Jean Tirole – an outstanding economist

By Jean-Luc Gaffard

Jean Tirole, this year's winner of the Bank of Sweden's Prize in Economic Sciences in Memory of Alfred Nobel, is an exceptional economist. This is reflected in the academic quality of his published works, both in the discipline's major journals and in books where he builds on his own research to engage with the major issues facing economics in the field of industry, regulation and finance. It is also reflected in his clear determination to address genuine issues that are important to an understanding of the functioning of market economies and in his concrete proposals for public policy to deal with this. It is also reflected in the way he explores these issues through developing powerful new analytical tools. And finally, it is reflected in the modesty of the judgments he renders on his results and their practical implications, a modesty befitting a true scientist.

It is fashionable in some circles to pigeonhole economists in one category or another, usually to stigmatize them. Jean Tirole is no exception to this parlor game. Detractors of the field of microeconomics, which focuses on company strategies, would have him more accustomed to frequenting the media than his research desk, and to be a defender of theses that could be termed free market if not ultra-liberal, more or less a sycophant of the markets and a fighter against government action. Nothing could be further from the truth.

Jean Tirole explores the functioning of markets populated by companies that are seeking to exploit their market power to mislead regulators whose choices are affected by a lack of information and by the existence of specific political constraints. He deals seriously with the fact that information is incomplete, that market situations and behaviors are imperfect, and that rational bubbles might even arise. If in the face of the crisis, everyone is now calling for stimulating R&D, developing vocational training, and expanding public investment, everyone should also be aware that the results are subject to the prevailing forms of organization, which are subtle and varied mixtures of competition and cooperation at the heart of the contracts between private and public actors on the various markets. This is what the work of Jean Tirole has drawn to our attention, along with the discussion that is needed about methodology and the choice of tools and standards that government should use.

Jean Tirole and his friend and co-author Jean-Jacques Laffont, who died too young, with whom he would likely have shared the prize awarded to him today, set themselves the task of analyzing the relationships that link business and State in the key sectors of telecommunications, energy and transport, while trying to determine the conditions in which these are socially efficient. These two are worthy successors of a prestigious French tradition, that of the French "economic engineers" – including Clement Colson, Marcel Boiteux and Maurice Allais – who as both researchers and engineers worked to establish the place and role of government in the functioning of a market economy. It is a tradition of public economics that the two nevertheless revolutionized by showing, through the new tools they used, that protecting the public interest assumed an ability to understand the detailed functioning of markets that differ greatly from one another and at the same time the shortcomings of a state that is neither omniscient nor spontaneously benevolent. In doing this, they emphasized the complexity of situations and, consequently, the complexity of contractual rules – complexities that it would be illusory and dangerous to ignore. They were able to highlight the true nature of a market economy in which the State, far from replacing the market, helps it to function properly through targeted interventions. In this respect, and in a domain that they made their own, that of analyzing companies and markets, they were part of a stream of social philosophy much like that developed by Keynes.

Does this mean that no criticism can be made of the work done? This is surely not the approach of the author himself, who knows that scientific progress grows out of controversy and debate so long as this is conducted according to fair play by researchers with proven expertise. The impossibility of setting out general rules is undoubtedly a weakness of an approach in industrial economics that Franklin Fisher (1991) [1] characterized as a theory that takes the form of examples and risks only producing taxonomies, which could mean that anything can happen, making it difficult to establish guidelines for public policy. This approach cannot dispense with the image of the heterogeneity that characterizes market economies, without which it is, in any event, vain to imagine effective public policy. Furthermore, many studies by Jean Tirole have the virtue of adjusting the specifications of the theoretical models to the particular configuration of the industries, businesses and technologies under study. Other approaches are undoubtedly possible, which would break with the hypothesis of agents practicing intertemporal optimization in a world of rational expectations. They would insist on the sequential nature of the choices made by trial and error in an uncoordinated economy, even in a state of bad equilibrium, due to the significance of innovation, which implies both the irreversibility of investment decisions and incomplete knowledge of the future configuration of the markets. Taking on board this aspect of industrial reality would mean recognizing that it is just as important to understand how firms acquire knowledge – incomplete knowledge at that – about the reactions of their competitors as it is to establish the impact of this. Following a line of thought that is rooted more in Marshall and Hayek than in Walras and Cournot, it would be possible to provide another perspective on the functioning of market economies and the role of collusion and of networks, which could sometimes lead to different recommendations for public policy. It would also be necessary that the approaches chosen, which would be geared more toward the issue of coordination than of incentives, would have the robustness needed to enrich if not outright challenge established theory. This is what Jean-Jacques Laffont impressed on me during a long conversation we had while awaiting our respective flights that had been delayed by a strike – a situation not irrelevant to our discussion.

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[1] See "Organizing Industrial Organization: Reflections on the Handbook of Industrial Organization", *Brookings Papers on Economic Activity. Microeconomics,* vol. 1991 pp. 201-240.

Are the macroeconomic forecasts of the central banks better than those of private agents?

By Paul Hubert

Private expectations – about inflation, growth and interest rates – are a critical component of most modern macroeconomic models, as they determine the current and future realizations of these very variables. Monetary policy has been shaped more and more by the incorporation of these expectations in central bankers' calculations and the influence they have on private expectations through interest rate decisions and the way these are communicated. The establishment by the central banks of a forward-looking policy orientation, called "forward guidance", has further reinforced the importance of central bank macroeconomic forecasts as a tool of monetary policy for influencing private expectations.

A recent article in the *Revue de l'OFCE (no. 137 – 2014)* evaluates the forecasting performance of the US Federal Reserve relative to that of private agents. This empirical review of the existing literature confirms that the Fed performs better than private agents in forecasting inflation, but not on GDP growth. Furthermore, the Fed does even better over longer forecast horizons. Despite this, its superiority seems to have been declining in recent times, though it's still significant. This article highlights the potential reasons for the Fed's superior performance, and suggests that this could stem from better information about the shocks hitting the economy rather than from a better model of the economy. The publication of these macroeconomic forecasts therefore helps to disseminate information among economic agents and boosts the effectiveness of monetary policy by allowing private agents to better foresee trends and possible developments.

The infinite clumsiness of

the French budget

By Xavier Timbeau, @XTimbeau

In the draft budgetary plan presented to the European Commission on 15 October 2014, it is clear that France fails to comply with the rules on European governance and its previous commitments negotiated in the framework of the European Semester. As France is in an excessive deficit procedure, the Commission, as guardian of the Treaties, has no choice *a priori* but to reject the country's budget plan. If the Commission does not reject the plan, which departs very significantly, at least in appearance, from our previous commitments, then no budget could ever be rejected.

Recall that France, and its current President, have ratified the Treaty on Stability, Coordination and Growth (the "TSCG" came into force in October 2012), which had been adopted by the Heads of State in March 2012. There was talk during the 2012 presidential campaign of renegotiating it (which raised the hopes of the southern European countries), but the urgency of the sovereign debt crisis in Europe, among other factors, decided otherwise. France has implemented the provisions of the TSCG in Organic Law 2012-1403, for example by setting up a new fiscal council, the Haut Conseil des Finances Publiques, and establishing a multiannual system for tracking the trajectory of public finances based on structural balances (that is to say, adjusted for cyclical effects).

Everything seems to indicate that France had accepted the highly restrictive framework that had been established by the "Six-Pack" (five regulations and one directive, dated 2011, which reinforce the Stability and Growth Pact and which specify a timetable and parameters) and then reinforced by the TSCG and the "Two-Pack". France's good will was also evident when it presented its 2014 draft budgetary plan in October 2013 and a stability programme in April 2014, which more than complied. It was at a press conference in September 2014 that the French government announced that the deficit reduction target for 2015 would not be met. Low growth and low inflation were the arguments made there for a serious revision of the economic situation, which was presented as a truthful assessment. The same situation arose in 2013, with the nominal target then being set while underestimating the fiscal multipliers. However, the timing and magnitude of the adjustments had been respected, and a postponement was granted.

So until the press conference, no major difficulty had been posed to the workings of the Treaty. One of the innovations of the TSCG was in fact to no longer aim at a nominal target (3%) but to focus on the structural effort. If the economic situation proves to be worse than expected, then the nominal deficit target is not met (which is the case). In this situation, the objective is the structural effort. In the 2014-2017 Stability Programme of April 2014, the structural effort announced (page 13) is a 0.8 GDP point reduction in the structural deficit in 2015, following 0.8 GDP point in 2014. The excessive deficit procedure (also set out in a *vade-mecum* of the Commission) requires a minimum structural effort of 0.5 GDP point and that the mechanisms for achieving this be set out precisely.

It is here that the 2015 budget bill represents a concrete violation of the treaty. The effort in 2014 is now only 0.1 point, with 0.2 point announced in 2015. These figures are unacceptable to the Commission. How can such a provocative change be explained? Several factors are behind this. The first is a change in the method of booking the CICE tax credit, which means recording in 2015 the expenses generated in 2015 and paid in 2016. As the CICE ramps up, this comes to 0.2 GDP point less in France’s fiscal effort. The second is a change in the hypothesis for potential growth. Instead of 1.5% potential growth in the 2014-2017 stability programme, this is assumed to be 1.2% over the 2014-2017 period. Using a constant percentage method, the effort would have been 0.5 GDP point in 2014 and 0.6 point in 2015. The difference with the April 2014 stability programme is due to the revision downwards of inflation and to several changes in the measurements. A new presentation of the same budget, with a marginal modification of the economic situation, is marked by the absence of structural effort. Not only will the nominal target not be achieved, but furthermore the structural effort for 2014 and 2015 is abandoned – with no change in policy! Worse, this draft budget implies that the nominal target is not being achieved because the structural effort was not made in 2014 and won't be in 2015.

The government, nevertheless, pleads extenuating circumstances. Why change the assumptions for potential growth while not having kept the previous accounting standards for presenting France's 2015 draft budgetary plan? An effort of 0.6 GDP point in 2015 instead of the previously announced effort of 0.8 GDP point would not have posed any problems for the Commission, which itself had made overly high estimates of potential growth (as also in its remarks on the 2014 draft budgetary plan, which the Council did not adopt in November 2013). It would have been easy to answer that one does not change assumptions of potential growth every 6 months, and that this is furthermore the purpose of this concept and the reason for its introduction in EU Treaties and guidelines: to avoid a pro-cyclical character in fiscal policy, to avoid tightening up budgets at a time when bad news is piling up. It would have been accepted that the Commission had a lower assessment than France, but potential growth is not observed, and its assessment is based on numerous hypotheses. It is not, for instance, specified in the treaties or regulations whether potential growth is to be assessed in the short term or the medium term. But the Commission considers (in the 2012 Ageing Report) that France's medium-term growth potential was 1.7% per year (on average 2010 to 2060) and 1.4% in 2015. Above all, nothing obliges France to adopt the hypothesis of the Commission. EU regulation 473/2011 demands that the hypotheses be made explicit, and outside opinions might also be requested. French Organic Law 2012-043 states that, "A report attached to the draft budgetary plan (LPFP) and giving rise to parliamentary approval states: … 9) The procedures for calculating the structural effort referred to in Article 1, the distribution of this effort among the various sub-sectors of government, and the elements used to establish a correspondence between the notion of the structural effort and the notion of the structural balance; 10) The hypotheses of potential gross domestic product used in planning the public finances. The report presents and justifies any differences from the estimates of the European Commission" – which gives the government good control over the hypothesis for potential growth and makes the parliament sovereign, the final judge.

Does a truth check need to be conducted on potential growth so as to significantly alter this crucial hypothesis in the presentation of the budget? Should a truth process lead to presenting a budget as almost neutral when it reflects crucial, expensive policy choices (to finance business competitiveness by cutting public spending and increasing taxes on households)? Is the Commission's hypothesis more relevant because it has been continuously revised every 6 months for 5 years now? Couldn't it be explained that the French government's ambitious programme of structural reform would help to increase potential growth in the future (unless the government doesn't believe this)? Aren't the CICE and the Responsibility Pact a sufficient pledge of the renewed vitality of a productive system that will lead to boosting potential growth? Would it be better to follow the advice of the authors of a report for the French Council of Economic Analysis (CAE) on potential growth who did not risk producing a new estimate? Isn't it the subject of growth that needs to be discussed (constructively and technically, in discreet fora) with the Commission, rather than engaging in an explicit breach of EU rules? In the [2015 draft budgetary plan](), it is written (page 5): “the trajectory is based, out of caution, on a downward revision of potential growth from the previous budgetary plan, by taking the European Commission’s latest estimate of potential growth (spring 2014)”. What kind of caution is this that looks more like a blunder with terrible consequences? Is it the mess that the government was in at end August 2014 that permitted this state of infinite clumsiness?

It is impossible to justify the presentation made: the Commission will rebuke France, which will not react, since it is sure of its rights (as the government has already stated). The Commission will then ramp up the sanctions, and it is unlikely that the Council will stop this process, especially as the decisions are to be taken by a reverse qualified majority vote. There will be a new round of French-bashing, which will merely show the futility of the process, because France will not deviate from the path it has chosen for its public finances. This will undercut France’s persuasiveness and influence at the very time that a 300 billion euro investment plan is being developed, which is sought only by France and Poland (according to rumors), which risks derailing a rare initiative that could get us out of the crisis.

In letting the muffled fury of the technocracy express its dissatisfaction with France, what will come out is the fragility of “European governance”. But this governance relies solely on the denunciation of France and the consequent peer pressure. France could be fined, but neither the Council nor the Commission have any instruments to “force” France to meet Treaty requirements. This is the weakness of “European governance”: it works only if the member states voluntarily adhere to the rules. It is thus governance in name only, but despite this it is the foundation underpinning the path out of the sovereign debt crisis. The European Central Bank intervened in the summer of 2012 because stronger governance of public finance was intended to solve the “free rider” problem. The (numerous) critics of the European Central Bank's intervention have broadly denounced the hypocrisy of the Treaty, which guarantees nothing since it is based on the voluntary discipline of the member states. Its violation by France and the impotence of the Commission and the Council will be such a demonstration of this weakness that there is concern that the house of cards might collapse.

France could revise its draft budget and add measures that, in the new accounting system and with a lowered estimate of potential, would enable it to fulfil its April 2014 commitment on its structural effort. This scenario is highly unlikely, and that's a good thing (see the post by Henri Sterdyniak). It's unlikely, because the almost 2 points of VAT at the full rate required to achieve an effort of 0.8% of GDP (and thus without compensating for the delay in 2014) would not be approved by the French Parliament. And it's good because this would trigger a recession (or serious slowdown) in France and a completely unacceptable rise in unemployment simply to save face for the Commission and diligently apply European legislation.

It would have been more clever to stick to the hypotheses (and methods) of the 2014 stability program, France's Haut Conseil would have protested, the Commission would have complained, but Europe's rules of governance would have been saved. They say that statistics are the most advanced form of lying. Between two lies, it's best to choose the less stupid.

French competitiveness: The object of a supply policy

By Sarah Guillou

The 2014-2015 edition of The Global Competitiveness Report [1] by the World Economic Forum sheds light on the political debate between those who like to prioritize a supply policy and those who instead make the conditions governing offer their top priority. Note that competitiveness is a key factor in future growth in mature economies that specialize in high-tech or high added-value products [2].

France ranks 23rd in terms of the global competitiveness indicator calculated by the World Economic Forum. This competitiveness indicator goes beyond conventional measures based on relative production costs to incorporate many sub-indicators (100 in total) that cover a variety of dimensions, including the functioning of product markets, labour markets, and institutions; indicators about human capital, infrastructure and innovation; and qualitative measurements from business surveys. The result is a set of dimensions that identifies a country's level of productivity in detail. The competitiveness indicator proposed is "global" in terms of both the extent of the dimensions included and the number of countries covered.

Competitiveness is measured relative to 143 countries. The weighting of the sub-indicators is deduced from the membership of countries in a category based on their level of economic development: Phase 1, governed by the availability of factors; Phase 2, in transition from Phase 1 to Phase 3; Phase 3, governed by the efficiency of the factors; Phase 4, in transition from Phase 3 to Phase 5; and Phase 5, governed by innovation. Depending on the category, the weight assigned to each sub-indicator in determining the level of competitiveness differs. This explains why the ranking does not fully reflect the traditional hierarchy of countries based on their level of economic wealth. Moreover, the diversity of the indicators that come into play can result in countries with very different economic profiles being ranked more closely: hence Russia (53rd) is nipping at the heels of Italy (49th), and the UAE comes right after Norway (11th).

With respect to the debate on supply-and-demand dynamics, it is interesting to note that the global competitiveness indicator is based on a set of sub-indicators that are not all associated with structural reforms associated with supply, and many of them result from a balanced support for demand. For example, the provision of high-quality human capital (skilled, healthy, etc.) requires not only an environment that values labour and rewards merit but also a level of security and social welfare which contributes to a quality of life that attracts and retains human capital, and therefore a certain level of public spending. This is also the case for infrastructure. More generally, the competitiveness indicator is the result of achieving a balance between the level of public spending and structural reforms in such a way that the indicators wind up complementing each other.

Switzerland’s no. 1 ranking recognizes the quality of its business environment – infrastructure, human capital, institutions, trust, macroeconomic stability – which makes up for the weakness of its market size and its degree of openness and specialization in high-tech manufacturing industries [3]. Six European countries are in the top 10, which is reassuring for the European model [4]. The French economy has stabilized its position in the ranking with respect to the previous year, following four years of decline – it was ranked 16th in 2008.

Of the 144 countries ranked, France owes its position in the first quintile (the top 20%, *i.e.* the first 28 countries) to the quality of its infrastructure and educational system, its technological level and its entrepreneurial culture [5]. Competitiveness is primarily a relative concept, and in a global economy where more and more countries aspire to be in the top 10 economic powers, judgments about the French economy depend heavily on the group to which it aspires to belong. What raises questions is that France long belonged to the top 10, and its main companions historically are still there (Germany, the United Kingdom, Belgium, Netherlands and the United States). Relative to the first quintile, which includes 13 other European countries, the United States, Canada, Japan and China, France's position at the tail end is far from glorious and requires us to take a look at the indicators that rank the French economy among the least competitive. The main reasons for this result are the functioning of the labour market, the State's fiscal position, and the country's relatively poor performance in providing an environment favourable to work and investment.

More specifically, an analysis of the specific sub-indicators (from the 100) for which France's performance puts it in the bottom third of the 144 countries, *i.e.* a ranking between the 96th and 144th spots, and a comparison with its neighbours (see Figures 1-3), reveals the following points:

1) The dimensions that show the greatest contrast relative to Germany, the United Kingdom and the United States include the burden of administrative regulations, the impact of taxes on investment incentives, the impact of taxes on work incentives, cooperation in labour-management relations, hiring and firing practices and the rate of taxation as a percentage of profits.

2) France's lacklustre performance is often exceeded by that of Italy.

3) The indicators on French fiscal policy are problematic, but this is not strongly different from the situation of its partners.

The functioning of the labour market, and more generally the regulatory environment influencing incentives to work and invest, thus emerge as the dimensions pushing down the global competitiveness indicator. Note that these indicators are derived from objective measures (such as number of regulations, level of taxation, macroeconomic data) but also in large part from responses to a survey of business leaders. These leaders have to indicate on a scale of 1 to 7 their assessment of the various factors underlying the indicators. In the main the indicators thus express a felt reality. For France, the low ranking in the dimensions identified in point 1) reveals the **severity** of the judgment of these business entrepreneurs.

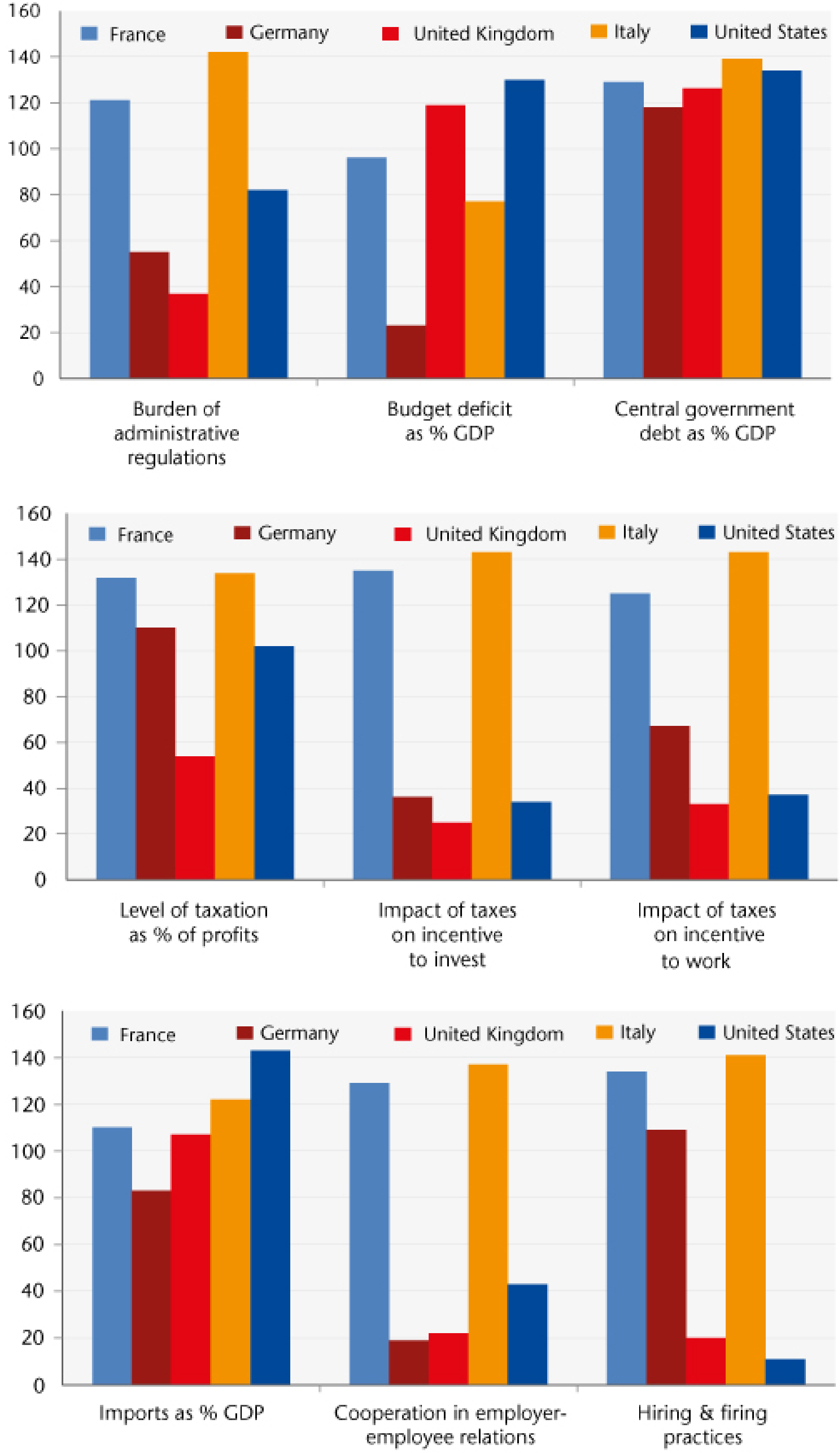
The lessons for economic policy are as follows: the scope for progress and the specific reasons for France's position lie in the dimensions outlined in point 1). The priorities for structural reform are cumbersome administrative regulations, incentives for work and investment, and the quality of labour-management relations. But what policies are needed to deal with these issues?

Administrative simplification and the Responsibility Pact are a step in the right direction, but it is questionable whether the measures taken will affect the way business perceives economic incentives in the administrative-legal environment. Moreover, nothing is being done in terms of improving labour-management relations. Finally, it would be desirable for government to adopt a neutral and stable position vis-à-vis companies, a position that neither maligns their economic rationality nor undermines their power over the industrial future. And even if the divorce between the State and business is in part "constitutional", as Jean Peyrelevade [6] argues, we cannot give up efforts to improve social dialogue and to reconcile French companies with their economic and regulatory habitat. This is one of the keys to French competitiveness.

Finally, the three lessons of this Report are 1) to keep in mind that competitiveness reflects a combination of many elements that cannot simply be reduced to facilitating the exercise of economic activity (*i.e.* tax cuts, labour market flexibility), 2) the most competitive economies are not those where public authority has retreated, as many dimensions require a State that makes effective investments (in education and infrastructure) and guides capital (for example, into renewable energy); and 3) the margin for progress towards a more competitive **France** today lies not in public investment, but in incentives for social dialogue, employment, labour and investment.

The WEF classification thus provides clear evidence that supply conditions in France can be greatly improved and that to prioritize the competitiveness of the French economy reforms in this direction are imperative.

Figures 1 to 3: Classification of France, Germany, the United Kingdom, Italy and the United States for the specified indicators out of the 144 countries ranked in the Global Competitiveness Report 2014-2015



Note: Figures 1 to 3 depict a country's ranking for each of the specific indicators, with a smaller bar indicating a better ranking.
Source: World Economic Forum, Global Competitiveness Report 2014-2015, author's graphics.

[1] The World Economic Forum began to calculate competitiveness in 1979, and since then has gradually extended its efforts to embrace more dimensions and countries.

[2] These productive activities are in effect associated with increasing returns to scale (due to high fixed entry costs, in particular R&D), which implies economic viability on a large scale: in other words, on a scale that goes beyond simply the domestic market.

[3] Likewise, political transparency is more highly valued than economic transparency.

[4] Switzerland, Finland, Germany, Netherlands, United Kingdom, Sweden.

[5] "the country's business culture is highly professional and sophisticated" (page 23).

[6] J. Peyrelevade, *Histoire d'une névrose, la France et son économie*, Albin Michel, 2014.

Reforming unemployment insurance in France today:

not a good idea according to OECD indicators

By Eric Heyer

Six months following the signing of a national industry-wide agreement on unemployment benefits between the social partners, with new rules that normally are to apply until 2016, the French government, which wants to go further in reforming the labour market, is evoking the possibility of once again reforming the unemployment insurance system by reducing the level of benefits and the period they are paid.

It is far from clear that reforming the unemployment insurance system is in keeping with the idea that any reform must improve the "quality of life" of our citizens. This is, in any case, what is indicated by the latest publication of the OECD.

In Chapter 3 of the 2014 edition of the OECD's Employment Outlook, the international organization has implemented the recommendations of the 2009 Stiglitz-Sen-Fitoussi report by evaluating the quality of employment in the OECD countries. This new indicator supplements conventional measures of the quantity of work and should eventually lead to transforming the content of public policy by imposing new assessment criteria on the public authorities.

The OECD constructs an indicator on the quality of employment on the basis of three factors: the quality of wages, the security of the job market, and the quality of the working environment. According to the OECD, this last dimension is relatively mediocre in France: the high level of professional requirements and insufficient resources to accomplish tasks leads to a high level of on-the-job stress for French employees. As for wages, a review of both their level and distribution places France close to the average of the OECD countries. Finally, while the quality of work in the country is close to average in the developed countries, this is, according to the OECD, due mainly to a high level of job security in France, due to both the extent of social security … and the generosity of unemployment insurance.

The proposals for reforming unemployment insurance would therefore tend to deteriorate rather than improve the "quality of life" for the French, and would thus miss their target from that perspective. But would they lead to improving the quantity of work?

There is some food for thought on this subject in Chapter 1 of the Report, in which the OECD indicates that the structural unemployment rate – *i. e.* the unemployment rate depending on the impact of rigidities that prevent the labour market from functioning properly – has not increased since the onset of the crisis in France, just as is the case in many other developed countries: for the OECD, the sharp increase in unemployment seen since 2008 has a mainly cyclical component that cannot be combated by reforming unemployment insurance.

As a consequence, given the current situation of the French economy, reforming unemployment insurance along the lines suggested by the government will, if the OECD analysis is to be believed, undermine the quality of employment – and in particular the quality of life of the unemployed – without reducing the level of unemployment!

The promotion of renewable energy innovation: when State intervention and competition go hand in hand

by Lionel Nesta and Francesco Vona[1]

In contrast with the common belief that competition demands no State intervention, innovation policy and competition complement each other. This is the main conclusion of our investigation concerning innovation in the realm of renewable energy (RE)[2], summarized in the OFCE Briefing Paper, n°8, October 6, 2014.

By and large, innovation is the only answer to both sustaining current life standards and overcoming severe environmental concerns. This is especially true in the case of energy, where increasing resource scarcity calls for the rapid development of renewable energy sources, such as biomass, solar and wind.

The issue is: despite this considerable increase, renewable energy can still not compete with fossil fuel, the production of the latter being cheaper and its distribution more efficient. Hence without a long-term perspective, the development of renewable energy cannot take place. Public support, it is well-known, is better equipped than private parties to take such a stance. And to understand which policy design may best spur innovations in renewable energy is a key question.

Public policies aim to spur investments in green capacity and technical change and to reduce the cost of RE generation. The adoption of the Kyoto agreement on climate change mitigation too has created a consensus about certain environmental policies (i.e. emission trading schemes). Over the past 20 years, OECD countries have increasingly supported innovation in RE by diversifying the range of RE policies (see Figure 1 for selected countries).

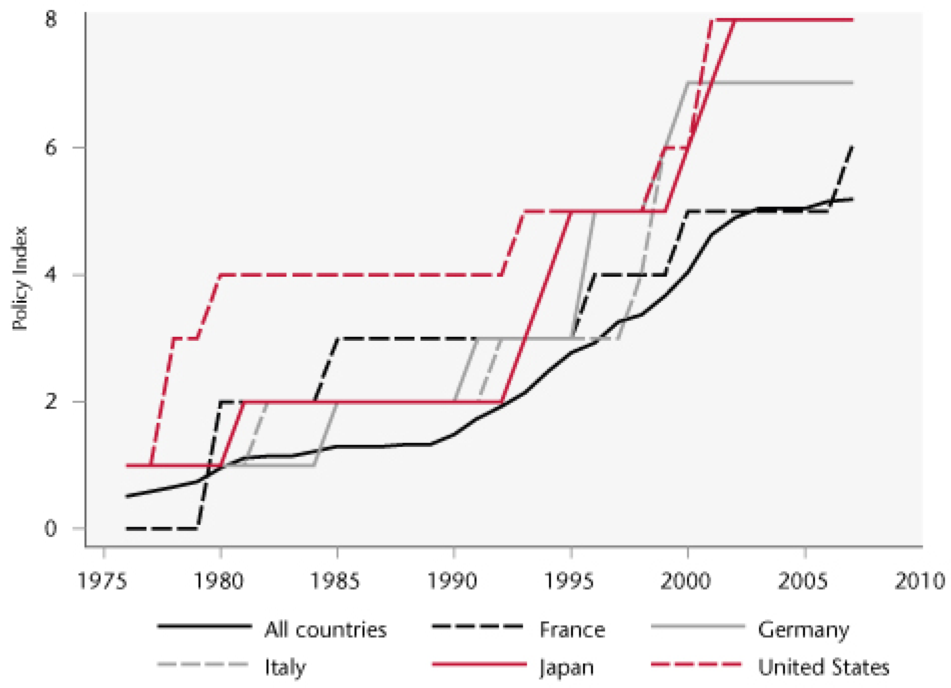
Meanwhile, liberalization has changed the working of energy markets in most OECD countries. It has increased market competition by lowering entry barriers and privatizing energy producers. We view liberalization of the energy market as positive for innovation. Radical innovation is mainly developed by newcomers. And large incumbents have little incentive to fully develop new technologies that would question their past investments in large-scale energy production.

In a context of amplified public support to RE innovation and increased liberalization of energy markets, it is important to test how the interplay between the two affects innovation in renewable energy.

We find that renewable energy policies are more effective in fostering green innovation in liberalized energy markets. We find that such policies are three times as effective in highly deregulated energy markets than in more regulated ones. In general, this complementary effect is one of the largest drivers of innovation, especially for frontier patents. This result is summarized in Figure 2 where we depict the estimated effect of RE policies on innovation as a function of the degree of market deregulation. This effect is positive only for countries with a level of regulation below average, as is the case for Germany and the United States.

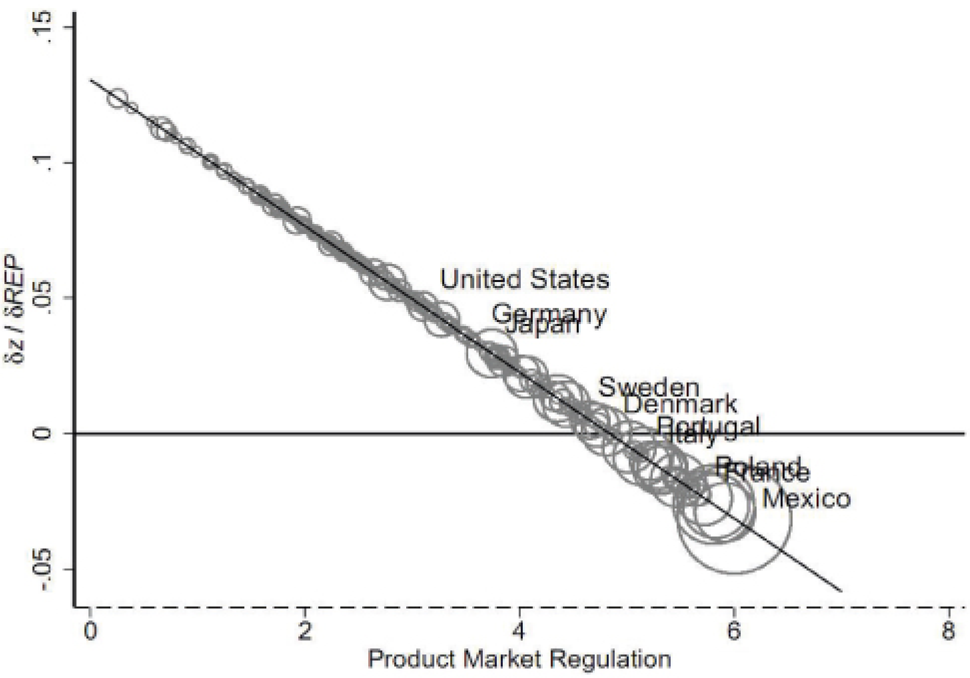
Our conclusion is that the effect of RE policies on innovation is crucially mediated by the degree of competition in the energy market. Therefore, and again, in the energy sector, in contrast with the common belief that competition demands no State intervention, innovation policy and competition complement each other.

Figure 1. Evolution of the Policy Index (REP) for 5 countries and for all countries (1976-2007)



Source: See Nesta *et al.* (2014).

Figure 2. Estimated marginal effect of RE policies on RE innovation



Source: Nesta *et al.* (2014).

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[1] This research project benefited from funding from the

European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n°320278 (RASTANEWS).

[2] See: Nesta, L., Vona, F., Nicolli, F., 2014. "Environmental Policies, Competition and Innovation in Renewable Energy," *Journal of Environmental Economics and Management,* vol. 67(3), 396-411.

The 2013 pension reform: the implicit contribution of pensioners' purchasing power

By Stéphane Hamayon and Florence Legros

Less than three years after the official retirement age in France was raised in 2010-2011, a new pension reform was passed in early 2014.

This reform is described by its promoters as "sustainable and equitable". However, only a few months after it passed, if we once again review the mid- and long-term balance of the pension system, we would have to conclude that this subject needs another look (see our article in the *Revue de l'OFCE,* no. 137, 2014). The suspected imbalance stems from a gap between the assumptions that prevailed in 2014 when the reform passed and the actual development of critical macroeconomic variables such as unemployment and productivity growth.

Our article begins with an analysis of the sensitivity of the overall balance of the pension scheme to economic variables and to the assumptions made. It shows that if the unemployment rate were to stabilize at 7.5% (the lowest rate in 30 years) and not 4.5% as in the scenario adopted by the reform, and productivity grew at a rate of 1%, which is in line with the reasonable estimates made by Caffet Artus (2013), instead of the 1.5% adopted, then this would lead to a continuing deterioration in the pension system accounts (Table 1).

Table 1. Financing needs of the pension system for private sector employees after the 2013 reform

Billions of 2012 euros

	2010	2013	2020	2025	2030	2040	2050
Central scenario (productivity 1.5% - unemployment 4.5%)	-9,7	-6,5	-2,0	-1,4	0,8	-1,6	3,2
Low growth scenario (productivity 1.0% - unemployment 7.5%)	-9,7	-6,5	-5,0	-9,3	-20,4	-36,1	-43

Source: Calculs des auteurs.

Another variable that is examined precisely: the growth rate of productivity. Because this has an impact on wages, it plays an important role in rebalancing pension systems when the indexation of pensions and wages recorded in fictitious accounts for pension calculations (*salaires portés au compte*) is based on prices and not on wages. More specifically, high productivity would help balance the accounts, as resources would grow quickly while employment grow more slowly.

The consequence, however, is a relative impoverishment of pensioners relative to the working population, especially of older retirees for whom de-indexation will have cumulative effects.

Fiscal policy and

macroeconomic stability in an economic and monetary union: the case of the West African Economic and Monetary Union (WAEMU)

By Mamadou DIOP and Adama DIAW

The idea that fiscal policy is an effective tool of economic policy for stimulating the real economy has neither empirical backing nor unanimous support among economists. An article published in the *Revue de l'OFCE* (no. 137, 2014) deals with two major shortcomings in government policy in the WAEMU: delays in implementing fiscal measures and the irreversibility of certain public spending measures. The problem centers on the capacity to cancel certain expenditures when they are no longer needed to stabilize the economy. Having a reversible fiscal policy is essential these days to ensure that the public purse is sustainable over the medium term. To stabilize a country's economy using fiscal policy, it is important to be able to identify which public spending measures significantly affect economic activity, while taking into account their response time. Such is the purpose of this article: to evaluate the impact of fiscal shocks on the economic activity of WAEMU countries so as to reveal the channels through which fiscal policy is transmitted.