Introduction

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The main objective of policy-makers should be the creation of conditions for sustainable economic growth and the well-being of the population. This requires both awareness about the underlying economic conditions and, most of all, a clear perspective about developments that will shape the social and economic landscape in the coming decades. This is inherently a difficult exercise and subject to high risk. The identification of past developments and underlying structural features is a valuable starting point to forecast future developments. Nevertheless, even if future challenges are correctly assessed, the identification of the correct policies is far from obvious. Amidst all these difficulties, the costs of inaction are potentially very high and decisions targeted at promoting the underlying economic growth conditions of the economy are warranted.

This book aims to contribute to the debate about Portuguese economic growth, leveraging on a large set of past and ongoing analytical work, mostly carried out at Banco de Portugal. This project also benefited from multiple other contributions, notably from economists affiliated to national and international economic policy institutions and to universities. Therefore, the book is a collective effort that identifies several structural features of the Portuguese economy and, whenever possible, points towards challenges to be addressed. Conversely, in some areas, progress is underlined. Nevertheless, it is important to remark that there are numerous dimensions of the Portuguese economic growth that are not covered in the book. Additionally, alternative methodologies and databases could be used, potentially disputing existing conclusions. Overall, this discussion is just one small step in the long journey towards increasing Portuguese productivity and bringing GDP per capita to levels close to those of the best performing countries in Europe.

All sections are written in a relatively simple and concise way, most of them referring to existing studies where a deeper analysis can be found. The short length of the sections and their simplified content aims at facilitating access to a non-specialized audience. The content of the book is subject to the usual disclaimers. Therefore, the opinions expressed in the different sections are those of the authors and do not

necessarily coincide with those of Banco de Portugal, the Eurosystem or other institutions where they are affiliated. In addition, any errors and omissions are the sole responsibility of the authors. Finally, some acknowledgments are warranted. Firstly, I am grateful to Nuno Alves, Maximiano Pinheiro and Pedro Duarte Neves for their support and for very useful comments and suggestions to large parts of the book. Secondly, acknowledgments are due to colleagues that worked on the design and computer editing dimensions, notably to Fernando Graça, Marta Figueiredo and Luís Campos.

1. Organization of the book

The book takes a supply side approach, discussing aspects of Portuguese economic growth from the perspective of the production function. This implies focusing on the quantity and quality of inputs, the functioning of markets and the broad institutional setup. The book is organized along eight chapters, each one containing a small number of short sections. Each section formulates a research question relevant for understanding structural features, blockages and reforms with an impact on Portuguese economic growth.

After this introduction, the 1st chapter of the book offers an analysis of the Portuguese potential output growth using estimated models and growth accounting methodologies. The role of capital, labour and technology is highlighted, while also including some aspects on demography and human capital. The questions specifically related to human capital, such as the impact of education on wages and mismatches between worker's qualifications and job requirements, are included in the 2nd chapter. Next, the 3rd chapter of the book discusses some features of the Portuguese labour market, notably the sources of real wage variation, nominal wage rigidities and recent reforms. The 4th chapter of the book addresses questions related to the management and organization of Portuguese firms. These aspects have been increasingly acknowledged in the literature as important drivers of firms' performance and overall productivity. In particular, the profile of Portuguese managers, their experience in foreign markets as a driver of exports and the role of newcomers in the face of crises are discussed.

Alongside with labour, capital is a key ingredient in the productive process. Therefore, investment decisions and its financing are important topics, also in connection with shocks on the banking system. The 5th chapter of the book collects contributions that study the presence of borrowing constraints on Portuguese firms, the impact of bank shocks on investment decisions and the allocation of credit according to the productivity of firms. Discussions about the quality and quantity of inputs, as well as those on the functioning of the labour market, must be complemented by an assessment of firms' dynamics and the implicit reallocation of resources in the economy, which is shaped by existing distortions and by the action of competition forces. This latter set of dimensions constitutes the bulk of the 6th chapter of the book.

Internationalization is not an element of the production function *per se* but it emerges as a key decision by firms, which may strongly determine their performance and thus impact on economic growth. In this setup, aspects related to the participation of Portuguese firms in international trade of goods and services, their resilience in the face of crises, as well as the specificities of those in the tourism sector are addressed in the 7th chapter. Finally, regulatory costs, which are also acknowledged as drivers of productivity, are discussed in the 8th chapter, with a special emphasis on the judicial system.

2. Main insights

In the next decades, one important driving force shaping many world economies is the ageing of the population. This trend is already visible in Portugal. Demographic trends are long-term and extremely powerful forces, with pervasive effects on economic growth. From a supply side perspective, the main consequence of ageing is a lower labour supply, thus affecting potential output growth downwards. A second major force with an impact on the economies in the next decades is the automation of production in combination with an increasing remote supply of services by foreign workers. These developments will put pressure on large segments of the labour market, will change the types of skills needed and will challenge firms' current business models. Another major development going forward is the shift in the balance of global economic power from western economies towards developing nations in different continents. This development will have an impact on trade patterns and investment flows, and is likely to increase volatility, with a bearing on firms' ability to adjust to shocks. Overall, worldwide competition is likely to increase, thus flexibility of the economies will become an even more valuable asset.

The discussion about economic growth in the Portuguese economy must take place against this background of challenges and consider how existing structural features and barriers interplay with future outcomes. The current situation of the Portuguese economy in terms of potential output growth is not very positive. Section

1.1, by *Cláudia Duarte, José Ramos Maria and Sharmin Sazedj*, presents model-based potential output estimates for Portugal, decomposing observed developments into trends and cycles by mixing dynamic price and wage equations with a version of the Okun's law and a production function featuring capital, labour and total factor productivity (TFP). It concludes that potential output has been decelerating when compared with the dynamism of the late 1980s and confirms that the European financial and sovereign debt crisis had long-lasting effects, with Portuguese potential output diverging from the euro area. The assessment of a disappointing performance of TFP growth is confirmed in Section 1.2, by *João Amador, Carlos Coimbra and António Ribeiro dos Santos*, which offers a growth accounting exercise based on a stochastic international production frontier estimated with Bayesian methods. This methodology signals the existence of sizable efficiency gaps, measured as the distance of the Portuguese economy relative to the technological frontier, given the existing capital-labour ratios. Overall, this section confirms the long standing narrative that structural problems prevail in the Portuguese economy, combining sizable efficiency gaps with relatively low capital-labour ratios.

The ageing of the population has a bearing on Portuguese potential output developments. Section 1.3, by *Joana Garcia, Hugo Reis and João Amador*, presents an enlarged growth accounting exercise and concludes that pure demographic developments, measured by the ratio of population aged 15-64 to total population, will have a very sharp negative contribution to GDP per capita growth up to 2050. In cumulative terms, this negative contribution is sizable, amounting to close to 20 percentage points in 2050. Nevertheless, the contribution from increasing levels of human capital is expected to partially offset the pure demographic effect, with a cumulative contribution amounting to close to 10 percentage points in 2050. Therefore, the adverse impact of demographic developments on Portuguese growth will coexist with a favourable impact from a more skilled labour force.

The skills of the labour force have been a key ingredient for economic growth across the world in the last decades but their role augments when it comes to dealing with the challenges posed by automation and the broader scope of services being traded in international markets. The potential destruction of jobs should be matched with higher flexibility to take up different occupations, which may require new skills and training. Nevertheless, achieving a flexible economy extends beyond workers and labour markets, reaching dimensions like management practices and investment decisions.

It is widely acknowledged that the Portuguese economy has been penalized by a legacy of low qualifications of the labour force. However, progress has been very significant and it is important that it continues. Section 2.1, by *Maria Manuel Campos and Hugo Reis*, estimates an empirical relationship between education and earnings and concludes that the returns to schooling in Portugal may have recently been shrinking, given the remarkable increase in the average educational attainment of the labour force. Nevertheless, higher educational levels are still generally associated with higher wages and the differential between wages of individuals holding university degrees and those with only secondary education is large and widens across the life-cycle. This assessment is compatible with the conclusions of Section 2.2, by *Manuel Coutinho Pereira and Catarina Pimenta*, which combines employees' occupations and educational attainment to evaluate educational mismatches. It concludes that there has been a consistent reduction in undereducation, in line with the replacement of generations in the labour market, and the growing number of highly educated workers participating in the labour market, particularly college graduates, has given rise to overeducation only to a limited extent.

The discussion about the challenges posed by automation links with the role of technical versus general skills. The potential gains of the vocational system in youth, associated to an easier transition from school to work, may be offset by less adaptability in later stages of the working life. Section 2.3, by *Joop Hartog, Pedro Raposo and Hugo Reis*, compares the wage trajectories over the life course of individuals associated with high school vocational track, high school general track, higher education and less than secondary education in Portugal, also comparing these groups in terms of risk measures, such as the coefficient of variation of wages and unemployment rate. As expected, in terms of wages and risk, high school vocational workers are always worse off than those with higher education and better off than those that do not complete the secondary education. When comparing with the high school general track, there is evidence supporting the short-term advantage of the high school vocational education and its disadvantage in the longer-term. Nevertheless, education gains do not just accrue to the individual but also to others in society. Such externalities tend to have a geographical dimension, which is associated to agglomeration effects that may be intensified due to the ongoing technological changes. Section 2.4, by *Pedro Freitas*, takes up this topic, using an instrumental variables approach to conclude that the concentration of skills has a positive impact on wages. In particular, the municipal concentration of high school graduated workers increases the wages of workers with high school and college graduation.

The effects of the transformations expected for the next decades do not just depend on the qualifications of the labour force. They also strongly relate with the functioning of the labour market in a broader sense, including legislation and wage dynamics. Section 3.1, by *Sónia Félix and Pedro Portugal*, accounts for the sources of real wage variation in Portugal, specifically measuring the effect of job and worker restructuring on aggregate real wage changes and, indirectly, on firms' productivity. It concludes that wage growth associated with the transition of workers between firms and that of those that stay in the same firms give the highest contributions to real wage growth, while entry and exit of firms seems to play a cleansing role. In this context, the rigidity of nominal wages has been pointed out as a significant distortion in the functioning of the Portuguese labour market. Section 3.2, by *Fernando Martins and Pedro Portugal*, refers to the role of downward nominal wage rigidities on job destruction, with an impact on economic growth. In particular, during the latest Portuguese crisis it is possible to identify a clear positive relationship between the proportion of nominal wage freezes and unemployment rates. In a different vein, Section 3.3, by *Fernando Martins*, focuses on recent labour market reforms and concludes that, despite considerable progress, Portugal remains the OECD country with the most stringent regulations for individual dismissals of workers on open-ended contracts. While reforms have narrowed the regulatory gap between open-ended and fixed-term contracts, the duality remains important and segmentation is likely to continue a distinctive feature of the Portuguese labour market.

The ability of the economy to meet the challenges arising in the horizon is strongly dependent on managerial skills and firms' organization. For example, a higher volatility in the world economy will increase the value of managers that can properly deal with crisis events. In this respect, Section 4.1, by *Sharmin Sazedj*, uses a difference-in-differences approach and argues that newcomer CEOs present a significant advantage in managing firms during difficult times, regardless of their relative knowledge deficit about the firm. In addition, it refers that the high share of owner CEOs and their average high tenure signal that Portuguese firms may find it difficult to adapt to changing markets. Section 4.2, by *Giordano Mion, Luca David Opromolla and Alessandro Sforza*, complements this view by showing that firms where there is a manager with export experience are more likely to start (or continue) exporting, and are more likely to present higher levels of exports. The presence of a manager with export experience turns out to be as important as the productivity of the firm. Managers are also important regarding the adjustment of firms' organizational structure. Section 4.3, by *Lorenzo Caliendo, Giordano Mion, Luca David Opromolla and Esteban Rossi-Hansberg*, finds that reorganization is an important source of aggregate productivity gains in the economy, arguing that firms that fail to reorganize in order to grow — possibly due to institutional impediments or management inadequacy — are unable to exploit available productivity improvements.

Portuguese firms face a legacy of difficulties regarding financing and investment, also in connection with prevailing relatively low capital-labour ratios and the large dependence of bank financing. This poses additional challenges regarding the adjustment to future economic transformations. Section 5.1, by *Sudipto Karmakar*, refers that firms with significantly higher amounts of leverage and short-term debt found it difficult to refinance in the peak of the crisis and hence reported poor growth performance. This is especially important because, as pointed out in Section 5.2, by *Luísa Farinha and Sónia Félix*, bank loans are a significant source of funding for Portuguese small and medium sized firms and those that are credit constrained are significantly less likely to invest and survive than their counterparts. In the same vein, Section 5.3, by *João Amador and Arne Nagengast*, isolates bank credit supply and firms' demand shocks, concluding that the former have a strong and robust negative effect on firm-level investment. In addition, small firms are found to be much more vulnerable to the adverse impact of bank shocks on investment. Moreover, the banking system in Portugal – as in most other countries – is very concentrated such that idiosyncratic shocks to large institutions do not average out in the aggregate, thus having a considerable effect on total lending and hence on investment. The impact of credit to firms on economic growth also depends on its allocation. Despite a shift in new loans from higher to lower risk firms in the latest years, Section 5.4, by *Nuno Azevedo, Márcio Mateus and Álvaro Pina*, shows that a large share of outstanding credit granted by resident banks goes to firms with very low productivity. This hampers credit reallocation towards firms with higher productivity, which may make it harder for them to invest and upscale.

The pervasiveness of under performing firms that do not exit the market is a challenge in times of structural transformation. These problems partly relate to the lack of competition in the markets but also to administrative burdens. Section 6.1, by *Ricardo Pinheiro Alves and Carlos Figueira*, jointly estimates price-cost-margins and workers bargaining power for a detailed set of markets, concluding that Portuguese labour and product markets are far from the perfect competition paradigm. In the recent years there is some evidence of reductions in price-cost margins in non-tradable sectors, which is beneficial from the perspective of avoiding the over-allocation of resources in such sheltered markets, with potentially adverse impacts on economic growth.

Along with higher educational levels, competition across firms tends to promote innovation, which is a key ingredient for success in a rapidly transforming world, and pushes unproductive firms out of the market. This is another challenge to be faced by the Portuguese economy. In line with the results from Section 5.4, Section 6.2, by *Ana Fontoura Gouveia and Christian Osterhold*, presents evidence of a high prevalence of the so-called "zombie firms" in Portugal. While the authors find that there is a positive selection within zombie firms, with the most productive restructuring and the least productive exiting, an important share of these firms are able to remain in the market even if being significantly less productive than their healthy counterparts. By distorting competition and capturing a relevant share of productive resources, the zombies that remain harm the performance of the healthy, more productive firms. A broader view about the efficiency in the utilization of resources in the Portuguese economy, carried out in Section 6.3, by *Carlos Robalo Marques*, finds that total reallocation of resources, involving the "between effect" of surviving firms and the contribution of entering and exiting firms, had a clearly positive impact on productivity growth in the tradable sector but a negative impact in the non-tradable sector. In fact, the negative performance of total reallocation in the non-tradable sector alone fully accounts for the negative contribution of total input reallocation to productivity developments in the economy as a whole.

Although the above mentioned financial constraints and firm dynamics are important for economic performance, firms' export status is also a key element for success in an increasingly global world. The export performance of firms is affected by a multitude of factors, including management practices, as discussed in Section 4.2, human resources, regulatory barriers and financing conditions. However, only a reduced number of studies has analyzed whether the likelihood of survival differs between exporters and non-exporters, controlling for financial constraints. Section 6.4, by *Paulo M.M. Rodrigues and Mónica Simões*, answers this question, showing that, after controlling for financial variables, exporting firms have on average a higher probability of survival and also present healthier values for financial indicators, which decreases even more the likelihood of exit.

In a changing scenario, with new economies emerging and new technologies at use, performance in terms of international trade of goods and, mostly, services will dictate economic success. Section 7.1, by *Paulo Júlio and José Ramos Maria*, uses a Dynamic Stochastic General Equilibrium model estimated for the Portuguese economy to show that an external demand shock and a productivity (TFP) shock produce similar and lasting positive impacts. Results suggest that both shocks expand GDP, capital, and employment in the short, medium and long term. In addition, export market shares, defined as the ratio between Portuguese exports and foreign GDP, increase under both simulations. Another important conclusion is that the macroeconomic response outlives the shocks themselves, *i.e.*, the economy continues evolving towards higher production levels even after the exogenous export market share and TFP have achieved their new long-run values.

Shocks are far from being just abstract constructions in models. The sovereign debt crisis in the euro area was a major disturbance, which signaled relevant features of Portuguese firms. Section 7.2, by *Paulo Soares Esteves, Miguel Portela and António Rua*, studies the reaction of Portuguese firms to this strikingly adverse economic episode and unveils their remarkable ability to adjust to new conditions. In particular, the occurrence of a pronounced deterioration of the domestic market translated into an important structural change in the Portuguese economy, with a broader set of firms more oriented towards foreign markets. Even though the above mentioned prevailing limitations associated with educational levels, managerial skills, labour market institutions and financing conditions did not hold back this positive outcome, their absence might have led to even higher export growth rates, in the follow up of a positive export trend that started before the crisis.

In a global world, the internationalization of Portuguese firms is a key development on the path towards economic growth. Section 7.3, by *João Amador and Luca David Opromolla*, takes a firm-level perspective and shows that Portugal presents a healthy demography of international traders of goods, with high gross entry and exit rates and a significant role for the extensive margin in accumulated terms. Indeed, as mentioned above, entry and exit are important features in markets in order to select the best ideas and the most efficient firms. In any case, despite high mortality rates in the first year of life, the cohorts of exporters in the last two decades have shown a steady path. In parallel, the participation in services trade is also a very important driver of firms' performance, especially in a context where new technologies are making it much easier to provide services remotely. Section 7.4, by *João Amador, Sónia Cabral and Birgitte Ringstad*, finds that a substantial share of Portuguese non-tourism service traders are active in both export and import flows. Furthermore, there is a high concentration of both exports and imports of non-tourism services in these firms. Compared with firms that only export and that only import, two-way traders tend to be more productive and more profitable. Moreover, as found for international trade in goods, multi-service and multi-country firms are crucial in explaining the level of Portuguese international trade in non-tourism services. In parallel, the ageing of the population, the emergence of new economies with high purchasing power and the frequent travel of workers associated with international provision of services translates into an expansion in tourism services. Portugal has been experiencing substantial growth in this sector. Section 7.5, by *Filipe Caires, Hugo Reis and Paulo Rodrigues*, looks at micro-level data and shows that the number of tourism firms has been strongly increasing and their demography does not differ substantially from that of other sectors, showing that they are resilient and hence not necessarily less productive.

Regulatory barriers play an important role on numerous dimensions of economic activity. In a broad sense, these features are part of the country's technology and can make a difference in terms of the ability to adapt to new technologies and shocks. Section 8.1, by *João Amador, Sónia Cabral and Birgitte Ringstad*, overviews regulatory costs in the Portuguese economy. It uses specific survey data to link firms' perceptions in a number of regulatory dimensions with their performance, measured in terms of gross value added per worker. The conclusion is that only obstacles related to human resources are identified as having a significant negative relation with productivity both in terms of their importance to firms' activity and in terms of the perceived level of the obstacle. Nevertheless, taking firms' perceptions regardless of their performance, the main area of regulatory costs is the judicial system. Sections 8.2 and 8.3, by *Manuel Coutinho Pereira and Lara Wemans*, precisely focus on features of the Portuguese judicial system. The first of these sections looks at the determinants of demand and productivity in civil justice. As for demand, there is evidence of rationing-by-queuing and important spillover effects from socioeconomic characteristics of regions surrounding courts. Regarding productivity, there is a positive impact associated with the number of incoming cases per judge, judicial staff per judge and specialization. Section 8.3 studies the impact of a reform that waived the intervention of judges in the bulk of enforcement cases and concludes that there has been a positive adjustment of the system to the new rules, reducing the length of such cases. In the more recent period, the greater intensity of resolution in the first years of the case should reflect swifter procedures for identification and seizure of debtors' assets, including the impact of the effectiveness of these mechanisms in promoting voluntary compliance at an early stage. All in all, a swifter judicial system should contribute to Portuguese growth, benefiting both domestic economic agents and foreign investors.

3. Final remarks

Overall, the Portuguese economy presents many structural features that are common to other euro area countries and there is evidence that positive developments have taken place in several dimensions, sometimes as a result of specific reforms. Nevertheless, there are blockages to overcome and the challenges that lie ahead are quite significant. Low labour productivity levels limit the amount of savings available for investment in a context where it is imperative to maintain basic macroeconomic balances. In addition, in a context of global competition for skills, low productivity makes it difficult for firms to pay wages that retain the most talented workers. Therefore, in a world where resources are mobile, the creation of conditions to retain and attract capital, skilled workers, entrepreneurs and researchers must be a priority. In this context, the degree of ambition of the Portuguese society should increase, continuously building on the existing circumstances and not on unsustainable idealized principles, and always with a focus on the coherent implementation and assessment of policies and projects.

The list of questions regarding Portuguese economic growth is long and complex, especially in the context of a changing world economy, whose future contours are themselves hard to anticipate. This book admittedly leaves aside important challenges like the inequality in the allocation of resources, climate change and environmental degradation. Moreover, by their own nature, research results exist to be disputed and potentially replaced by improved versions. If this collection of studies contributes to motivate the discussion about Portuguese economic growth and to implement better policies going forward, its goal will have been fully achieved.