

## OFCE: Work programme and work in progress

### *NERO meeting OECD, Paris, 06/06/05*

In addition to the activities of macroeconomic forecasting for the French and the European economies, the OFCE is building new analytical tools to investigate various important aspects of these economies, including potential growth, macroeconomic governance, and distributional and incentive issues related to tax and welfare reforms. Two strands of models are being developed:

\* A family of user-friendly, **microsimulation models** for the French economy (**MiSME**), designed the consequences of tax and welfare reforms in France<sup>1</sup>;

\* A new version of the **general-equilibrium, overlapping-generations, computable model of the world economy, INGENUE**, built in collaboration with CEPII and CEPREMAP, to investigate the long-run, macroeconomic interactions between demography, migrations, technological diffusion and international capital flows.

#### **A. SIMULATING THE CONSEQUENCES OF TAX AND WELFARE REFORMS ON INCOME DISTRIBUTION AND MARGINAL EFFECTIVE TAX RATES.**

The microsimulation models developed in the Research Department of OFCE, as well as the EU-wide EUROMOD model, are being used to study the distributional consequences of various tax and welfare reforms, as well their impact on marginal effective tax rates, hence on individual incentives. A number of welfare reforms have already been the objects of such analyses. Researchers of the Department are currently engaged in the drafting of an ambitious tax reform for France, somewhat in the spirit of the US Tax Reform Act of 1986: a package is being prepared for the Prime Minister's Council of Economic Advisers, which should be published shortly.

#### **B. STUDYING LONG-RUN MACROECONOMIC EVOLUTIONS WITH THE INGENUE MODEL**

##### **1. Potential growth**

A major field of investigation currently is the analysis of determinants of potential growth in the EU. Determining potential growth and output is a crucial task in order to figure out the necessity and consequences of economic policies. Indeed, in standard macroeconomic analysis, the relevance of a fiscal and/or a monetary policy depends on the output gap, i.e. the difference between potential and effective output: economic policies may be effective only insofar as the output gap is positive.

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<sup>1</sup> The Research department of OFCE is also a member of the EUROMOD European research network. EUROMOD is a microsimulation model of the EU.

Our research emphasizes the following elements.

Firstly, establishing the respective importance of TFP growth and accumulation of capital in the determination of potential growth would be a first part of our study. We try to measure the contribution of ICT to labor productivity; estimating the influence of the changing patterns of the organization of work would prove a further interesting outcomes. Defining a proxy for this change in the quality of employment and assessing econometrically its influence on TFP growth may possibly result in a reduction in actual TFP growth. Capital accumulation would therefore be the cornerstone of potential output.

Secondly, the fact that investment is an endogenous variable and that potential output is presumably path-dependent, investigating the influence of economic policies becomes a crucial issue. Two distinct though complementary items would thus be emphasized in the European context: the role of institutions in the implementation of the policy mix, and the Eastern enlargement. Both impinge on the perspectives of private investment within the European Union (EU): different scenarios of economic institutional governance will be presented and legitimized and their respective influence on domestic investment will be investigated. Computations will be based upon variants of INGENUE model. Enlargement will be analyzed from two different points of view. The incidence of the different scenarios of governance on the catching up process of the new members will be estimated still via the INGENUE model. The attraction of FDI by these countries will also be investigated.

## **2. Contributions to potential growth**

### ***2.1. ICT***

The measurement of *TFP* remains a controversial issue. The marked productivity slowdown observed in almost all OECD economies since the beginning of the 1970s gave rise to the so-called Solow productivity paradox: computers were seen everywhere except in productivity statistics. Later on, the good performance of the US economy in the 1990s and the relative ongoing resurgence of *TFP* growth in this country suggest that a period of non-inflationary strong economic growth could be conceivable. A survey of the American view on this question is helpful to outline what is the problem of Europe. Indeed, the persistent slowdown of productivity gains may be considered as inconsistent with a set of indicators showing the intensity of innovation. For instance, it is surprising that the acceleration of productivity is generally linked to the rapid diffusion of *ICT* in the US, while conversely it is associated with a sharp slowdown of productivity gains in Europe. Numerous international comparison studies, whatever the methodology, reveal this gap between the US and some of the biggest European countries, while some of the small ones perform pretty well (OECD [2003, 2004]).

Interesting though these results might appear, they are highly sensitive to various statistical conventions. *TFP* gains and potential growth estimations may then dramatically change considering a different set of hypothesis. This kind of work has already been done for the US (Musso [2003]). Two important preliminary results have been obtained: the *TFP* slowdown observed in the US during the 1970-1995 period could essentially be due to measurement errors mainly induced by the acceleration of capital obsolescence; when price indexes are adjusted to better take into account the evolution of the quality of equipment, the contribution of *TFP* to potential growth proves to be considerably overestimated and the role of capital accumulation underestimated by traditional analyses of growth accounting.

## ***2.3. Growth strategy and governance scenarios***

### *2.31. Growth strategy in the EU*

The theoretical and historical relation between institutions and growth is now an object of consent among most economists. The EU is supposed to have developed, for two decades since the Single Act in 1986, a growth strategy along this institutional pattern, especially with the adoption of the so-called “Lisbon strategy”. Yet, the EU growth performance for the last four years has been repeatedly deceptive.

The problem is even more serious: the EU has been lagging behind the US economy for more than two decades now by an estimated 30 % gap in GDP per capita, this gap now amounting, after the Eastward enlargement, to roughly 40 %. Beside the “deepening hypothesis”, according to which the EU integration would not yet be sufficient to deliver a durable high level of GDP growth, one of the reasons of this dismal performance might be that the EU has not developed the economic policy institutions able to make the most of its potentially powerful economic and monetary integration. In the light of the modern theory of economic growth and stabilization policy, two aspects are highlighted in this perspective:

- The growth potential of a given economy relies mostly on its ability to accumulate endogenous technical progress. Fiscal policy, notably through R & D and higher education spending, is a powerful instrument of this social human capital accumulation;
- Monetary policy, when carefully and wisely used is a mighty tool to sustain high level of effective growth, that is to fully realize the potential of the economy. This stabilisation policy naturally entails structural effects: maintaining unnecessarily high levels of real interest rate and/or mass unemployment, as it has been the case in the EU for most of the 90's, harms long-term growth (e.g.: “hysteresis effect” of the unemployment rate).

Regarding both instruments, the EU-15 has been lacking a true growth strategy that the EU-25 is even less likely to enforce:

- In contradiction with the ambitious agenda verbally set at the Lisbon Summit (2000), fiscal policy is constrained in a double way in the EU:
  - o The EU budget is, at the same time, quite small (1% of the EU GNI) and almost fully devoted to agricultural and regional aides (80% of total spending).
  - o The Stability and Growth Pact (SGP), although widely and, at times, officially criticized for its weak theoretical rationale and poor record, is still in place.
- As for monetary policy, it should be noted that the European Central Bank (ECB) is the most independent Central Bank in the world. It is also a young institution in search of credibility.

### 2.32. *Alternative governance scenarios*

Two schematic credible scenarios are investigated:

- The first, at this time the most probable, is a “Frozen Landscape” of the EU growth strategy under the impact of the enlargement: A even smaller central budget, a stronger fiscal surveillance without reform of the SGP, a credibility-focused monetary policy;
- The second one, “Fulfilled Potential”, optimistically predicts a reform of the economic governance of the EU and the definition of an integrated growth strategy, implying a substantial growth-orientated EU budget, a more investment-friendly SGP and a growth-focused ECB.

## 3. Simulating convergence with the INGENUE model

### 3.1. *Structure of the INGENUE model*

INGENUE model is a multi-region, world model, in the spirit of those developed by Obstfeld and Rogoff [1996, chap. 3], in which the structure of each regional economy is in the line of other applied, OGGE models, such as Auerbach and Kotlikoff [1987]. It has been extensively used to write Chapter III (*The Consequences of demographic changes on the world economy*) of the IMF *World Economic Outlook*, September 2004.

In the second version of the INGENUE model the World is divided in 10 regions according to geographical criteria: Western Europe ('Denmark', 'Finland', 'Iceland', 'Ireland', 'Norway', 'Sweden', 'United Kingdom', 'Greece', 'Italy', 'Malta', 'Portugal', 'Spain', 'Austria', 'Belgium', 'France', 'Germany' (East + West), 'Luxembourg', 'Netherlands', 'Switzerland'), Eastern Europe ('Estonia', 'Latvia', Lithuania', 'Bulgaria', 'Czech Republic', 'Hungary', 'Poland' 'Romania', 'Slovakia', 'Slovenia'), Japan, North America, South America, Chinese World, Indian World, Russian World, Mediterranean World and Sub-Saharan Africa.

The period of the model is set to five years. In each region, the economy is populated by 21 overlapping generations of one-sex agents who may no live longer than 105 years. Population evolutions are exogenously calculated according to a standard population projection method on the basis of historical and prospective UN data<sup>2</sup>. Each economic region is made up of three sectors: the households, the firms and the public sector.

#### *Households*

Individuals are assumed to become adults when they turn 20. During any period, the household sector is then made of 17 overlapping cohorts of “adults”, of age between 20 and 105, and 4 cohorts of “young”. Adults may not stay in the labor force after a legal maximal mandatory retirement age. Economic decisions are their consumption, saving and bequest decisions, made with perfect foresight at the beginning of their adult life. Voluntary bequests are distributed to children according to the fertility calendar of their deceased parents. In our international context, households can choose the region they want for invest their wealth.

Between 15 and 50 yrs. adults are supposed to give birth to children, according to the fertility calendar. Children are dependent until they turn 20, they consume with a cost per child that is supposed to be proportional to the parents consumption. Labor supply is assumed to be

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<sup>2</sup> We can then perform our own population projections according to different mortality and fertility scenarios.

exogenously given as the age-specific rate of participation to labor market. People may work since the age of 10 so we take into account children labor income to the budget constraint of their parents.

### *The public sector*

The public sector is reduced to a social security department; it is a pay-as-you-go (PAYG) public pension scheme that is supposed to exist in all regions of the world. It is financed by a payroll tax on all labor incomes and pays pensions to retired households. The regional PAYG systems operate according to a defined-benefit rule: pensions paid to individual retired are a fraction - or replacement rate - of the current average (net of tax) wage. We assume a time-to-time balanced-budget rule.

### *Production side*

The production side is composed of two sectors: an intermediate good sector and a final one. Each zone specializes in the production of a single, imperfectly substitutable, intermediate good with a constant return to scale technology using capital stock and the domestic labor force.

In the spirit of Backus et Al. [1995], we assume that the domestic, composite final good of a region (consumption and investment) is produced thanks to a combination of two intermediate goods: a “domestic” intermediate good and an “imported” intermediate goods<sup>3</sup>.

In each productive sector, and in each region, the level of Total Factor Productivity (TFP) is exogenous and grows at a constant rate. This rate is the result of a given, exogenous growth of 2% per annum in America, supposed to be the technological leader, and a region-sector-specific, exogenous, catching-up factor, reflecting international diffusion of technological progress<sup>4</sup>. This formulation of the productive sector will imply the existence of real effective exchange rates between the different regions. Here the main determinants of exchange rates are the relative productivity in the two productive sector as in the standard view developed since Obstfeld and Rogoff works (i.e. the famous *Balassa-Samuelson effect* that is predominant in long run explanations of difference in real exchange rates).

## **3.2. UE growth scenarios and enlargement**

Among many other uses, INGENUE allows studying the impact of the enlargement of European Union. Indeed, the Western Europe zone corresponds to the former Union, and the Eastern Europe zone corresponds to the countries which have just (or are going to) integrated the Union. Thus, the enlargement consists in aggregating the two European zones into one, which implies in particular the production of an identical intermediate European good and an identical final European good (then with same prices) and the creation of a single European labour market with a unique wage. On the other hand, that does not mean unification of the productive system. The TFP of the former Eastern Europe zone continues to converge towards that of Western Europe. By using the former analysis, we can work out scenarios of technological convergence specific to European enlargement (that can incorporate evolution of Information and Communication Technology). With these studies, we will be also able to set up relevant scenarios of institutional convergence (through the characteristics of the retirement system) specific to enlargement. We will then be able to evaluate the impact of the enlargement through the growth of European Union, but also through its specific interest rate, its average consumption, by age, its ownership ratio (assets/capital stock), its current account, its term of trade and its real exchange rate. Japan being a zone in INGENUE, the impact of European

<sup>3</sup> This “imported” intermediate good is an aggregate of all the intermediate goods.

<sup>4</sup> For the Eastern Europe, the leader zone is Western Europe.

Union enlargement on the Japanese growth (and on the other indicators) could be also evaluated.

#### **4. Macroeconomic Governance of the EU**

The Research department of OFCE is a member of the European network of excellence CONNEX (Connecting Excellence on European Governance) and thus participates in the work program of this Network, with special emphasis on “Efficient and democratic governance in a multi-level Europe”.

The Department has co-organized a first workshop in Paris last May; the general topic was: “delegation and multi-level governance”. This workshop has fostered the reflections of those participating in the network, as well as beyond, on the transformations of the European political and economic space.

The objective for this workshop was to study the question of the delegation of power from the point of view of different social sciences: a political viewpoint and an economic viewpoint.

The workshop has highlighted the *ex ante* mechanisms that culminate in the creation of institutions and independent agencies, and it has highlighted the consequences of the choices that have been made, in terms of both political and economic efficiency.

The workshop has also addressed the reasons that can be given to delegate powers to autonomous institutions (central banks or independent agencies). Discussions on the tension between delegation of power and democracy have been important and have raised the following questions: Is the delegation of an economic policy instrument to an independent institution compatible with democracy? And what are the conditions that promote this compatibility: monitoring, transparency, accountability, etc.?

While the discussion has covered other case studies, special attention has been given to the multilevel framework of European governance: Hence, does the existence of different levels of governance in the EU (at the regional, national, and European level) entail further incentives to delegate? Does it create additional accountability problems?

The papers presented during the workshop should be published in a special issue of a Journal, and they are already available on the CONNEX website.

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