Introduction

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The European Union is the world's largest economic entity, yet its ability to design and implement effective economic policies is not commensurate with its size. It is lagging, for example, in terms of effective policies promoting productivity, growth, scientific research or technological innovation. The Eurozone debt crisis has provided a sharp and painful reminder that the European Union must adopt a new approach to designing its economic policies and coordinating them with the policies of its Member States.

At the same time, while the field of economics in Europe has seen impressive growth in terms of global impact, and in the number of researchers and funding, Europe still lags behind the US in terms of research productivity, and European research remains fragmented across its Member States. According to recent research, the share of articles in the top economics journals published by European researchers represents 34 per cent of the total production of articles in the world, while the US amounts to 53.5 per cent.[1] The contrast is even sharper when the citation impact of these publications is taken into account. In terms of share of citations, the US represents 70.8 per cent while the EU share is 28.4 per cent, which illustrates the considerably higher impact of US research in economics.

Developing a competitive and open European research area is essential for growth and to the progress of European integration, because research is a key factor of growth, and competition among researchers provide them with incentives for cooperating across borders. However, different languages, a diversity of academic traditions and a variety of informal barriers often inhibit the free flow of research funding, the mobility of academic talent and, as a result, the efficient allocation of research and development funding. In times of financial restraint the latter becomes particularly important. In this context, research grants, especially if they are allocated across national borders (e.g., by the European Research Council, ERC), can provide valuable tools to circumvent limits to integration and consequently to enhance the exchange of ideas. In fact, the relationship between openness and successful research funding is reciprocal and internationalization can benefit national and regional funding, by, for example, permitting the inflow of foreign resources. On the other hand, if not

designed correctly, research funding can exacerbate existing fragmentation, for example by conditioning grants on nationalities and/or local use or by failing to retain and attract the most able researchers.

The COEURE Project

The COEURE (Cooperation for European Research in Economics) network brings together the key stakeholders in the European economic research space – scientists from the different strands of economic research in Europe, users of research in the policy community and the private sector, statistical offices and other data providers and funders of research. It has been financed by the European Commission within the Seventh Framework Programme. COEURE is based on a process of stocktaking, consultation and stakeholder collaboration that aims at the formulation of an 'Agenda for Research Funding for Economics in Europe'.[2]

This involves taking stock of the current state of research in key fields in economics. The fields cover the entire spectrum of economics, while addressing the most relevant thematic issues identified in Europe. The stock taking exercise is centred on a survey of each by distinguished scholars. Each survey has mapped out the policy issues with which Europe is currently dealing, the research frontier in the given field and the activities of European researchers working at the frontier. It identifies the key open research questions and suggests ways in which research on these issues should evolve over the medium term, notably to better address the policy challenges that Europe is currently facing and likely to be presented in the future.

The COEURE network originates from an initiative of the European Economic Association (EEA). Fondation Jean-Jacques Laffont – Toulouse School of Economics – is leading the network assembling a group of academic institutions, with the support of the EEA. The partner institutions are: Bocconi University, Université Libre de Bruxelles, Dortmund University, the European University Institute, Central European University, the Norwegian School of Economics and the Centre for Economic Policy Research.

Advances in Economic Research: Foundations for European Policies

Five clusters of European economic policy challenges have been identified as being of paramount importance:

1. Economics of research, education and innovation in a European and global context, including economics of smart specialization (Europe 2020, European Research Agenda).

2. Knowledge-based growth and employment; prioritization of policies in Europe, in particular, the need for short-term consolidation, long-term growth policies like fiscal consolidation and smart / sustainable growth (i.e., addressing poverty, gender, employment and environmental issues).
3. The link between monetary and fiscal policy in Europe and between fiscal and private debts; efficient use of unconventional monetary policies; insolvency problems and the management of rescue funds (addressing asset inflation, housing prices and market bubbles).
4. Cross-border spillovers, interdependencies and coordination of European policies across borders (addressing the questions of externalities, economies of scale, etc.).
5. Institutional and structural reforms in the Member States and associated countries concerning issues like ageing, health systems, energy and resources efficiency, transport or environment in the context of Europe 2020 and their budgetary and macroeconomic consequences.

In light of these challenges, twelve specific topics have been selected to address the current state of research and its relationship with policy:

1. R&D, innovation and growth;
2. Labour markets;
3. Population, migration, ageing and health;
4. Human capital and education;
5. Competition and regulation in markets for goods and services;
6. Trade, globalization and development;
7. Energy, environment and sustainability;
8. Cities, regional development and transport;
9. Fiscal and monetary policy;
10. Financial markets;
11. Inequality and welfare; and
12. Data and methods, a topic which cuts across most areas and policy issues, and covers current developments in data and research methods in economics.

For each of these topics, a survey was solicited and a workshop organized that brought together key researchers in the field, as well as leading European policy-makers. The workshops served as forums to discuss recent advances in our understanding of policy issues, open questions, developments in methods and challenges facing research in a given area.

The main objective of the surveys has been to identify the key research challenges pertaining to one broad area of policy and demonstrate how economic research contributes (or not) to the policy issues related to that area. Its originality lies in synthesizing insights from different fields of economics, rather than summarizing the results from the literature in a single field, as is often the case with surveys in the academic literature.

The surveys have been designed to address the following questions:

1. Why is the topic important, both in general and in the European economic policy context?
2. How can economics contribute to our understanding and analysis of this political and societal topic?
3. What are the key questions (both novel and long-standing) in the area? What do we know and not know about them? Do we need to better understand the facts or develop better theories?
4. What are the key points of agreement and disagreement in the academic literature on the subject? Where is the research frontier?
5. What are the key open questions, that is to say, new questions or old questions that have not been addressed in economic research but are of vital importance for policy-making in Europe?
6. Where does Europe stand in terms of research and expertise in this area compared to other contributors to research, in particular the US?
7. What is the role of scientific advice in EU policy decision-making (see, for example, the European Commission's 2001 White Paper on European governance)? How does it compare to US economic policy-making governance?
8. What is the research methodology currently used to address questions in this area?
9. What specific challenges do Europe-based researchers working in this area face (including data access, its availability or quality, methods, funding and any other relevant issue)?

This volume is the outcome of this process. As we will see, European researchers address most key European economic policy issues and challenges. The policy recommendations are plentiful, although not always politically correct or easily acceptable. Economic research is firmly grounded on facts, although data, while more and more developed, are not always accessible or available. The theoretical challenges and methodological difficulties that current research is facing begs for inter-European cooperation and cooperation with other fields and disciplines, while given its actual state or art, its own logic and approach should and can be preserved.

About the Chapters

The *first chapter* of the volume deals with innovation and growth, which have been central to European policy-making since at least the Lisbon Agenda. The chapter argues that the Schumpeterian paradigm provides a unifying framework to organize existing empirical evidence and think about R&D, innovation and growth policies. The authors show how the Schumpeterian framework sheds new light on ongoing policy debates such as the role of competition

for innovation or the consequence of innovation on inequality, and they discuss the policy implications of recent advances in our understanding of these phenomena.

The Schumpeterian growth paradigm relies on three fundamental ideas. First, innovation (rather than simply the growth of capital or labour as in the classic growth models) drives long-term growth. These can be process innovations, which increase the productivity of existing assets or labour, product innovations or organizational innovations. Second, innovations result from investments by firms and entrepreneurs. This raises the question of the incentives for innovation, including the ability of firms and entrepreneurs to reap the benefits of their innovations. Third, new innovations tend to make old innovations, old technologies or old skills obsolete (creative destruction). Thus growth intrinsically involves a conflict between 'the old' and 'the new': the innovators of yesterday will tend to resist new innovations that render their activities obsolete. Creative destruction also explains why, in the data, higher productivity growth is associated with higher rates of firm and labour turnover.

Because firms and entrepreneurs are at its core, the Schumpeterian paradigm provides a natural link between micro phenomena, such as firm entry and exit, firm heterogeneity, firm organization, or job turnover, and macro phenomena, such as growth and inequality. In fact, the authors show how the Schumpeterian framework is able to explain a number of existing stylized facts about firm and job turnover, the size distribution of firms and the correlation between firm size and firm age, to name a few. They also show how the framework has been used to develop new predictions that have then been tested, using new micro datasets. The scope of applications is very large and this is an active field of research. For example, recent research has shown how the level of competition differentially impacts the incentives for innovation of firms that are close to the technology frontier of the economy and those that are furthest away. Other research has looked at the impact of market protection on innovation as a function of a country's distance to the world technology frontier.

A central message of the chapter is that institutions and policies that foster growth depend on where a country lies with respect to the world technology frontier. There is no one-size-fits-all. In advanced economies, competitive product markets, flexible labour markets, quality graduate education and developed equity-based financial markets form the four pillars of innovation-led growth: competition in product markets encourages innovation by firms seeking to escape the low margins of neck-to-neck competition; flexible labour markets ease the process of creative destruction; quality graduate education produces the research skills necessary for innovation; and equity-based financing is more receptive to the risk intrinsic to innovation. The chapter revisits the rationale and design of competition policy, the welfare state, macroeconomic policy and R&D policy in this light. It ends with a call for a new Growth Pact in

Europe, one that relies on structural reforms aimed at liberalizing product and labour markets, a renewed industrial policy and more flexible macroeconomic policies.

Chapter 2 focuses on the prevalence of 'dual labour markets' in the European Union. In the 1960s unemployment in Europe was no higher than in the US, but by the end of the twentieth century the 'European unemployment problem' was the code name for a widespread problem of inefficient allocation of human resources in Europe and in Continental Europe in particular. At the beginning of the twenty-first century the problem seemed to recede, with some countries undertaking critical labour reforms (e.g., Germany) and some of the 'high unemployment' countries showing very high rates of net job creation (e.g., Spain). Although still lower than in the US, European employment rates were not only higher on average but also less dispersed than in the recent past. However, with the financial and euro crises the problem took on a different dimension, that of a divided Europe (and Euro Area), with some countries exhibiting once again very high unemployment rates (mostly Southern EU), as a reflection of their deeply entrenched structural problems.

Chapter 2 provides an overview of the research – most of it by European labour economists – that focuses on this new version of the 'European unemployment problem'. The theoretical and empirical research provides a consensus view on who the culprit is: the 'duality' induced in labour markets by the existence of labour contracts with large differences in their implied employment protection legislation. In particular, this chapter describes the highly asymmetric employment protection that distinguishes permanent from temporary contracts, tracing their historical origins and institutional arrangements. In line with the most advanced literature, the chapter takes a general equilibrium perspective. The historical perspective explains why different European countries have followed different paths and why 'changing paths' has proven difficult. The theoretical, general equilibrium perspective reveals the side effects of such 'dualism' and why it cannot simply be identified with the coexistence of temporary and permanent contracts, which are used in all countries.

After World War I and up to the mid 1970s, many European countries experienced a significant increase in employment protection legislation. Spain, Italy, France and Portugal regulated their labour markets by imposing severance payments and restrictions on dismissals, among other measures. These laws made it costly for firms to adjust in response to a changing environment and once the oil crises hit in the 1970s, the need for higher flexibility became a more pressing priority on political agendas.

Nevertheless, dismantling the benefits that workers were entitled to was not politically feasible due to the large political influence of highly protected workers. Thus reforms were made at the margin, affecting new employees only. Specifically, the emergence of temporary contracts with a lower regulatory

burden was the policy response to the quest for flexibility in labour markets. These reforms thus created a dual labour market by allowing for two types of contracts: temporary and permanent (open-ended). The former was designed to facilitate turnover and fast adjustments, while the latter represented the remains of stringent policies targeted at guaranteeing job and income stability.

The chapter describes how economic research – in particular, 'insider-outsider' theories – has helped to explain why dual labour markets have been a longstanding feature of many European economies. Insider-outsider models have set the framework for the analysis of the tensions between workers with permanent contracts (insiders) and the rest of the labour force (outsiders) when it comes to deciding on a reform. Beyond rationalizing the observed pattern in the creation of a dual labour market and its political sustainability, these models have extended our understanding of the interplay between the political decision-making process and real business-cycle (RBC) effects – e.g., why employment is so volatile in economies with 'dual markets' and how these RBC effects reinforce the lack of effective political support for labour market reforms.

Nevertheless, as the chapter emphasizes, the coexistence of temporary and permanent contracts is a desirable feature, as firms might have temporary or seasonal needs. Furthermore, a temporary contractual relationship can help workers gain experience or acquire human capital. In fact, in countries like Austria, Denmark or Sweden, temporary jobs are the first step into the labour market and are followed by a permanent contract. On the other hand, in southern European countries, temporary jobs have become 'dead-end' jobs. Workers tend to experience a sequence of fixed-term contracts and the dream of a transition to a permanent contract rarely comes true. The chapter documents this difference and reviews relevant research, showing that market dualism is due to the existence of large gaps in redundancy costs among permanent and temporary workers, combined with wage rigidity.

The general equilibrium formulations have helped to explain the pervasive effects of 'labour market duality' beyond its direct effects on the level and volatility of employment: First, its composition effect, in particular the high levels of youth unemployment and NEET ('not in education, employment or training'), second, the lower human capital accumulation, and third, how these labour supply effects have also shaped firms' demand for low-productivity jobs, low levels of innovation and, in particular, investment in sectors of low growth potential (e.g., construction) in times of low interest rates.

The chapter closes with a review and evaluation of the reforms that have been undertaken, or proposed, in different countries to overcome 'the duality disease', demonstrating how both empirical and theoretical research reveal the need for overall reforms of labour market regulations. In particular, the chapter discusses the possibility of a single/unified contract, both from a theoretical

and a practical perspective. Finally, the survey identifies three main directions in which economic research can enrich the policy debate: (i) empirical work on the differential incentives and responses induced by the two types of contracts; (ii) analysis of the political feasibility of reforms within the current scheme and (iii) the role of labour market dualism in technology adoption by firms.

Chapter 3 deals with the problems of population, migration, ageing and health. World migration, and in particular net migration in the European Union, has been an extremely hot topic in the last few years, debated in the media as much as in the political arenas of each EU Member State and in the European Commission. A large part of the debate has, however, focused on how to deal with the current emergency inflow of undocumented migrants that are fleeing from war zones and natural disasters.

Not much is known and discussed about medium and long-run causes and effects of migration. For instance, one of the recognized structural motivations of migration is the contrast between the ageing population in most destination countries and the young, more fertile population of the countries of origin. Migrants are typically younger than the host country population when they arrive, and, as a result they contribute to rejuvenating the host country's labour supply in the short run. However, migrants age as well as natives, and it has also been shown that their fertility behaviour, and that of their descendants, tends to adapt in time to the pattern of behaviour of the host country. Is then migration a long-term solution to the ageing population problem of most Western European countries? Similarly, what are the long-run economic benefits and costs of migrant workers in the destination countries? Do the tax revenues and benefits to the economic activity due to changes in the composition of the working population exceed the welfare costs over the entire lifecycle of a cohort of immigrants? What determines exactly these benefits and costs? Which migration policies are more effective in fostering welfare enhancing migration patterns?

Looking instead at the countries of origin, can the 'brain drain' phenomenon be a problem? Is their growth potential impaired by the out-migration they experience? The chapter addresses these questions from an economics standpoint, with the explicit aim of suggesting clear migration policies and indications for future research.

The main message put forward by the authors is the need for a dynamic approach to simultaneously describe migration plans, human capital acquisition and labour supply, that evolve in time and that both affect and are affected by the social, economic and demographic structure of the host countries. The key issue, in this context, is the analysis of the choice between temporary and permanent migration. Data shows that the percentage of temporary migrants is much higher in Europe than in Anglo-America, Australia and New Zealand. Why is that? What are the determinants of return migration to the countries of origin? The literature is as yet only able to provide partial answers. It is,

however, quite clear that the demographic, social and economic impacts of immigration vary depending on how long migrants stay in the destination countries.

As for the fiscal effects of migration, there is consensus on the finding that host countries experience a net gain from highly skilled, young, possibly temporary, workers; but effects are less clear-cut in the presence of low-skilled workers. In particular, the evidence collected in Norway by Bernt Bratsberg clearly outlines the tendency of low-skilled migrants to exit the labour force early and become social security dependents. In addition, migrant workers are more likely to suffer from macroeconomic downturns than natives. Nevertheless, there exists significant heterogeneity across destination countries and migrants' behaviour responds to incentives provided by the local welfare state, as well as to the local implementation of migration policies. Expanding on the latter issue, the effect of any migration policy depends strongly on the institutional setting: the evidence on the relative efficacy of immigrant driven versus employer driven policies in attracting the 'best' migrants is ambiguous. In both cases what makes the difference is the credibility of the State and the efficiency of local labour markets.

To conclude, the authors also emphasize the lack of data for certain types of studies. Analysis on the long-run causes and effects of migration require as yet unavailable long panels of information on migrants and their descendants. Even more relevant is the need to standardize and guarantee access to data across EU member states and to link EU Member States' Immigration Registries.

Moving to the next chapter, it is well understood that the process of globalization has reinforced the basic tenet of human capital theory, namely that the economic well-being of a society is determined not only by its stocks of financial capital, labour and natural resources but also – and ever increasingly so – the knowledge and skills of its individual members. Accordingly, already the 2000 Lisbon Agenda of the European Union set out the aim to turn Europe into the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion.

Indeed, research results in the economics of education show that education has a considerable impact on economic growth. Simple qualitative measures for education such as indicators based on cognitive achievement of students turn out to be extremely good predictors for the long-run economic growth of nations. Plainly, enhancing the EU's average student performance using a test like PISA would yield substantial returns in the form of EU Member States' long-term economic growth.

From this economic perspective it appears that education systems 'produce' the human capital embodied in the workforce of a society. They are hence prime subjects for economic investigation. At the same time, educational attainment is

an important determinant of equity and social cohesion in a society. This makes the search for educational policies and forms of political governance that influence the formation of human capital in a most favourable way, a particularly important one.

Chapter 4 surveys and organizes a huge body of mainly empirical work that addresses the question of how education policies can advance student attainment. To understand which policies work, education economists employ advanced micro-econometric methods to perform carefully designed quasi-experimental evaluations. The main emphasis is on the identification of *causal effects* from the data; these methods and set-ups may require new types of datasets which are not yet uniformly available across Europe. Consequently, the survey also draws heavily on studies and evaluations of the US educational system.

The chapter is organized around the economic paradigm of a more or less competitive 'market for education'. More precisely, this market takes the special form of a matching or assignment market as students and pupils on the demand side have to be 'matched' with schools and other institutions of the educational system on the supply side. How can such matching be accomplished as efficiently as possible if efficiency is measured by educational attainment? And what assignment methods are beneficial to what groups? The answers to these questions can be very surprising, if one also takes into account the reactions of the actors in this market, parents, pupils, schools, teachers etc. to the assignment mechanism chosen by society. The identification and assessment of such incentive effects is a hallmark of economic inquiry. The chapter performs this task for the most common assignment mechanisms: neighbourhood schooling (each pupil goes to the local school), tracking or elite schooling (schools are allocated on the basis of a test score), choice-based schooling (parental choice of school subject to a rationing mechanism) and income-based schooling (admission to private schools).

Another central concern is how the political governance of education systems affects educational success and equity. What makes an effective education system with good schools given an assignment mechanism? School accountability, i.e., the provision of rewards or sanctions for 'good' and 'bad' schools, is the key issue here, which – economically speaking – determines the degree of competition between schools. It can only be effective, if schools also have some autonomy and hence decision-making in the governance structure becomes decentralized. As a consequence, individual school leadership and management become more important. Indeed, the evidence shows that all three components – accountability, autonomy and management, each of which can take many forms – exert an influence on school and pupil achievements.

Knowledge of the patterns of *causal* dependencies between student attainment and these market *design* features of an educational system should be