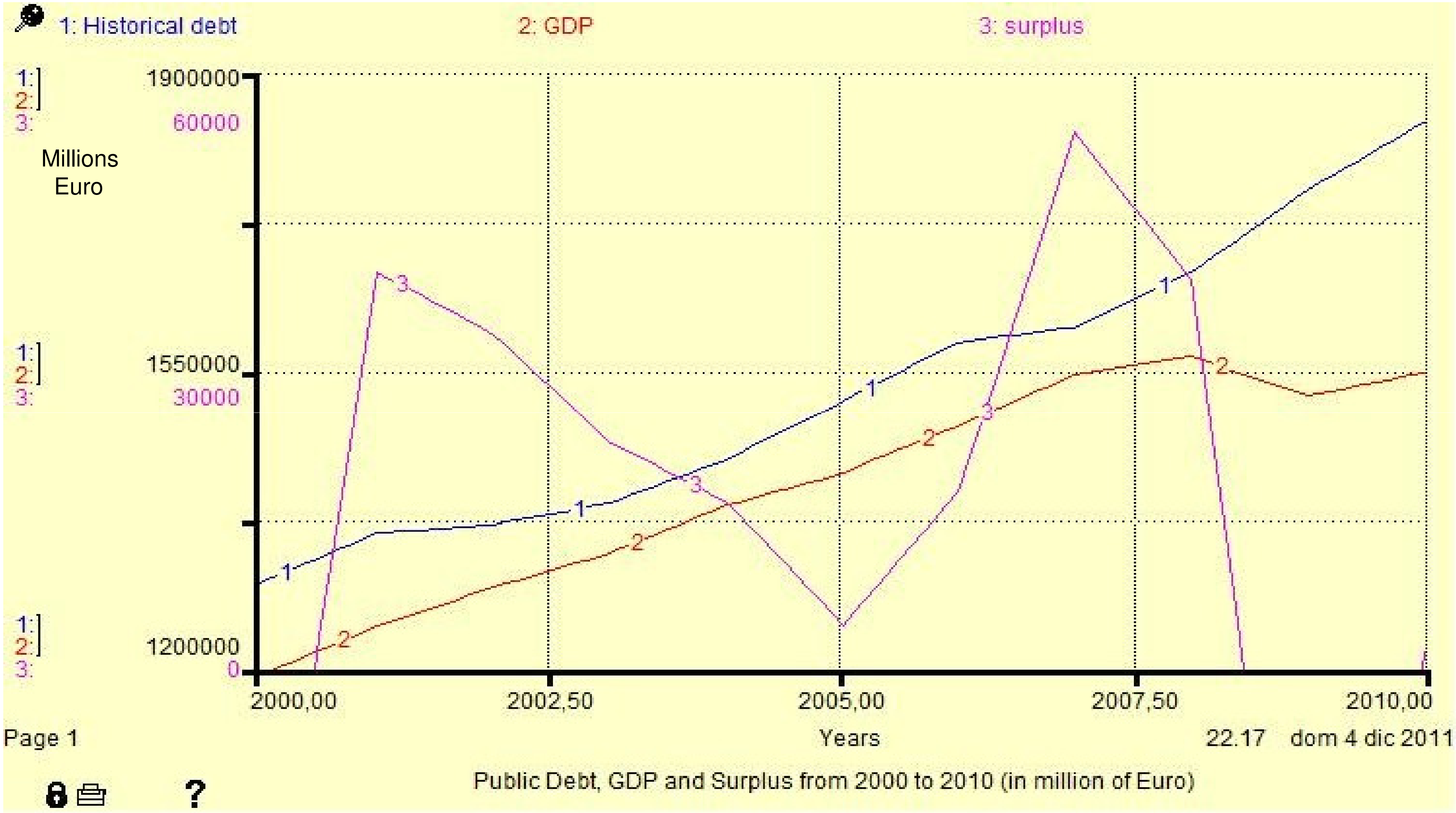
2. **Model**: purpose, boundaries, business-like perspective & tests

3. **Policies 1&2**: producing a surplus to ensure both debt and risk premium reduction, results.

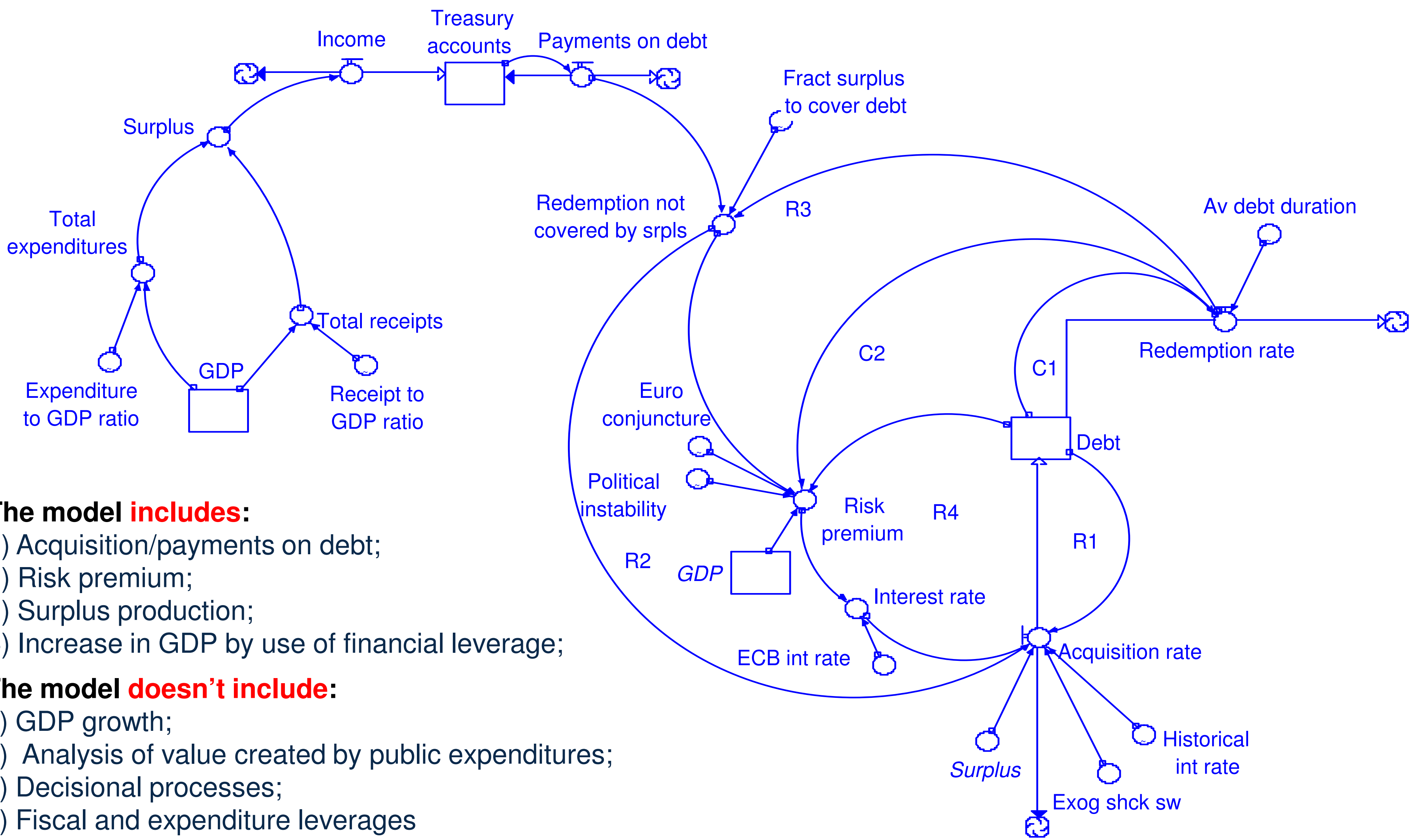
4. **Implementation of Financial leverage**: amplification of effects of Policies 1 & 2, effects on GDP, surplus, receipts and expenditures

5. **Conclusions**

Dynamic problem



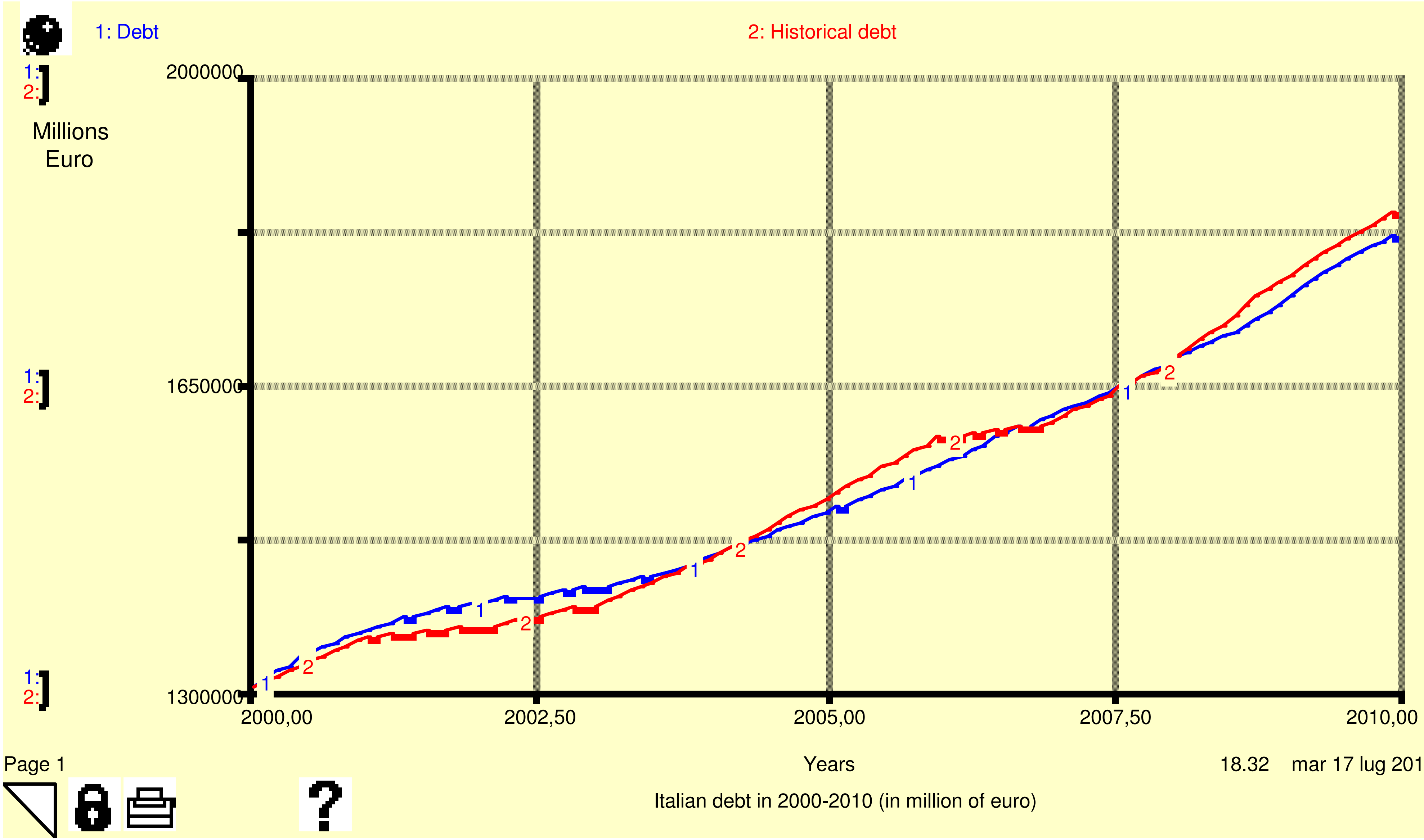
The Model



The model includes:
1) Acquisition/payments on debt;
2) Risk premium;
3) Surplus production;
4) Increase in GDP by use of financial leverage;

The model doesn't include:
1) GDP growth;
2) Analysis of value created by public expenditures;
3) Decisional processes;
4) Fiscal and expenditure leverages

Reference mode Comparition test



Structure-behavior test on loops affecting Risk Premium

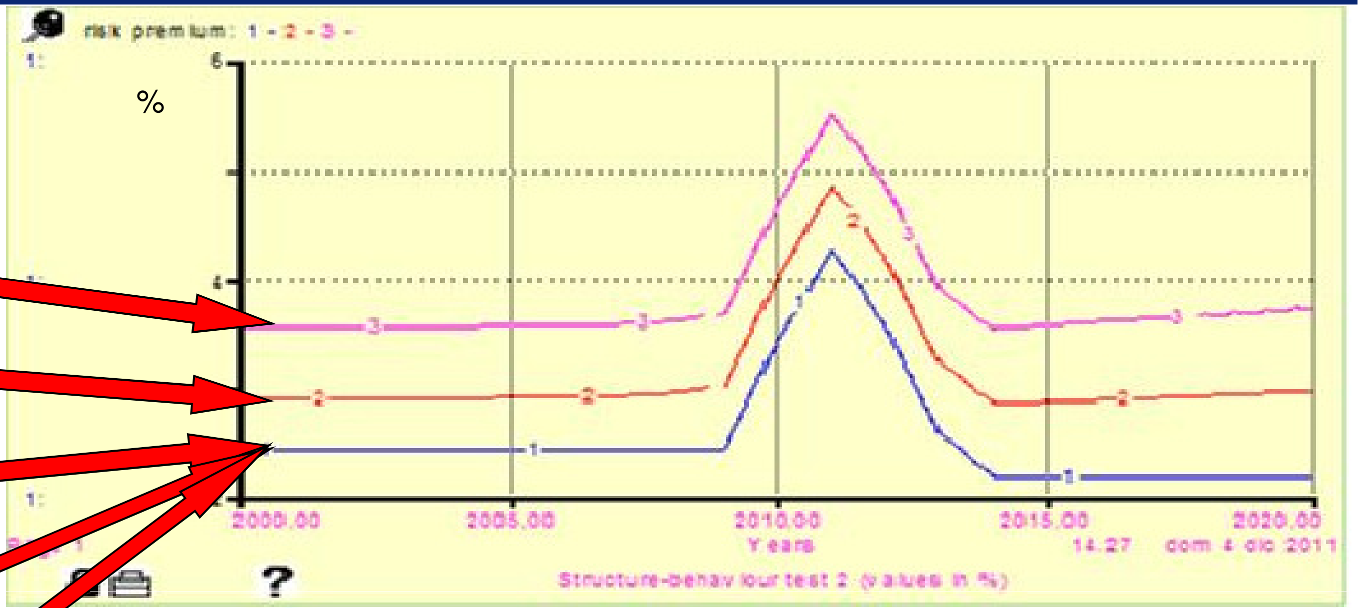
R3 and C2 loops

R4 loop

Political Instability

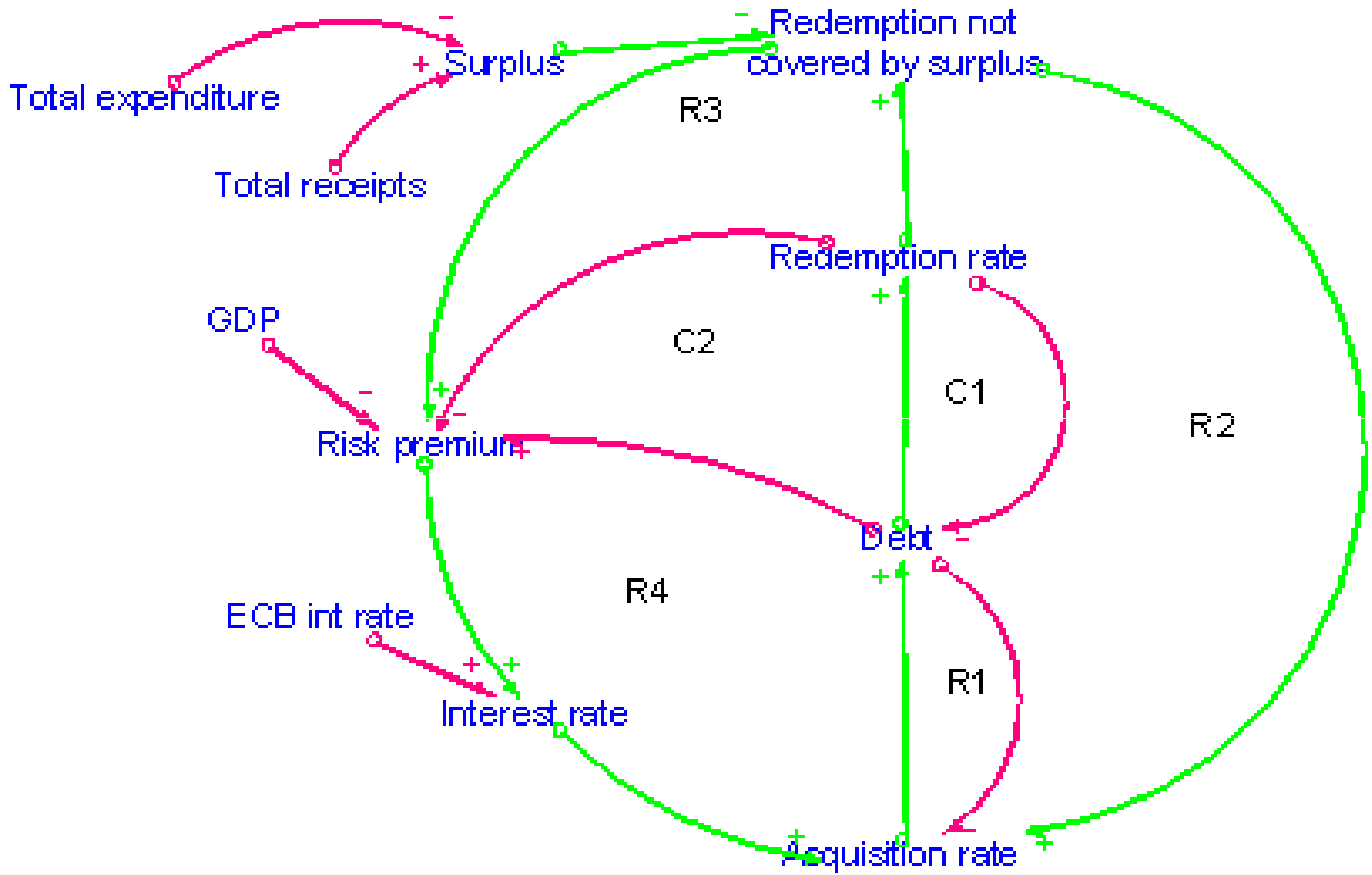
GDP Growth

European Conjuncture



Effect of surplus on Risk Premium reduction

Policies recommended 1&2



Policies recommended 1&2

Policy 1

Reduce the public expenditures by:

*a) Abolition of Provinces: **- 10.7 billions** Euro;*

*b) Removal of 36% of Parliament members: **- 3.5 billions** Euro;*

*c) 33% of reduction on political salaries and benefits: **- 8.23 billions** Euro;*

*d) Reduction pensions deputies and senators: **- 202.2 millions** Euro;*

*e) Reduction pension public managers: **- 9.8 billions** Euro*

Due to **longer fulfillment time** policies effects are predicted starting **from the end of 2013**.

In case of ideal scenario (100% effectiveness) policies will produce a surplus of 50,195 millions euro

Policy 2

Increase during 2012-2020 country receipts by:

*a) Application of a China import surcharge: **+ 576 millions** Euro;*

*b) Patrimonial tax: **+ 8,435 millions** Euro;*

*c) Tax on higher earnings by firm bureaucracy reduction: **+ 5,820 millions** Euro;*

*d) Additional 4% VAT on junk food: **+ 39 mln** Euro;*

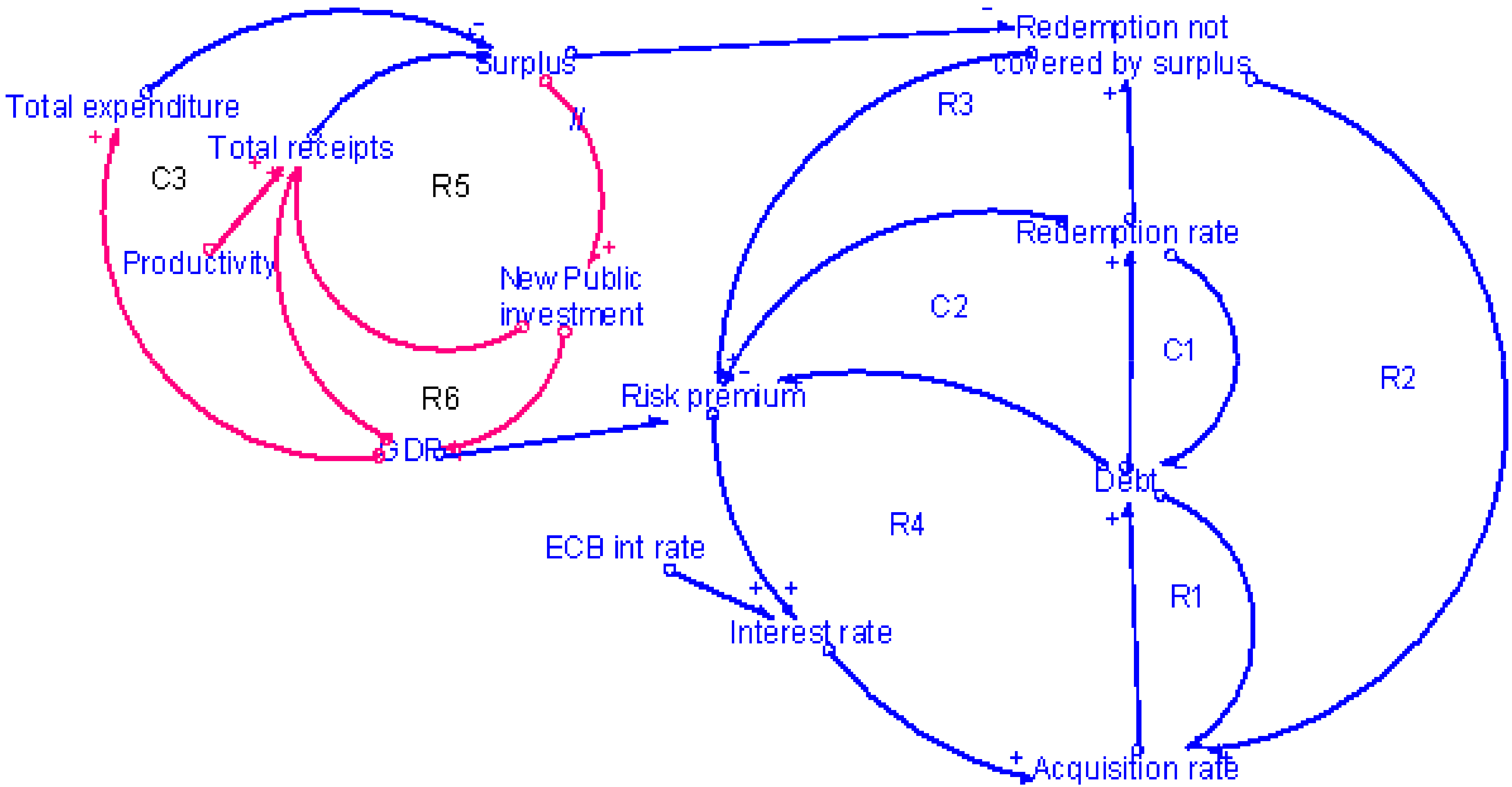
*e) Additional 1% VAT on luxury: **+ 1,520 mln** Euro;*

*f) Additional 4,5% VAT on cigarettes: **+ 765 millions** Euro;*

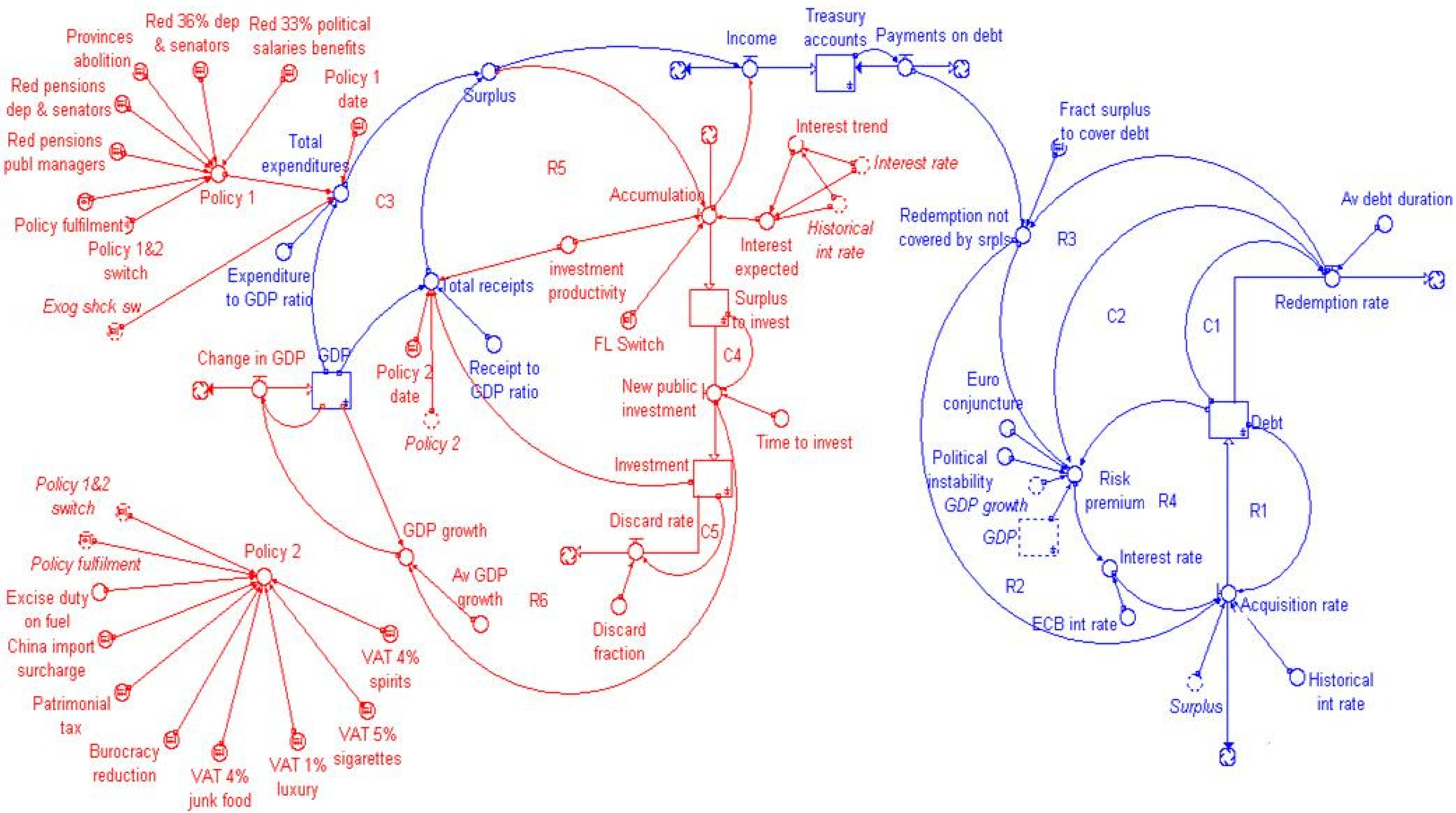
*g) Additional 4% VAT on spirits: **+ 48 mln** Euro;*

*h) Additional 1 eurocent excise duty on fuel: **+ 400 millions** Euro*

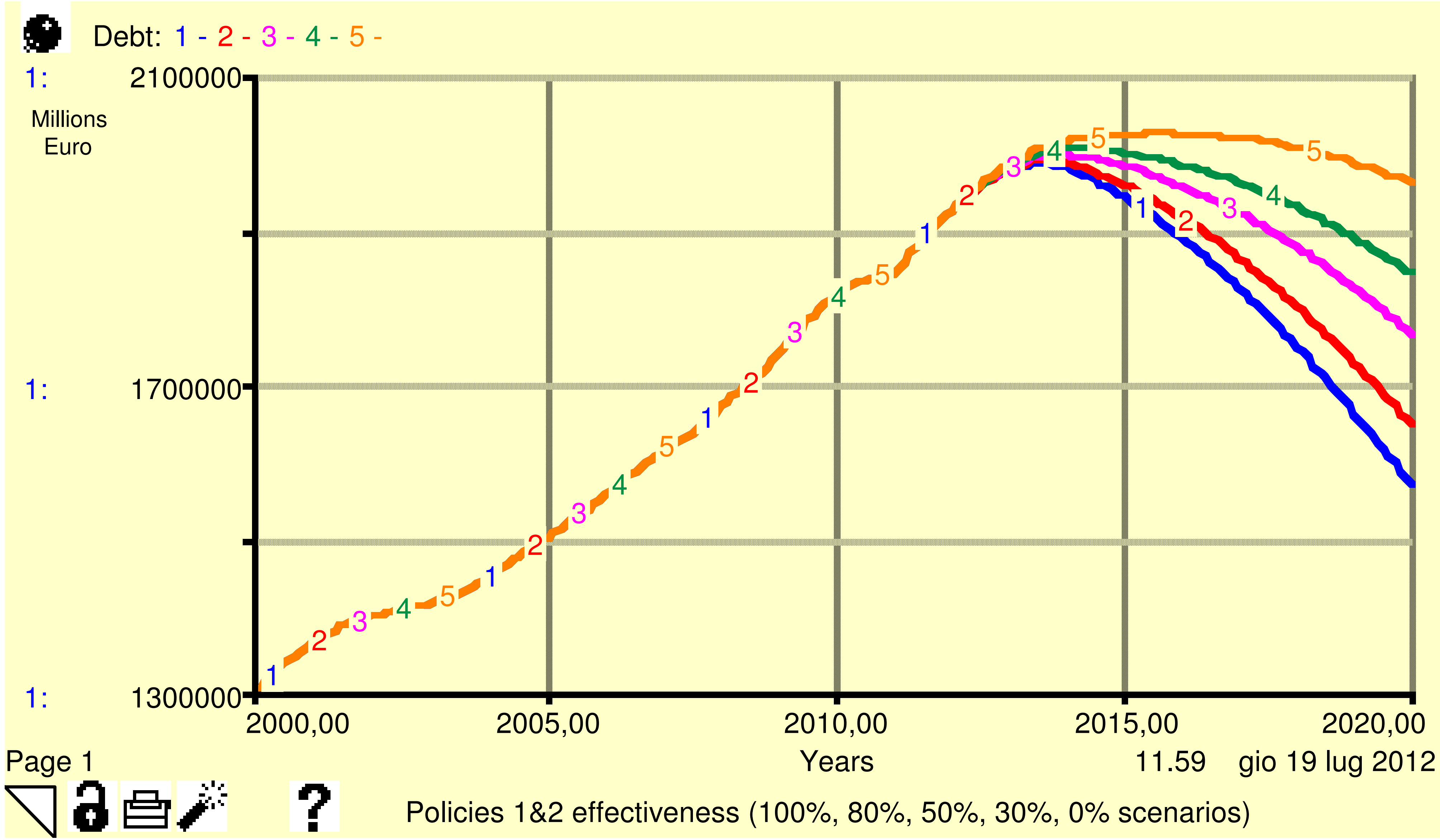
Policy 3 – The implementation of the Financial Leverage



SFD with Policies 1,2 & 3



Results from implementation of Policies 1&2

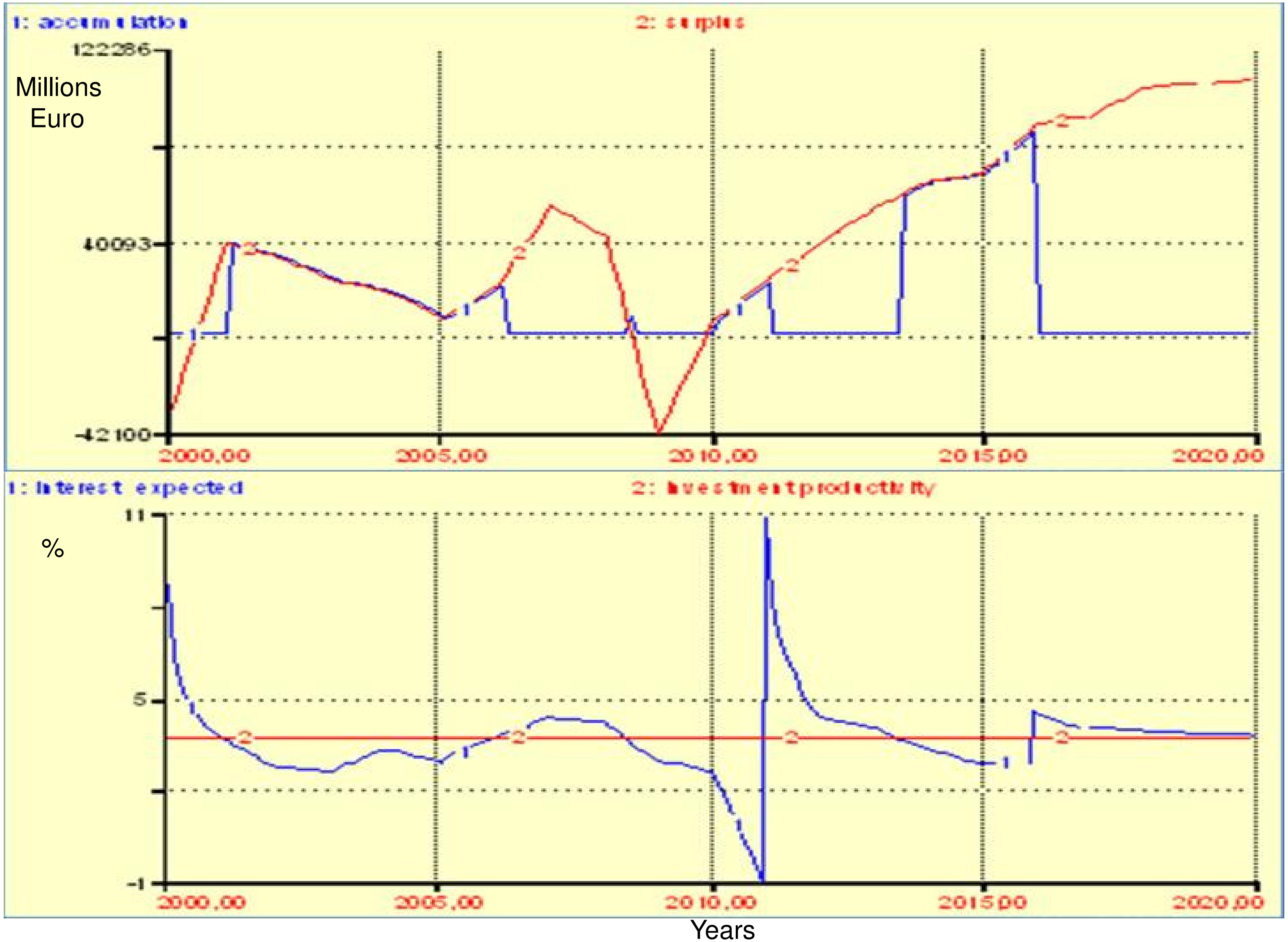


Results from implementation of Policies 1&2

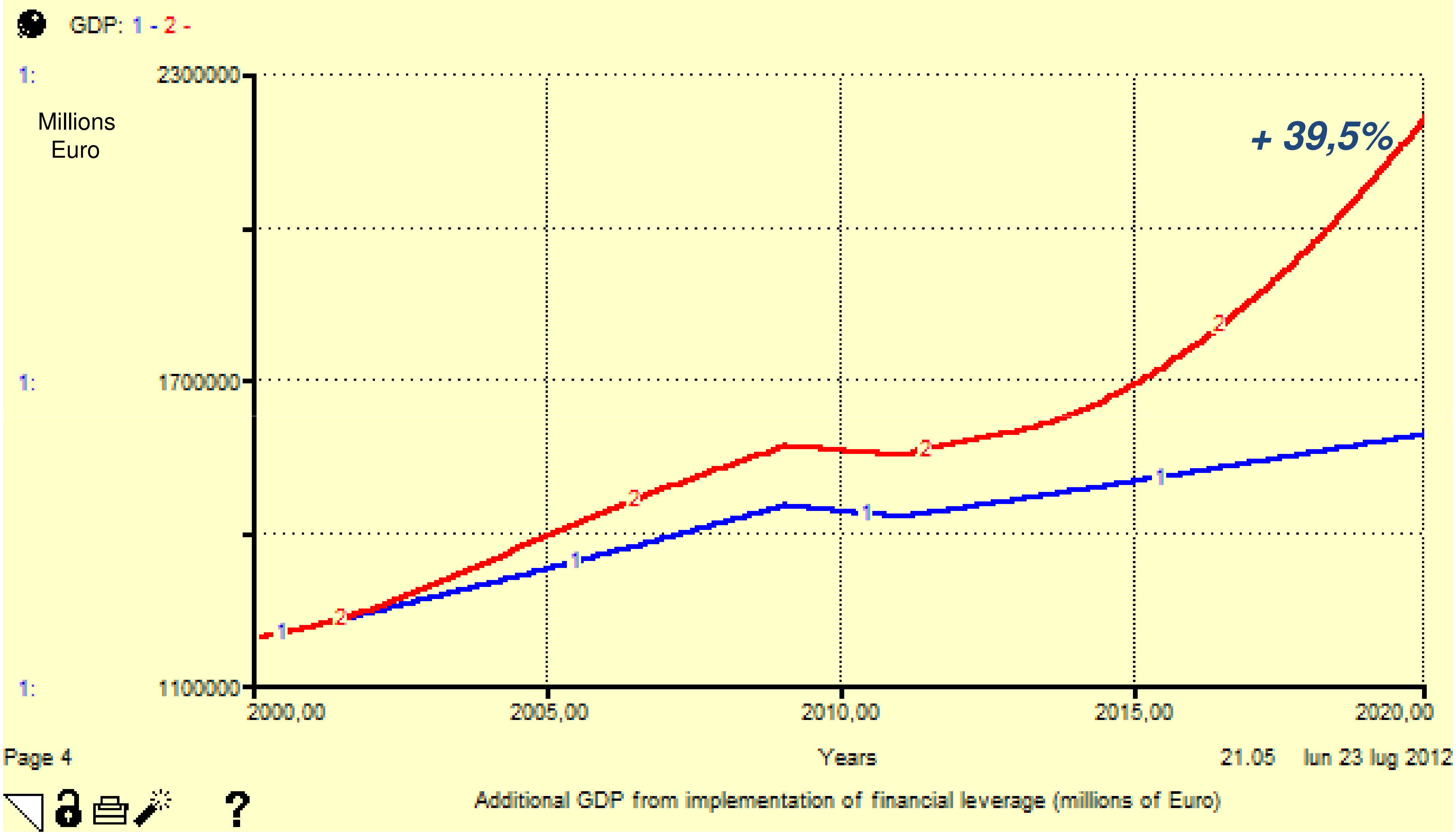
Italian Public Debt in 2020	
Policy effectiveness	Value (in million €)
100%	1,565,830
80%	1,644,817
50%	1,763,623
30%	1,843,046
0%	1,962,508

Policy effectiveness	Debt to GDP ratio in 2020	Debt to GDP ratio in 2030
100%	98,4%	22,2%
80%	103,3%	36,2%
50%	110,8%	57,6%
30%	115,8%	72,2%
0%	123,3%	94,6%

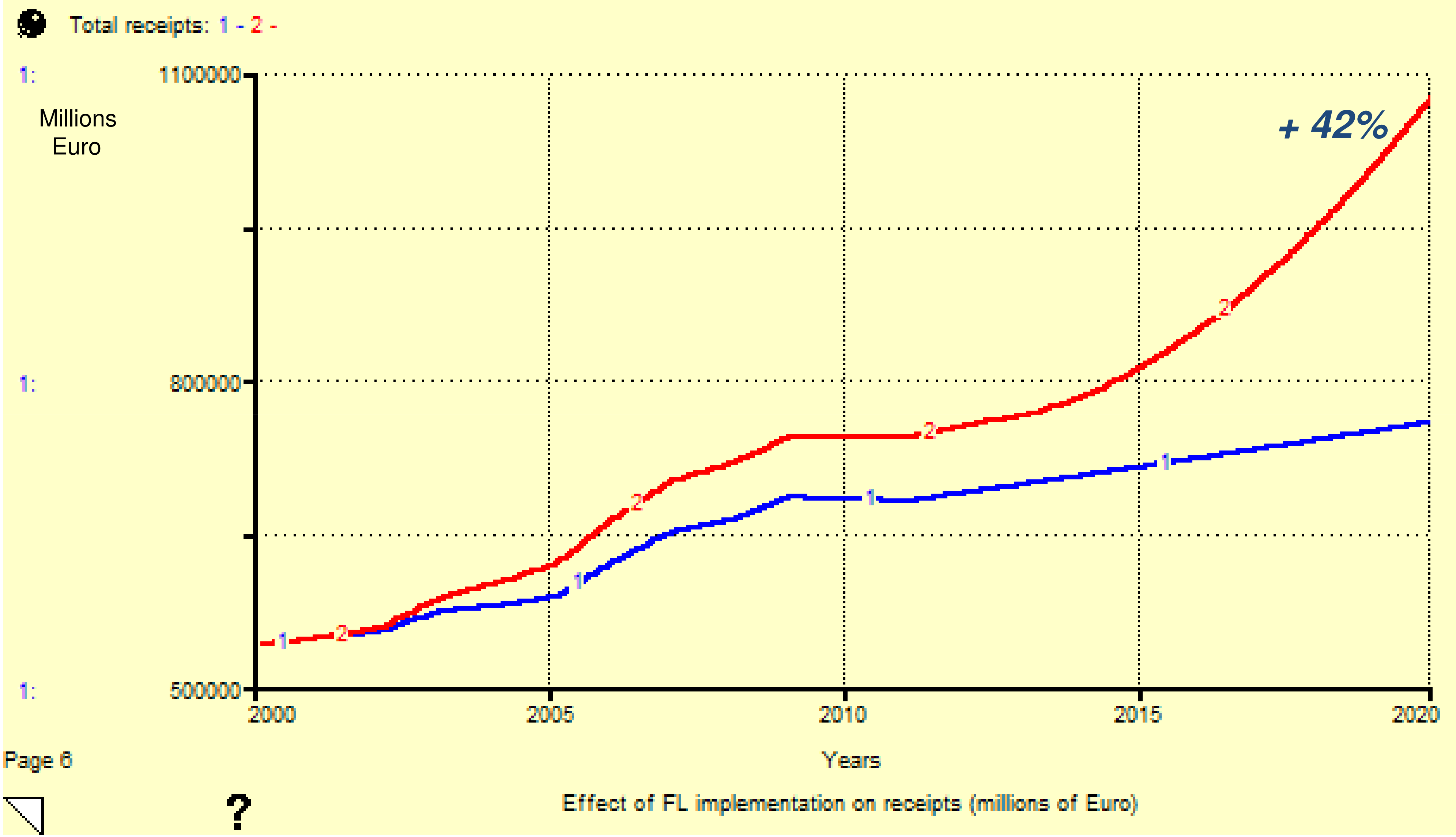
Policy 3: when is it convenient to use Financial Leverage



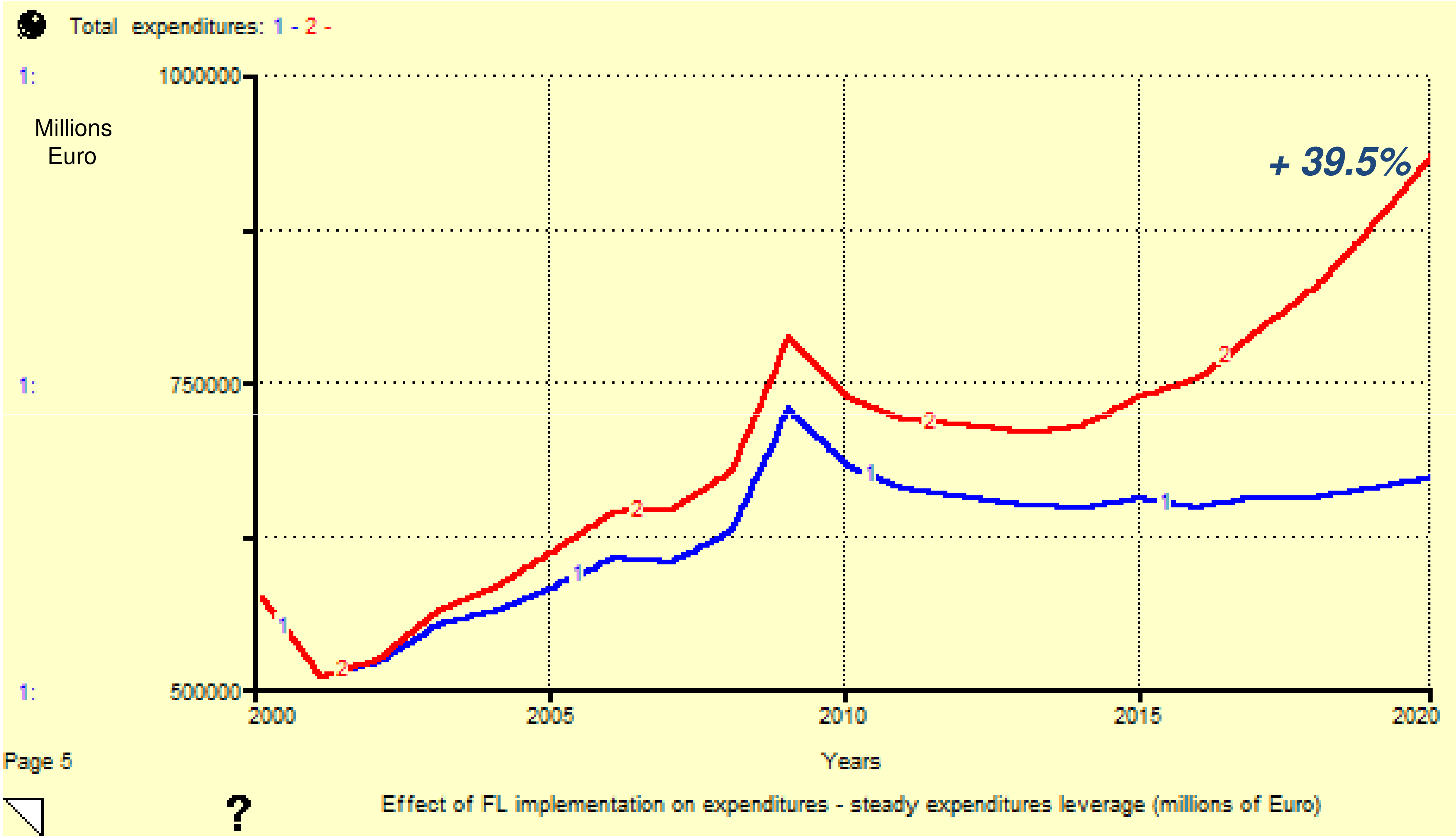
Policy 3: Effects of Financial Leverage on GDP



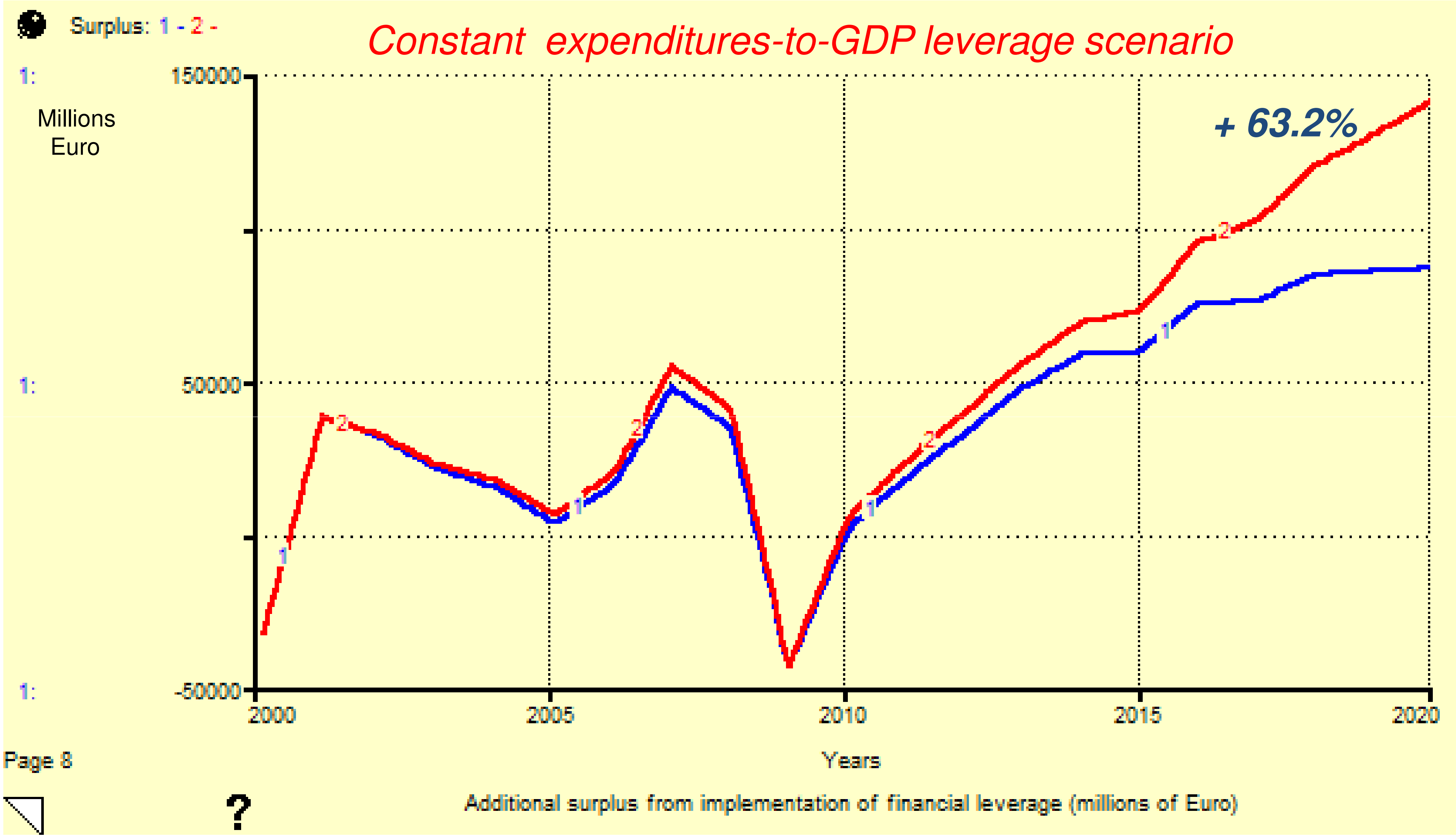
Policy 3: Effects of Financial Leverage on Receipts



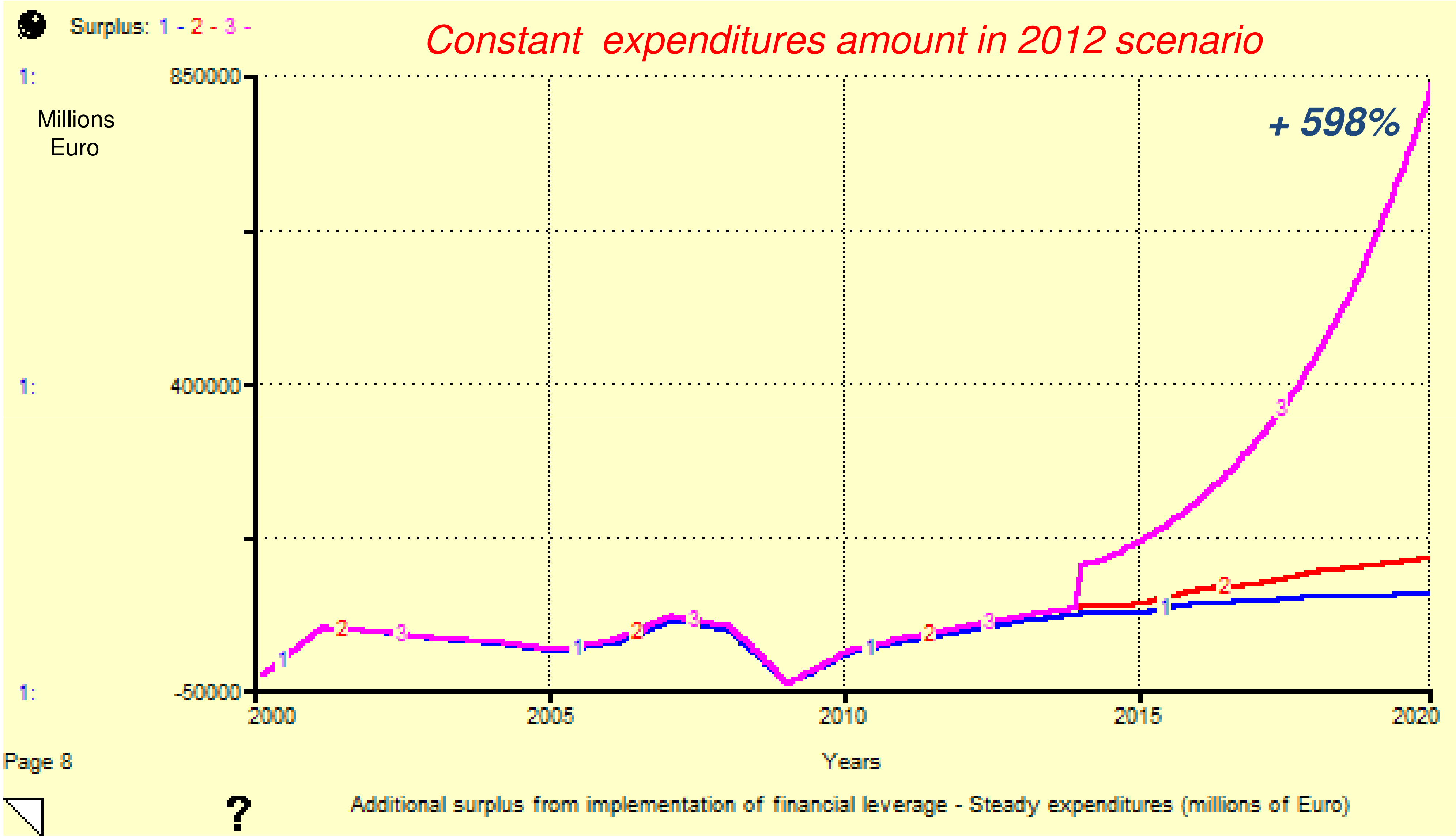
Policy 3: Effects of Financial Leverage on Expenditures



Policy 3: Effects of Financial Leverage on Surplus production



Policy 3: Effects of Financial Leverage on Surplus production



Conclusions & implications for further research

1. Italy is experiencing the absolute necessity to “subject” public organizations to the same budget constraints of private firms
2. SD can foster the decision makers awareness about dynamics that influence debt and about levers contributing to its reduction
3. SD allows decision makers to translate into figures effects of planned policies and to validate them
4. Additional surplus produced by short term policies have a positive effect in both debt and risk premium reduction
5. SD model validates the implementation of financial leverage in order to amplify positive results obtained by previous policies
6. Model could be extended by including a) dysfunctions in the decisional process (misleading analysis, political interferences and lack of feedback analysis); b) Relationship between public expenses and value creation.