Economic policy-making tools for pre- and post-crisis periods

by Zakaria Babutsidze and Mauro Napoletano

The worldwide financial crisis has questioned the relevance of economic models that are currently used by central bankers and macro analysts. In contrast, the recent economic events seem to be better described by models featuring boundedly rational heterogeneous agents and wherein markets do not necessarily clear at all times. Agent Based Models (ABMs) are a new class of models that embed all the above features, and therefore qualify as a promising alternative to conventional models.

An economic crisis, such as the current one, is a clear divide between processes before and after it. For instance, economic policies can be split into two groups: pre-crises and post-crisis policies. While the latter aim at helping the economy to move out of the crises to a more favourable state, the former policies concentrate on averting it.

Currently popular economic models can (to an extent) discuss post crisis policies. These models view economies as closed systems that move along one of (few) balanced equilibria. A modeller can introduce a large external shock in the system that can be interpreted as the crisis and further discuss policies to help the system move back to the previous (or even better) equilibrium. However, there is a problem with these policies. The main assumption of modern mainstream economics is hyper-rational agents, which assumes that economic agents (including households) possess complete information about the future of the economy and by acting rationally on this information the future that was foreseen is actually realized.

Modellers argue that this is reasonable even if we know that

people do not optimize. The argument is that due to market selection only the best performing agents will survive. As optimization guarantees the best response to the current situation every agent that is present at the equilibrium has to be behaving “as if” she is optimizing. Notice that this argument rests on the notion of equilibrium and says nothing about how this equilibrium will be reached. Now recall that modellers had to assume a large shock knocking the system out of the equilibrium in order to discuss the crisis. Then the approximation with hyper-rationality cannot properly describe the agent behaviour after crisis.

Concerning pre-crises policies the problems are even greater. Current mainstream models exclude the possibility of generating the crises endogenously. While, it is a known fact that modern economic crises are rarely related to external shocks. They are generated endogenously by the system. They emerge from the factors (like non-price interactions, localized learning processes, outrageous banking and investment practices etc.) that are directly assumed away from the mainstream modelling. Therefore, these models are inherently inadequate to discuss policies directed to prevention of crises.

We believe that an economic tool that is to be successful in designing economic policy to avert the economic crises requires three characteristics. Firstly, it has to take account of the individual behaviour. Secondly, it has to model the behaviour in a way that is consistent not only with equilibrium, but also with non-equilibrium states. Finally, it has to allow for the possibility of endogenously generating crises.

Currently popular policy making tools fail in at least one of these three respects. Take for example Dynamic Stochastic General Equilibrium (DSGE) models. They represent the workhorse of modern monetary policy. This modelling strategy conforms to the first requirement listed above: DSGE is a

micro-founded modelling strategy that replaced previous techniques that were abstracting from individual agent behaviour and thus were prone to Lucas (1976) critique.[1]

Alas, DSGE fails in two other respects. Microeconomic behaviour is based on perfect foresight that requires hyper-rational agents that were mentioned above, and therefore, as argued above, does not describe well agent behaviour during the out-of-equilibrium dynamics. In addition to this, stochasticity of the system allows only for small perturbations and large shocks (such as crises) have to be exogenously injected in the system. Perhaps, these failures are the cause of difficulties that DSGE modelers are having in predicting and managing current crises, as acknowledged by some central bankers (Trichet, 2010; Kocherlakota 2010).

It is true that DSGE models take into account micro-behaviour as well as institutions (see for example Smets and Wouters 2003), which is the model widely used by European Central Bank). However, what they fail to take into account is the possibility of endogenous (co-)evolution of these structures, the heterogeneity and non-price interactions among economic agents that can lead the system to breakdown without external interference.

One promising tool for economic policy design goes under the name of Agent Based Modelling (ABM). The characteristics of this approach are discussed at greater length in a recent OFCE briefing paper by Napoletano, Gaffard and Babutsidze 2012. In contrast to mainstream economics (such as DSGE), ABM is more flexible to model relevant processes as dynamical systems of heterogeneous agents who interact through price and non-price channels. The approach treats time as the key variable. This is in contrast to orthodox models. Take the crises again. In mainstream modelling at the moment of crisis new equilibrium becomes known to everyone instantaneously and perfectly rational individuals adjust their choices accordingly. This drives the system to the new equilibrium. In ABM individuals

do not get information about new equilibrium to which the system is supposed to converge to and each individual has to navigate in its own way. This feature allows for the plethora of learning processes (which, according to Howitt 2012 are extremely scarce in modern Macroeconomic theory) to be also taken on board.

ABM concentrates on open-ended dynamics and allows for an equilibrium (defined as an ergodic state of the system) as an emergent and optional outcome (Leijonhufvud 2011). While current mainstream modelling is based on the centralized information processing structure that is fed with all the available information in the system, ABM takes a bottom-up approach that starts modelling realistic micro-foundations (in contrast to DSGE) and analyses the resulting behaviour of the model at upper levels. The dynamics of aggregate variables are the result of complex, continuously (and endogenously) changing micro-structure. This yields substantial advantages in modelling policy on macro (LeBaron and Tesfatsion 2008), as well as on industry (Chang 2009) and market (Duffy and Unver 2008) levels.

Using Agent Based tools a modeller can specify the agent's micro behaviour and understand how the dynamics of the system leads to the critical state and a subsequent breakdown (endogenously generated crisis). This is a common occurrence in physical systems and Agent Based approaches are routinely used for their analysis. Using such a model the policies to direct the path of the economy away from the critical state can be discussed. From this prospective ABM has clear advantage in discussing pre-crisis policies over orthodox approaches.

Another substantial advantage of the methodology is its easiness to be implemented in a computational environment. Behavioural rules can be passed to the agents in computer simulations and respective outcomes can be observed. This is important for two reasons. Firstly, this makes models easily

understandable for policy-makers that are not necessarily proficient in mathematics that current orthodox methods heavily rely on (Uri Wilenski, the developer of the most popular computational environment for ABM – NetLogo, is repeatedly making this point). Secondly, behavioural rules (and other settings) can be easily adjusted to fit the problem at hand. Due to their concern with the equilibrium, mainstream models are less flexible and consequently less appropriate for policy-making.

However, there are disadvantages to the approach. Detailed discussion of approach's shortcomings is presented in the above-mentioned OFCE briefing paper. Here we concentrate on the one that is shared by all non-equilibrium approaches. It is that ABM does not (cannot) provide a comprehensive analysis of all the paths the model allows for. Once you leave the equilibrium, the number of paths an economic system can take become infinite. Therefore, in most of the cases, comprehensive analysis is not feasible.

While this criticism is relevant in face of commonly accepted practice in economic science, it is irrelevant to the ABM's powers as a policy-making tool. Policy makers are not concerned with all the possible scenarios in all the possible types of economies. They have a very specific problem at hand. They operate in a specific country/region, they are given a very specific initial condition (currently existent in the economy) and they want to achieve a certain well-defined goal with a specific policy tool. Agent Based Modelling gives them the opportunity to fine-tune the model to their specific situation and then analyse the effects of a specific policy instrument. The policy instrument controls one (or very few) parameters of the model. Given a specific market/economy and specific initial conditions exhaustive analysis of these policy tool can be performed and welfare improving (if not optimal) policy can be designed.

Merits of every modelling approach can be debated. But

allowing diversity in approaches is bound to make policy discussions more stimulating and is likely to help the discipline avert the crises that are now seen as the crises of the discipline itself (Kirman 2010).

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[1] However, DSGE models downplay the possibility of multiple equilibria. Thus, their ability to overcome the Lucas critique by introducing micro-foundations presents only a limited advantage.

Yes, the national accounts will be revised after the election

By Hervé Péléraux and Lionel Persyn[1]

In a Europe that is heading more and more clearly towards a recession, in mid-February the INSEE reported a 0.2% rise in France's GDP. This fourth-quarter performance was surprising, as it contrasts sharply with the deterioration in the economic climate since summer 2011, which indicated that GDP growth would be less favourable than that announced.

The current figures from the national accounts are, however, not set in stone. A note from the OFCE describes the procedure since the release of the provisional results that marks the starting point in the process of revising the

accounts. This revision is spread over several years, first involving the tuning of the quarterly accounts with the annual accounts, then the revision of the annual accounts (the final version for 2011 will be announced in May 2014). The final changes are to the database for the national accounts, which will provide an opportunity to introduce methodological innovations that aim at greater accuracy on past estimates.

The enigma of the fourth quarter of 2011 may be resolved in the future as the revisions are worked out. It is useful to refer to past experience to try to identify the profile of the coming adjustments and to draw the likely implications for the current period. Since 1987, the revisions to the accounts seem to have been pro-cyclical, that is to say, the preliminary figures are mostly revised upwards in periods of recovery or rapid growth, and downwards in periods of downswings in the economic cycle. In some major cyclical episodes, the average revisions are significant and could affect the economic diagnosis.

This was what happened in 2008. After the INSEE announced a negative result for the second quarter of -0.3%, the initial estimate for the third quarter was a positive 0.1%, which for a while put off the prospect that the French economy was entering a recession. The subsequent assessments gave a more dramatic turn to the GDP’s trajectory, with the current respective estimates for the two quarters being -0.7% and -0.3%. Had these been known at the time, this would probably have pushed forecasts downwards by fully revealing the severity of the impact of the financial crisis on the real economy.

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[1] At the time this note was written, Lionel Persyn was an intern at OFCE and a doctoral candidate at the University of

Nice at Sophia Antipolis.

Positions of French and German Banks in European interbank lending network

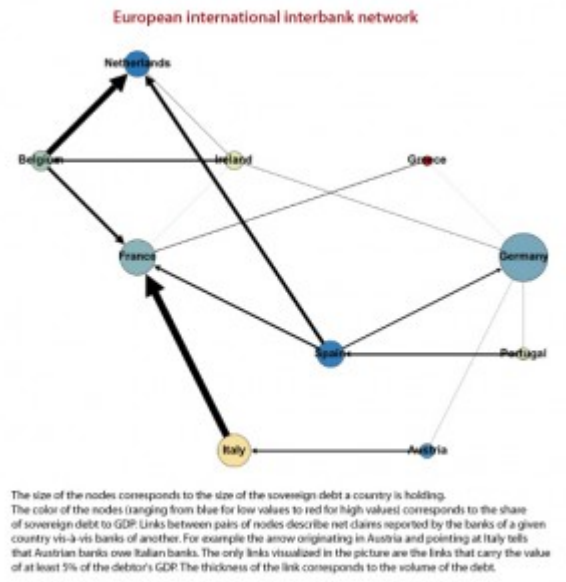
by Zakaria Babutsidze

Recent desperate cries for help from French and other European banks raise the question of exactly what type and how much trouble have they managed to get themselves into. The question can be approached from many angles. Here I try to gain insights into the topic by analyzing the cross-border interbank lending network. This is a network that facilitates the flow of much needed liquidity across the sovereign borders within the Eurozone. Due to high interconnectedness, banks in each country affect (and are affected) directly or indirectly (by) the banks in all other countries. Banks of different countries play different roles in this vital network: some are net creditors, others are net debtors. In this post I take on the challenge of contrasting the behavior of the two largest creditors in the system (the banking sectors of France and Germany) who are often blamed for the recklessness in their lending practices.

Inspired by visualization of the network by The New York Times, I use the data on Consolidated Banking Statistics issued in December 2011 by the Bank for International

Settlements. The data comprises the claims of banks in a given country filed vis-à-vis banks in other countries as of June 2011. Numbers do not include holdings of sovereign debt. The data is available only for 10 out of 17 Eurozone countries: France, Germany, Italy, Spain, The Netherlands, Austria, Ireland, Belgium, Portugal and Greece. As I am interested in the role of national financial systems in European network I cancelled out the counter-claims across the borders and proceeded with the volume of the net claims of one European country banking sector vis-à-vis others.

The resulting network connects each of the 10 countries to the other nine. Each connection has a direction that reflects the current debt balance of a country's banks vis-à-vis another country's banks. I apply simple weighted network analysis to the data in order to dissect the European interbank lending network. The volume of mismatch between the claims vis-à-vis partners is used for weighting the links in the network. To make the methodology clearer consider a hypothetical example. Banks of country A owe 100 Euros to the banks of country B. At the same time, banks of country B owe 40 Euros to banks of country A. Then the mismatch between the countries amounts to 60 Euros which country A owes to country B. This way I determine the direction of each link in our network, or who is the creditor and who is the debtor. In addition to this, I take into account the value of the mismatch in the following way. If country C owes country D 30 Euros, we say that the link between A and B, which we have discussed earlier, is twice stronger than that between C and D.



A quick glance at the network visualization on Figure 1 is enough to notice the special role French and German banks are playing in the system. Banks in these two countries are the ones that are exposed the most to the problems in other European countries.

Recognizing that European cross-border interbank lending network is tightly embedded into global interbank lending network I augment the data with the three largest global players: The United Kingdom, The United States and Japan. In what follows I report two sets of results: one – for isolated European interbank lending network (that I call a closed network), the other – for the extended (open) network that includes three large international players. In the latter case, non-Eurozone countries are taken into account in the calculations but are excluded from the presented rankings.

There are a few important characteristics of the network that we can look at. I concentrate on country rankings with respect to statistics describing country's banks' access to interbank loans, their importance in facilitating interbank liquidity flow and their overall role as lender's or receivers of the loans.

Ranking of countries with respect of different measures for closed and open European cross-border interbank networks

Panel A

	Closeness	
	Closed	Open
1	Belgium	France
2	Germany	Germany
3	Netherlands	Belgium
4	Italy	Netherlands
5	Austria	Austria

Panel B

	Betweenness	
	Closed	Open
1	Netherlands	France
2	Italy	Netherlands
3	Austria	Italy
4	Portugal	Ireland
5	Spain	Austria

Panel C

	In-Degree	
	Closed	Open
1	France	Germany
2	Germany	France
3	Netherlands	Spain
4	Italy	Netherlands
5	Spain	Italy

Panel D

	Eigenvector	
	Closed	Open
1	France	France
2	Netherlands	Germany
3	Germany	Netherlands
4	Belgium	Belgium
5	Italy	Austria

Note: **France and Germany are highlighted with uniform colors.**

The measure that allows us to rank the countries in our network with respect to their access to loans is closeness centrality. This statistic measures the distance of the country's banks to the banks of all the other countries in the network. Higher centrality implies shorter distance. This, in its turn, means that banks do not have to go far in search of financial resources. Panel A of Table 1 presents the ranking of the countries with respect to closeness centrality. When the European network is considered in isolation from the rest of the world it is Germany that has the easiest access to liquidity, while France does not appear in first half of the list. However, when European network is regarded as being embedded in global interbank lending network France tops the list leaving Germany at close second. This allows to conclude that French banks go mainly outside the Eurozone for borrowing money, while German banks balance their borrowings between European and non-European banks.

Panel B of Table 1 presents rankings with respect to betweenness centrality, which measures how much control do a country's banks have over the liquidity flow through the network. This statistic calculates the frequency with which the country appears on the routes that money has to travel from every country to every other country. Higher centrality means that the banking system of the country lies on large

number of routs between pairs of other countries. In this respect the closed European network is independent of influence of France and Germany. This points to the fact that banks in the system can reach each other without necessarily going through Germany or even France. The major brokers within the Eurozone seem to be the Dutch banks. Once extra-European links are considered French banks lead the board, while Germany does not appear in top five. France's top seat in open network implies that it plays the role of a broker between European and non-European banks.

Next measure is the in-degree of the country in the weighted network. This statistic basically measures how important of a creditor a given country is for the other members of the network. Being largest creditors France and Germany swap the places as we move from closed to open network. From here we can conclude that Germany, although being larger creditor than France, has heavier non-European presence. This, clearly, is good for German banks in such turbulent times for Europe. In contrast French banks are more exposed to European risk.

Finally, Eigenvector centrality measures the importance of the country's banks in the system more accurately. It takes into account not only creditor and debtor positions in the network but also the identity of the countries that a given country has ties with. According to this measure French banks play an absolutely central role in the network under discussion. Germany comes second once we discuss an open network. The difference between France and Germany is driven by the differences in their European/non-European credit ratio as well as by the differences in composition of European credit. The most notable difference is France's extreme exposure to troubled Italy.

A broader view at Table 1 allows us to make an additional conclusion regarding the behavior of French and German banking systems. From the table it is apparent that going from closed to open network (which adds American, British and

Japanese banking systems to the picture) affects positions of France much more than those of Germany. This implies that German banks keep balance in their activity between European and non-European partners. They diversify their risk more efficiently. While French banks put all their eggs in one basket – Europe, which might not be the best strategy to pursue.

All in all, the present analysis shows that the prize for reckless lending goes rather to French than to German banks. They are central in the network by virtually any measure. In visualization in Figure 1 French credit, directly or indirectly, can reach all countries except Germany and Netherlands, while German credit only extends to four countries. And, importantly, that list of four does include Italy.

On the taxation of household income and capital

By Henri Sterdyniak

The idea is very widespread that in France unearned income benefits from an especially low level of taxation and that the French system could be made fairer by simply raising this level. In an OFCE Note, we compare the taxation on capital income with that on labour income, and show that most of it is taxed just as highly. The reforms adopted in 2012 further increase the taxation of capital income. So there is little room for manoeuvre. However, there are tax loopholes and a few exceptions, the most notable being the current non-taxation of imputed rent (which benefits

households that own their own residence).

The table below compares the marginal tax rates for different types of income. The effective economic tax rates (including the "IS" corporate income tax, non-contributory social charges, the CSG wealth tax, social security taxes) are well above the posted rates. The interest, rental income, dividends and capital gains that are taxed are taxed at approximately the same level as the highest salaries. It is therefore wrong to claim that capital income is taxed at reduced rates. When it is actually taxed, this is at high levels.

Economic tax rate

	Economic tax rate 2011	Economic tax rate 2012
Wages	54.4/57.1*	54.4/57.1*
Interets	62.6	79
Property income	56.1	59.0
Implicit rent	10.0	10.0
Dividends	55.0**/57.1***	58.4**/59.2***
Taxed capital gains	62.8	67.5
Untaxed capital gains	34.43	34.43

* Beyond 4 times the Social Security ceiling. ** Withholding tax. *** Income rate taxation after 40% allowance.

The official tax rate on capital income increased from 29% in 2008 to 31.3% in 2011 due to a 1.1 percentage point increase in payroll taxes to finance the RSA benefit, a 1 point increase in withholding tax and a 0.2 point increase to fund pensions. The government has financed the expansion of social policy by taxing capital income. This rate will increase to 39.5% (for interest) and to 36.5% for dividends on 2012 income.

Should we advocate a radical reform: submission of all capital income to the tax schedule on personal income? This might be justified for the public image (to show clearly that all income is taxed similarly), but not on purely economic grounds.

With respect to interest income, this would mean ignoring the inflation rate. The 41% bracket would correspond to a levy of 108% on the real income of an investment remunerated

at 4% with an inflation rate of 2%. For dividends, one must not forget that the income in question has already paid the "IS" tax; the 41% bracket (by eliminating the 40% allowance) would correspond to a total tax of 70%. We must make a policy choice between two principles: a single economic tax rate for all income (which paradoxically would lead to preserving a special tax on capital income) or higher taxation on capital income, since this goes mostly to the better-off and is not the fruit of effort (which paradoxically would lead to subjecting it to the same tax schedule as labour income, while forgetting the IS tax and inflation).

The problem lies above all in schemes that allow tax avoidance. For many years, the banks and insurance companies managed to convince the public authorities that it was necessary to make income from household financial capital tax exempt. Two arguments were advanced: to prevent the wealthy from moving their capital abroad; and to promote long-term savings and high-risk savings. Exemptions were thus made for PEA funds, PEP funds, and UCITS mutual funds. Governments are gradually pulling back from these exemptions. Two principles should be reaffirmed: first, all capital income should be subject to taxation, and tax evasion should be combated by European agreements on harmonizing tax systems; and second, it is the responsibility of issuers to convince investors of the value of the investments they offer – the State should not fiscally favour any particular type of investment.

There remains the possibility that wealthy families will succeed in avoiding taxes on capital gains through donations to children (alive or upon their death) or by moving abroad before taxation takes place. Thus, a wealthy shareholder can hold his securities in an ad hoc company that receives his dividends and use the company securities as collateral for loans from the bank, which then provides him the money needed to live. The shareholder thus

does not declare this income and then passes on the company securities to his children, meaning that the dividends and capital gains he has received are never subjected to income tax.

The other black hole in the tax system lies in the non-taxation of imputed rent. It is not fair that two families with the same income pay the same tax if one has inherited an apartment while the other must pay rent: their ability to pay is very different.

Two measures thus appear desirable. One is to eliminate all schemes that help people avoid the taxation of capital gains, and in particular to ensure the payment of tax on any unrealized capital gains in the case of transmission by inheritance or donation or when moving abroad. The second would be gradually to introduce a tax on imputed rent, for example by charging CSG / CRDS tax and social security contributions to homeowners.

Having done this, a policy choice would be needed:

– Either to eliminate the ISF wealth tax, as all income from financial and property capital would clearly be taxed at 60%.

– Or to consider that it is normal for large estates to contribute as such to the running costs of society, regardless of the income the estates provide. With this in mind, the ISF tax would be retained, without comparing the amount of the ISF to the income from the estate, since the purpose of the ISF would be precisely to demand a contribution from the assets themselves.

Women's Day

On the occasion of 8 March, we would like to remind our readers that, together with Sciences-Po, the OFCE has developed the specialist Research Programme for Teaching and Knowledge on Gender Issues (PRESAGE).

A number of posts on this blog have taken up the subject of occupational equality between men and women.

Is our health system in danger? Reorienting the reform of health management (4/4)

By Gérard Cornilleau

Health is one of the key concerns of the French. Yet it has not been a major topic of political debate, probably due to the highly technical nature of the problems involved in the financing and management of the health care system. An OFCE note presents four issues that we believe are crucial in the current context of a general economic crisis: the last major concern about the health system is hospital financing. This underwent severe change in 2005 with the launch of the T2A system, which reintroduced a direct financial relationship

between the activity of the hospitals and their financial resources. It has reinforced the importance and power of the "managers", which could give the impression that hospitals were henceforth to be regarded as undertakings subject to the dictates of profitability.

The reality is more complex, as the T2A system is aimed less at making hospitals "profitable" than at rationalizing the way expenditure is distributed among the hospitals by establishing a link between their revenue and their activity, as measured by the number of patients cared for weighted by the average cost of treating each patient. Paradoxically, the risk of this type of financing is that it could lead to a rise in spending by encouraging the multiplication of treatments and actions. In fact, the HCAAM report for 2011 (*op. cit.*) notes that the 2.8% growth in hospital fee-for-service expenditures in 2010 can be broken down into a 1.7% increase attributable to an increase in the number of stays and a 1.1% increase attributable to a "structural effect" linked to a shift in activity towards better reimbursed treatments [1].

This development is worrying, and it could lead to a rise in hospital costs for no reason other than budget needs. The convergence of costs at private clinics and at government and non-profit hospitals is no guarantee against this tendency, as the incentives are not different for private clinics. Here we are reaching the limits of management by competition, even in a notional form, as its flaws are too numerous for it to be the only means of regulation and management.

Public hospitals also receive lump-sum allocations to carry out the general interest and training missions assigned to them. This lump-sum envelope represented approximately 14% of their actual budget in 2010 [2]. It provides funding for teaching and research in the hospitals, participation in public health actions, and the management of specific populations such as patients in difficult situations. Unlike reimbursements related to the application of the fee schedule,

the amounts of the corresponding budgets are restrictive and easy to change.

Consequently, budget adjustments are often based on setting aside a portion of these allocations and revising the amounts allocated based on changes in total hospital expenditure. In 2010, for instance, the overrun of the spending target set for the hospitals that year, estimated at 567 million euros, resulted in a 343 million euro reduction in the budget allocated to the general interest mission, or an adjustment of about -4.2% from the original budget (HCAAM, 2011).

The regulation of hospital expenditure has tended to focus on the smallest budget share, which is also the easiest for the central authorities to control. While it is possible to revise the reimbursement rates of the T2A fee schedule, this takes time to affect the budget and the targets are harder to hit. The system for managing hospital budgets is thus imperfect, and it runs the dual risk of uncontrolled slippage on expenditures governed by the T2A system and a drying up of the budget envelopes used to finance expenditures that do not give rise to any billing. There is no magic bullet for this problem: returning to the previous system of a total budget to finance total expenditure would obviously not be satisfactory when the T2A system has made improvements in the link between hospital activity and financing; nor is it acceptable to keep putting the burden of any budget adjustments solely on the budget envelopes of the general interest and investment missions, especially in a period of austerity. The general trend is to minimize the scope of the lump-sum funding envelope (Jégou, 2011) and to maximize the scope of fee-for-service charging.

Pricing is not, however, always perfectly suited to the management of chronic complex conditions. One could therefore ask whether, conversely, the establishment of a mixed rate system of reimbursement, including a component that is fixed and proportional, would not be more effective, while

facilitating the overall regulation of the system as a whole by means of a larger lump-sum envelope. The fixed part could for example be determined on the basis of the population covered (as was the case in the old system of an overall budget). This development would also have the advantage of reducing the obsessive managerial spirit that seems to have contributed significantly to the deterioration of the working atmosphere in the hospitals.

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[1] The patients treated by the hospital are classified into a *Groupe Homogène de Malade* (GHM, a diagnosis-related group) based on the diagnosis. For each stay of a given patient, the hospital is paid on the basis of a fee set in the *Groupe Homogène de Séjours* (GHS, a stay-related group), which refers to the patient's GHM and to the treatment that they receive. In theory this system can associate an "objective" price with the patient treated. In practice, the classification into a GHM and GHS is very complex, particularly when multiple pathologies are involved, and the classification process can be manipulated. As a result, it is impossible to determine precisely whether the shift towards more expensive GHS classifications reflects a worsening of cases, the manipulation of the classifications, or the selection of patients who are "more profitable".

[2] The credits, called "MIGAC" (for general interest missions and aid to contracting), came to 7.8 billion euros in 2010 out of total hospital expenditure in the "MCO" field (Medicine, Surgery, Obstetrics, Dentistry) of 52.7 billion; see HCAAM, 2011.

Is our health system in danger? Reforming the reimbursement of care (3/4)

By Gérard Cornilleau

Health is one of the key concerns of the French. Yet it has not been a major topic of political debate, probably due to the highly technical nature of the problems involved in the financing and management of the health care system. An OFCE note presents four issues that we believe are crucial in the current context of a general economic crisis: the third issue, presented here, concerns the reimbursement of health care, in particular long-term care, and the rise in physician surcharges.

The reimbursement of care by the French Social Security system currently varies with the severity of the illness: long-term care, which corresponds to more serious conditions, is fully reimbursed, whereas the reimbursement of routine care is tending to diminish due to a variety of non-reimbursed fixed fees and their tendency to rise. In addition to this structural upwards trend there is a rise in non-reimbursed doctor surcharges, which is reducing the share of expenditure financed by Social Security. As a result, the share of routine care covered by health insurance is limited to 56.2%, while the rate of reimbursement for patients with long-term illnesses ("ALD" illnesses in French) is 84.8% for primary care [1]. This situation has a number of negative consequences: it can lead people to forego certain routine care, with negative implications for the prevention of more serious conditions; and it increases the cost of supplementary

“mutual” insurance that paradoxically is taxed to help compulsory insurance on the grounds of the high public coverage for long-term illness. Finally, it puts the focus on the definition of the scope of long-term illness, which is complicated since in order to draw up the list of conditions giving entitlement to full reimbursement it is necessary to consider both the measurement of the “degree” of severity and the cost of treatment. The issue of multiple conditions and their simultaneous coverage by health insurance under both routine care and long-term illness is a bureaucratic nightmare that generates uncertainty and expenditure on relatively ineffective management and controls.

This is why some suggest replacing the ALD system by setting up a health shield that would provide for full reimbursement of all spending above a fixed annual threshold. Beyond a certain threshold of average out-of-pocket expenses (*e.g.* corresponding to the current “co-payment” level) after reimbursement by compulsory health insurance, which was about 500 euros per year in 2008[2]), Social Security would assume full coverage. A system like this would provide automatic coverage of the bulk of expenses associated with serious diseases without going through the ALD classification.

One could consider modulating the threshold of out-of-pocket expenses based on income (Briet and Fragonard, 2007) or the reimbursement rate, or both. This possibility is typically invoked to limit the rise in reimbursed expenses. This raises the usual problem of the support of better-off strata for social insurance when it would be in their interest to support the pooling of health risks through private insurance with fees proportional to the risk rather than based on income.

The establishment of a health shield system also raises the issue of the role of supplementary insurance. Historically mutual insurance funds “completed” public coverage by providing complete or nearly complete coverage of anything in the basket of care not reimbursed by basic health insurance

(dental prostheses, eyeglass frames, sophisticated optical care, private hospital rooms, etc.). Today these funds function increasingly as “supplementary” insurance that complements public insurance for the reimbursement of health expenses on the whole (coverage of the patient co-payment, partial refund of doctor surcharges). The transition to a health shield system would limit their scope of reimbursement to expenses below the fixed threshold. It is often assumed that if mutual insurance were to abandon its current role of blind co-payment of care expenditures, it could play an active role in promoting prevention, for example, by offering differential premiums based on the behaviour of the insured [3]. But where would their interests lie if the shield came to limit their coverage beyond the threshold not covered by public insurance? Even in the case of maintaining a substantial “co-payment” beyond the threshold because of doctor surcharges, for example, they would undoubtedly remain relatively passive, and there would not be much change from the situation today, which isolates them from the bulk of coverage for serious and expensive diseases.

A system in which public insurance alone provides support for a clearly defined basket of care is surely better: this would require that the health shield increases with income, with the poorest households receiving full coverage from the first euro. If affluent households decide to self-insure for expenses below the threshold (which is likely if the latter is less than 1000 euros per year), the mutual insurance funds might withdraw almost entirely from coverage of reimbursements of routine care expenses. On the other hand, they could concentrate on the coverage of expenditures outside the field of public health insurance, which in practice would mean dental prostheses and corrective optics. They could intervene more actively than now in these fields to structure health care delivery and supplies. Their role as principal payer in these fields would justify delegating them the responsibility of dealing with the professions involved. However, this

solution implies that a system of public coverage would be needed to give the poorest strata access to care not covered by the public insurance system (in a form close to France's current CMU universal coverage system, which should however be extended and made more progressive). There is thus no simple solution to the question of the relationship between public insurance and supplementary private insurance.

The merger of the two systems should also be considered, which in practice means the absorption of the private by the public. This would have the advantage of simplifying the system as a whole, but would leave partially unresolved the question of defining the basket of care covered. It is quite likely that supplementary insurance would relocate to the margins of the system to support incidental expenses not covered by the public system because they are deemed nonessential. The reimbursement of health costs should certainly remain mixed, but it is urgent to reconsider the boundaries between private and public, otherwise the trend towards declining public coverage will gain strength at the expense of streamlining the system and of equity in the coverage of health expenditures.

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[1] In 2008. This is a level of coverage that excludes optical. Taking optical into account, the rate of coverage by health insurance falls to 51.3% (Haut Conseil pour l'Avenir de l'Assurance Maladie [High Council for the Future of Health Insurance], December 2011).

[2] HCAAM, 2011 (*ibid*).

[3] It is not easy to take into account the behaviour of the insured. Beyond the use of preventive examinations, which can be measured relatively easily, other preventive behaviours are difficult to verify. Another risk inherent in private insurance is that insurers "skim" the population: to attract

“good” clients, coverage is provided of expenditures that are typical of lower-risk populations (for example, the use of “alternative” medicines), while using detailed medical questionnaires to reject expenditures for greater risks.

Should the Stability and Growth Pact be strengthened?

By Jérôme Creel, Paul Hubert and Francesco Saraceno

The European fiscal crisis and the ensuing need to reduce the levels of public debt accelerated the adoption of a series of reforms of European fiscal rules in late 2011. Two rules were introduced to strengthen the Stability and Growth Pact (SGP). Given that many Member States in the euro zone have structural deficits and public debts that exceed the thresholds under consideration, it seemed worthwhile to assess the macroeconomic implications of compliance with these fiscal rules by four countries, including France.

The current limit of the public deficit to 3% of GDP was supplemented by a limit on the structural deficit equivalent to 0.5% of GDP, and by a rule on debt reduction requiring heavily indebted countries to reduce their level of public debt every year by 1/20th of the difference with the reference level of 60% of GDP. Moreover, the limit on the structural deficit goes beyond the 3% rule because it is associated with a requirement to incorporate a balanced budget rule and automatic mechanisms for returning to balanced budgets in the constitution of each Member State in the euro zone. Due to an

unfortunate misnomer, this is now often called the “golden rule” [1]. To distinguish this from the “golden rule of public finance” applied by the French regions, the German Länder and, from 1997 to 2009, the UK, we will henceforth call this “balanced budget rule” the “new golden rule “.

Because of the international financial crisis raging since 2007, the euro zone States often fall far short of the demands of the new rules. This raises the question of the consequences that flow from imposing these rules on the Members. To this end, we decided to study the paths of convergence with the different rules of four countries that are representative of the euro zone, using a standard theoretical model.

We chose a large country with an average level of public debt (France), a small country with a somewhat larger debt (Belgium), a large country with a large debt (Italy) and a small country with a relatively low level of debt (Netherlands). The size of the country, large or small, is associated with the size of their fiscal multiplier, i.e. the impact of public spending on growth: large countries that are less open than the small countries to international trade have a greater multiplier effect than the small countries. The four countries also differed with respect to the size and sign of their structural primary balance in 2010: France and the Netherlands ran a deficit, while Belgium and Italy had a surplus.

In the model, the evolution of the public deficit is countercyclical and the impact of an increase in the public deficit on GDP is positive, but excessive indebtedness increases the risk premium on the long-term interest rates paid to finance this debt, which ultimately undermines the effectiveness of fiscal policy.

The rules that we simulated are: (a) a balanced (at 0.5% of GDP) budget or the “new golden rule”; (b) the 5% per year rule on debt reduction; (c) the 3% ceiling on the total deficit (status quo). We also evaluated: (d) the impact of adopting an investment rule along the lines of the golden rule of public finance which, in general, requires a balanced budget for

current expenditure over the cycle, while allowing the debt to finance public investment.

We simulated over 20 years, i.e. the horizon for implementing the 1/20th rule, the impact of the rules on growth, on the inflation rate and the structural public deficit and on the level of public debt. First, we analyzed the path followed by the four economies after the adoption of each fiscal rule in 2010. In other words, we asked how the rules work in the context of the fiscal austerity that Europe is currently experiencing. Second, we simulated the dynamics of the economy after a demand shock and a supply shock, starting from the base situation of the Maastricht Treaty, with the economy growing at a nominal rate of 5% (growth potential of 3% and inflation rate of 2%), and a debt level of 60%. It is interesting to note that the real growth potential in the euro zone countries has been consistently below 3% since 1992, which has helped to make the rule limiting public finances even more restrictive than originally planned.

Our simulations led to a number of results. First, in every case the adoption of the rules produced a short-term recession, even in small countries with a small fiscal multiplier and a small initial public debt, such as the Netherlands. This complements the analysis that the widespread implementation of austerity in Europe is inevitably undermining growth (see The very great recession, 2011) by showing that there is no fiscal rule that, strictly applied in the short term, makes it possible to avoid a recession. This finding points to an incentive on the part of government to dissociate the use of the fiscal rules de facto and de jure: in other words, if the ultimate goal of economic policy is the preservation and stability of economic growth, then it is wise not to act on the pronouncements.

Second, recessions can lead to deflation. Under the constraint of zero nominal interest rates, deflation is very difficult to reverse with fiscal austerity.

Third, the investment rule leads to a better macroeconomic performance than the other three rules: the recessions are

shorter, less pronounced and less inflationary over the time period considered. Ultimately, the levels of public debt decreased admittedly less than with the 1/20th rule but, as a result of the growth generated, France's public debt shrinks by 10 GDP points from its 2010 level, while the Belgian and Italian debt are reduced by 30 and 50 GDP points, respectively. Only the country that was least indebted initially, the Netherlands, saw its debt stagnate.

Fourth, while ignoring the investment rule, which is not part of European plans, it appears that, in terms of growth, the status quo is more favorable than the "new golden rule" or the rule on debt reduction; it is, however, more inflationary for the large countries. This indicates that, in terms of growth, the strengthening of the Stability and Growth Pact, brutally applied, would be detrimental to the four economies.

Fifth, when the economy in equilibrium is hit by demand and supply shocks, the status quo seems appropriate. This confirms the idea that the current Pact provides room for fiscal maneuvering. The simulations nevertheless suggest that the status quo remains expensive compared with the investment rule.

To conclude, it is difficult not to notice a paradox: the rules designed to prevent governments from intervening in the economy are being discussed precisely after the global financial crisis that required governments to intervene to help cushion the shocks resulting from market failures. This work aims to shift the debate: from the goal of fiscal stabilization to the goal of macroeconomic stabilization. The European authorities – the governments, the ECB and the Commission – seem to consider the public debt and deficit as policy objectives in their own right, rather than as instruments to achieve the ultimate objectives of growth and inflation. This reversal of objectives and instruments is tantamount to denying a priori any role for macroeconomic policy. Many studies [2], including the one we have conducted here, adopt the opposite position: economic policy definitely plays a role in stabilizing economies.

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[1] This misnomer has been criticised in particular by Catherine Mathieu and Henri Sterdyniak in 2011, and by Bernard Schwengler in 2012.
[2] See, for example, the cross-disciplinary study that appeared in English in 2012 in the American Economic Journal, Macroeconomics, and the bibliography that it contains, or in French, the study that appeared in 2011 by Creel, Heyer and Plane on the multiplier effects of temporary fiscal stimulus policies.

Some precautions for reading the results of macroeconomic simulations: The case of social VAT

By Eric Heyer

In September 2007, the OFCE conducted simulations of the macroeconomic consequences of instituting a social value-added tax (VAT) using its emod.fr macroeconomic model. These simulations were discussed and published as an appendix to the Besson report on the subject. Nearly five years later, the government has decided to introduce a social VAT, so we asked Mathieu Plane and Xavier Timbeau to perform another round of simulations using the same model. The initial results were presented and discussed at a one-day workshop on the topic of taxation that took place at the Sciences-Politique Institute in Paris on 15 February. Why did we conduct new simulations, and how do they compare?

1. The measures simulated are different

There are a number of differences between the measure simulated in 2007 and the 2012 measure:

a. The shocks are on a different scale

In 2007, the measure simulated involved a rise of 3.4 points in the nominal VAT rate, which was offset by an *ex ante* reduction in employer contributions of the same amount. The measure proposed by the government in 2012 represents a 1.6 point increase in the standard VAT, which corresponds to a 1.1 point increase in the effective rate (10.6 billion euros) and an increase in the CSG tax on capital income from 8.2% to 10.2%, which amounts to 2.6 billion. The additional 13.2 billion euros in revenue will fund the elimination of employers' "family" social security contributions. Comparing the results requires at a minimum calibrating the shocks so that they are on the same scale. As our model is linear, a simple rule of three can then reassess the impact of the measure in 2007 and compare it with that of 2012. As is shown in the Table summarizing the results of this recalibration, the impacts on employment of the two versions are very similar.

Impact on employment at 5 years of a "pure" social VAT:
Shock of 2007 calibrated to the same scale as that of 2012

2007	Version (Besson report)	2012 Version
Employment effect	51 000	48 000

b. The shocks are not the same type

Unlike the simulations in 2007, besides the fact that there is a dose of CSG in its funding, the reduction in the cuts in contributions proposed by the government in 2012 is not uniform. It is targeted in particular at companies with employees who are paid at 1.5 to 2.1 times the minimum wage (SMIC), which has different sectoral impacts depending on the wage structure and on the impact on the relative cost of

unskilled / skilled labour. The fact that it is focused on skilled workers whose labour cost is less elastic reduces the expected impact on employment of lowering labour costs. This effect will also be reduced by the potential substitution of unskilled labor by skilled more productive labour. While this kind of effect is well documented in the literature, our econometric macro model does not yet enable us to take this into account. Our model is in the process of being enhanced, which will at some point make it possible to refine our results.

2. The model used (*emod.fr*) evolves in the course of re-estimations

Finally, it is necessary to keep in mind that macroeconomic models incorporate a certain number of estimated parameters, which can influence the results. This is the case in the simulation we are interested in of the elasticities of exports and imports to their prices and the elasticity of the substitution between capital and labor. However, the estimated value of these parameters is updated regularly to keep as close as possible to reality as captured by the national accounts. Thus, for example, the price elasticity of exports has changed considerably in recent years, from 0.57 to 0.31 between the version of the model used in 2007 and the 2012 model, meaning that any decline in price was less creative of activity and therefore of jobs.

In the next issue of the *Revue de l'OFCE* we will present all the results of our simulations in detail. We will also indicate the impact of a change in the value of the key elasticities on our assessments so that readers can better understand our revisions of the impacts.

Is our health system in danger? Dealing with the shortage of doctors (2/4)

By Gérard Cornilleau

Health is one of the key concerns of the French. Yet it has not been a major topic of political debate, probably due to the highly technical nature of the problems involved in the financing and management of the health care system. An OFCE note presents four issues that we believe are crucial in the current context of a general economic crisis: the second issue, presented here, concerns access to care, which could become more complicated due to a temporary reduction in the number of doctors.

The coming decline in the number of physicians, even if it is limited and temporary, runs the risk of developing medical deserts. Incentives exist to steer health professionals towards areas with a low medical density, but these are woefully inadequate, and the issue of more direct intervention is now on the agenda.[1] It will be difficult to avoid calling into question the complete freedom of doctors to install wherever they wish, which could result in a requirement for new physicians to go first to priority areas. But this would place a heavy burden on younger doctors, and inevitably involve some recompense. Would this mean accepting further increases in pay? To what extent? Should we allow further increases in physician surcharges ("dépassements d'honoraires")? The need for comprehensive negotiations with the profession is becoming clear: the past weakness of the *numerus clausus* restrictions on supply will lead for a while

to some rationing in the supply of physicians; this reinforces the profession's market power at the very time when it is becoming necessary to call old compromises into question. Ideally, it would be desirable to negotiate an increase in the income of doctors in training against a reduction in surcharges and constraints on their locations (possibly compensated by specific premiums). But this won't work for generations who have just completed their studies. So the only way forward clearly involves a strong upgrade in prices for medical acts (or fixed fees if, as would be desirable, doctors' incomes were calculated less on acts and increasingly on the size of their patient base [2]) as a counterpart for their acceptance of constraints on location (compensated) and a reduction in surcharges. These changes would constitute an additional burden on the health insurance system, which could be justified at least partially by the development of good practices. On the other hand, the increase in the individual remuneration of doctors will, for a few years, be partially offset by a reduction in their numbers.

The constraints of queuing should also encourage a better distribution of activity between physicians and a certain number of health technicians who can assist and even replace them in some situations (as is beginning to be the case in corrective optics). All these changes – the end of absolute freedom of installation, stricter regulation of surcharges, the sharing of medical activity with health technicians, the development of group work – are possible but would involve a major overhaul of the old compromise between the state and doctors. The main difficulty here is socio-political. To overcome it, we must also accept financial compensation for physicians, which will be difficult in a context of general rationing.

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[1] The HPST Act (Hospitals-Patients-Health-Regions) in July 2009 introduced a "public service commitment contract" that

offers second-year medical students and interns an additional income of €200 per month for a commitment to move to a priority area for a period at least equal to the duration of the receipt of the aid, with a minimum of 2 years. 400 contracts were offered in 2010-2011 (200 to students and 200 to interns), but only 148 were signed (103 students and 45 interns). This very limited figure is clearly insufficient in view of the forthcoming problems with doctors locating to areas in difficulty.

[2] Since 2010, Health Insurance has established a “Contract for Improving Individual Practice” (“CAPI”), which provides a lump sum of up to €7,000 per year for physicians who agree to follow certain rules on care and prevention. This scheme introduces a form of pay for performance that is distinct from pay for medical acts, which is in addition to the very limited pay related to the management of patients with a long-term illness (“ALD”) by the treating physicians (€40 per year and per patient).