Structural Reforms and Economic Performance: The Experience of Advanced Economies

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This paper provides a comprehensive assessment of the theoretical and empirical literature on structural reforms in advanced economies. Structural reforms matter because they entail profound and systematic changes that affect economic welfare, productivity, growth, unemployment, macroeconomic stability, and income inequality. Here we focus on structural reforms in product, labor, and financial markets. After putting forward a set of stylized facts, we take stock of the literature on each of these three key structural reforms, and then assess their business cycle and political economy implications. We underscore various gaps in the literature and articulate a future research agenda that highlights four main areas: measurement, interactions among reforms, political economy considerations, and the timing of the implementation of reforms.

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1. Introduction

The growth of productivity has slowed down in Europe and the US. This downward movement was briefly interrupted in the US during the second half of the 1990s. From the early 2000s, however, productivity growth declined in both Europe and the US (see Gordon (2017) and Gordon and Sayed (2020)). These worrisome trends were exacerbated first by the financial crisis of 2007 and more recently by the COVID-19 global pandemic. These developments have led to attempts to identify the sources of this slowdown and the remedies capable of countering this decline. This has put structural reforms high on the agenda of policymakers, especially in Europe, where the decline in productivity growth has generally been seen as resulting from excessive rigidities in product and labor markets. Structural reforms have been put forward as an important cure that would make these economies more dynamic again.

Structural reforms refer to policies that fundamentally alter the way the economy is organized. They aim at increasing the role of competitive markets in the organization and running of the economy. These reforms usually include deregulation of product markets and other initiatives to increase competition in these markets, policies that make labor markets more flexible and dynamic, and policies that increase transparency and efficiency of financial markets. [1]

Economists have long argued that structural reforms that increase the role of markets in the organization of the economy pay off in economic welfare terms. The theoretical foundations of this widely accepted proposition are the fundamental welfare theorems. The first fundamental welfare theorem states that (under certain conditions) a competitive market produces a Pareto efficient outcome. In other words, free

[1] Structural reforms can also have broader aims, such as increasing the efficiency of government, but the definition above is common in the literature and helps focus this paper.

competition leads to (static) efficiency gains that maximize consumer welfare. This is achieved by a competitive system that gives strong incentives to individual firms to search for efficiency gains (see the classic contribution of Olson (1996)). According to the second welfare theorem, any Pareto efficient outcome can be supported by a competitive market equilibrium.

Structural reforms matter for increasing static efficiency gains (see e.g., Hsieh and Klenow (2009) who document, by comparing the US with China and India, how large productive efficiency gains can be obtained). Reforms can also lead to dynamic efficiency gains (innovations) that raise productivity, economic growth, and employment. This is also part of the welfare gains of structural reforms and how policymakers have interpreted the welfare benefits from structural reforms. Here we use the term "economic performance" to indicate the static and dynamic welfare gains.

When moving from less-developed to well-developed market economies, there is a lot of "low-hanging fruit". Reforms that introduce market mechanisms in the former have large and often spectacular payoffs in promoting efficiency, innovation, and income. This is made clear by the experience of China that, from the 1980s on, introduced market forces, and of countries in Eastern Europe that moved away from communism in the 1990s. Since then, these countries have experienced massive increases in material welfare, after decades of experimenting with central planning that brought only economic stagnation. This does not mean that some of these countries, chiefly in Asia, may not have applied illiberal policies inspired by "infant industry" arguments to speed up their development (Rodrik (2004, 2006)), but rather that the systemic change from communism to capitalism (even when far from pure) by itself created large efficiency rewards.

Once one moves into mature economies, one must look for higher-hanging fruit,

and new issues arise that may reduce (while not eliminating) the scope for welfare gains from further reforms. This survey will focus on the experience of advanced economies, such as the EU countries and the US, that have already achieved a substantial penetration of market forces in their societies. Therefore, this survey will focus on the factors that may reduce the return of structural reforms in economies that by and large are market economies. Such factors have much to do with the existence of market failures.

Economists have identified different market failures that lead to departures from the welfare optimum associated with a perfect market equilibrium. Put another way, the welfare optimum associated with a perfectly competitive equilibrium can only be achieved if some important assumptions are satisfied. These assumptions are the absence of (i) monopolies (market concentration), (ii) asymmetric information, and (iii) externalities and public goods. In addition, competitive equilibria are compatible with many different distributions of wealth and income; some of which, however, may be politically and socially unsustainable. Finally, it is unclear whether these equilibria are stable. Free markets are subject to large movements with booms and busts that interfere with, and may change the path of, adjustments to structural reforms.

The existence of market failures complicates the transmission process of structural reforms and may reduce their capacity to generate welfare gains. For example, as we introduce more flexibility and competition, successful firms may try to take over other firms, leading to market concentration, increasing markups, and a loss of welfare gains. Liberalization of financial markets should lead to faster economic growth but can also generate excessive risk-taking that can lead to macroeconomic instability. More liberalized economic and financial systems are likely to change income and wealth distributions, leading to opposition to structural reforms and

reversals in the reform processes.

The previous analysis leads to an important insight. Structural reforms will work best in promoting welfare when they occur simultaneously with other policies, e.g., taxes to remove externalities, antitrust policies, regulation, and supervision, redistribution policies, macroeconomic stabilization policies, and many others.[2] It is, however, unlikely that such policies can be implemented all together at the same time. The political economy of reforms is such that much resistance must be won over to introduce them.

Implementing structural reforms in advanced economies is difficult for another reason. Much of the agenda of structural reforms in Europe has been driven by the motivation to emulate the US economic system which is widely seen as more dynamic and flexible than the European economies. This US dynamism is often seen as being responsible for the relative successes of the US in achieving disruptive scientific and technological innovations. The perception that Europe is lagging in creating these innovations explains much of the drive for structural reforms that aim to bring Europe closer to the American economic model.

The problem with this approach is that the European quest to emulate the American economy also implies that other features of the US system have to be taken over, in particular its much less egalitarian nature and its less well-developed social safety net. This leads to the question of whether one can take over the American reward system while maintaining a strong degree of egalitarianism and social safety. It is unclear whether this can be done.

Acemoglu et al. (2012) argue that "we cannot all be Scandinavians", but it can

[2] This conclusion is akin to the theory of second-best which argues that partial corrections of distortions may reduce welfare (Lipsey and Lancaster (1956)).

also be argued that we cannot all be Americans. The necessity to make choices about the "variety of capitalism" (Hall and Soskice (2009)) that countries wish to establish is at the core of the discussion of structural reforms. Introducing more flexibility sooner or later forces countries to think about inequality and social safety nets. That is the moment when opposition to further reforms pops up.

Much of our survey will therefore be concerned not only with the question of how structural reforms affect economic performance, but also with issues related to crucial political economy aspects related to income inequality, populism, and support for reforms. Understanding these various issues is important in the design of reform processes that maximize the chances of success. In such an analysis, the political economy of the reform process takes an important place.

The existence of different political dynamics in the implementation of structural reforms across countries leads to the insight that structural reforms are likely to be divergent across countries, both in their implementations and their effects. It is one of the ambitions of this survey to analyze these divergencies. Note, however, that this paper will not address the broader question of the desirability of various distributional outcomes. We will discuss distributional outcomes only to the extent they have implications for the sustainability of reforms.

It is worth noting that our survey primarily focuses on domestic reforms in product, financial, and labor markets. We tangentially discuss the literature on international trade and capital account liberalizations. This is because most advanced countries now have achieved a relatively high degree of openness, and their focus is on the domestic reform process. We recognize there are interactions between domestic and external liberalization processes and that these can be very pronounced, for instance in financial markets. This is why we discuss capital account liberalization in the section

on financial market reforms. We also recognize that external liberalizations (i.e., globalization) have impacts on the rise of populism. That is why we discuss the impact of trade and capital account liberalization in the section on the political economy of reforms. However, we have abstained from an extensive survey of external liberalization, mainly because this would have made our survey too long and less focused. As far as trade liberalization is concerned, there are already excellent recent academic surveys available (see e.g., Irwin (2019)).

The paper is organized as follows. It opens with a set of stylized facts in Section 2. We distill and discuss theoretical and empirical literature about three key domestic structural reforms; namely, product market reforms (Section 3), financial market reforms (Section 4), and labor market reforms (Section 5). Section 6 focuses on the business cycles and reforms, while Section 7 discusses a range of crucial political economy aspects. Section 8 concludes.

2. Stylized facts

To set the stage, it is useful to present some stylized facts on structural reforms in advanced economies. The first set of stylized facts is related to Figure 1, which presents the three structural reform indices in product (PMR), labor (LMR), and financial (FMR) markets over time. We focus on the advanced countries in the EU (including the UK) and the US. Figure 1 reveals three interesting observations. First, in the financial and product markets we observe strong waves of deregulation occurring from the 1980s until the early 2000s, with financial deregulation starting and ending earlier than product market deregulations. No such waves of deregulation are observed in the labor markets. On the contrary, almost all countries experienced increases in labor market regulations. Note, however, that there appears to be more diversity in the trends in the

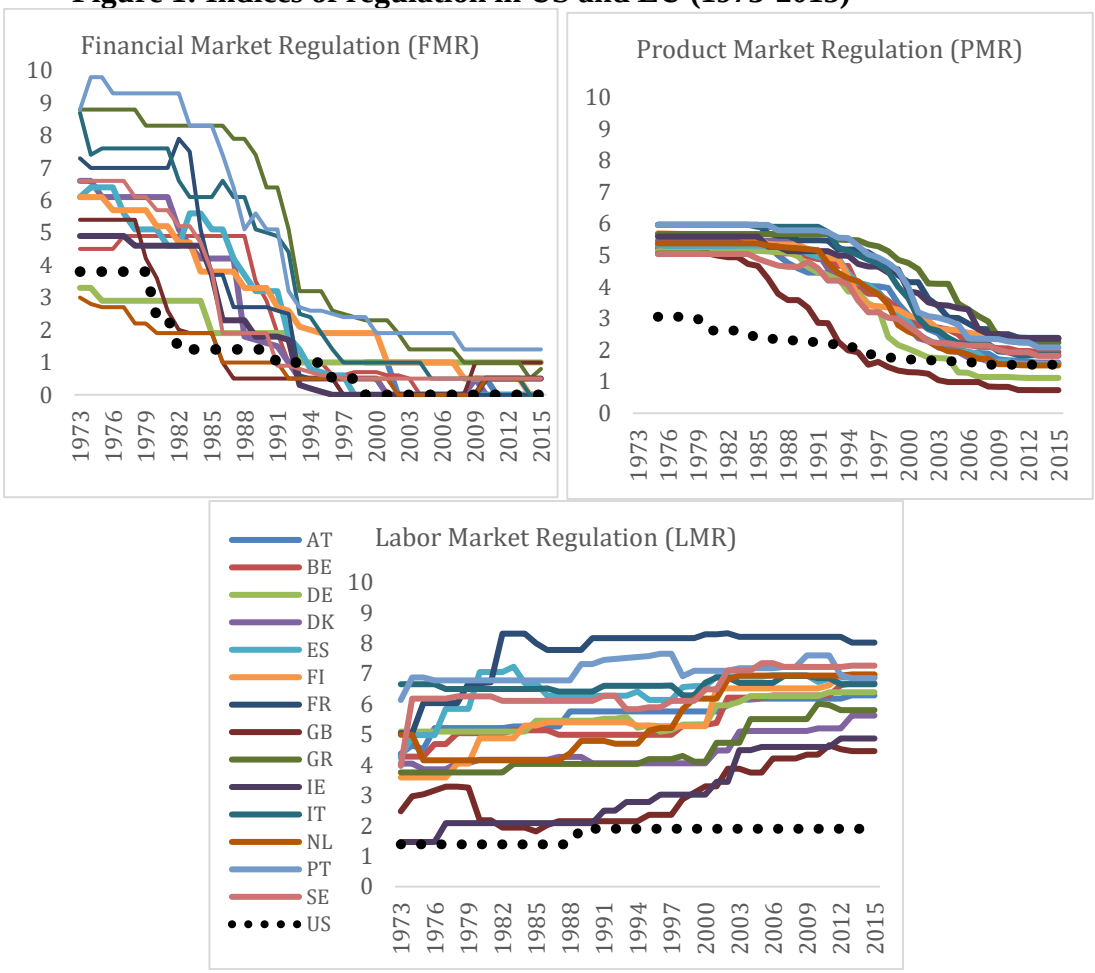
labor markets than in financial and especially product markets. This could reflect true diversity. It is also possible that it reflects the imperfection of these indices especially in the labor markets. Our view is that future research should prioritize measurement improvements across all reform areas, particularly in labor markets.

Second, there is a contrast between the European countries and the US. The former started with relatively high levels of regulation in product and financial markets compared to the US and tended to converge toward the US. In the case of the product markets some European countries (i.e., the UK and Germany) even appeared to have become more deregulated than the US during the 2000s. No such convergence phenomena are observed in the labor markets.

Third, in the financial and product markets the waves of deregulation are very much correlated across countries (especially among EU countries). This is also confirmed indirectly by the pairwise correlation coefficients of the levels of regulation across countries over time presented in Tables 1-3. These correlation coefficients are typically close to 0.9 or higher for the product and financial markets, suggesting that the intensities of regulations (which have changed significantly over time) have been very much correlated across countries. Note also here that these bilateral correlations are much smaller in the case of the labor markets.

Figure 1 suggests that regulatory trends in product and financial markets are correlated within countries, while labor market regulatory trends tend to have a negative correlation with those of the former two. This is confirmed by the pairwise correlations between PMR, FMR, and LMR as shown in Table 4. PMR and FMR are positively correlated in all countries, while LMR is negatively correlated with PMR and FMR in all countries.

Figure 1: Indices of regulation in US and EU (1973-2015)



Source: Constructed using OECD data and the methodology developed by Campos, Eichenauer, and Sturm (2020). FMR, PMR, and LMR are normalized from zero to 10, with higher values indicating more regulation. Appendix 1 provides a discussion of different reform measures.

Table 1. Financial market regulations pairwise correlations (1973-2015)

	US	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	NL	PT	SE
US	1													
BE	0.83	1												
DE	0.9	0.91	1											
DK	0.92	0.93	0.96	1										
ES	0.89	0.96	0.96	0.96	1									
FI	0.94	0.93	0.95	0.96	0.95	1								
FR	0.9	0.91	0.99	0.97	0.95	0.95	1							
GB	0.92	0.69	0.84	0.88	0.8	0.83	0.85	1						
GR	0.86	0.98	0.93	0.92	0.98	0.95	0.92	0.71	1					
IE	0.89	0.92	0.98	0.97	0.96	0.94	0.98	0.86	0.92	1				
IT	0.9	0.97	0.95	0.95	0.98	0.97	0.95	0.77	0.99	0.94	1			
NL	0.93	0.87	0.94	0.95	0.93	0.93	0.94	0.92	0.88	0.96	0.91	1		
PT	0.9	0.96	0.97	0.98	0.98	0.97	0.97	0.82	0.96	0.98	0.97	0.94	1	
SE	0.93	0.87	0.96	0.97	0.92	0.94	0.97	0.92	0.87	0.97	0.9	0.97	0.95	1

Source: authors' calculation

Table 2. Product market regulations pairwise correlations (1973-2015)

	US	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	NL	PT	SE
US	1														
AT	0.9	1													
BE	0.91	0.98	1												
DE	0.91	0.98	0.99	1											
DK	0.91	0.99	0.99	1	1										
ES	0.89	0.99	1	0.99	1	1									
FI	0.94	0.96	0.98	0.98	0.98	0.98	1								
FR	0.88	0.99	0.98	0.97	0.98	0.98	0.95	1							
GB	0.96	0.92	0.92	0.93	0.93	0.9	0.96	0.89	1						
GR	0.78	0.94	0.93	0.91	0.92	0.93	0.86	0.97	0.77	1					
IE	0.88	0.99	0.98	0.96	0.97	0.98	0.94	0.99	0.88	0.97	1				
IT	0.87	0.99	0.99	0.98	0.99	0.99	0.96	0.99	0.88	0.95	0.98	1			
NL	0.9	0.98	1	1	1	1	0.98	0.98	0.92	0.92	0.97	0.99	1		
PT	0.86	0.98	0.99	0.97	0.98	0.99	0.94	0.99	0.86	0.96	0.98	1	0.98	1	
SE	0.93	0.98	0.99	0.99	0.99	0.99	0.99	0.96	0.95	0.89	0.96	0.97	0.99	0.96	1

Source: authors' calculation

Table 3. Labor market regulations pairwise correlations (1973-2015)

	US	AT	BE	DE	DK	ES	FI	FR	GB	GR	IE	IT	NL	PT	SE
US	1														
AT	0.84	1													
BE	0.6	0.85	1												
DE	0.63	0.81	0.92	1											
DK	0.49	0.74	0.93	0.94	1										
ES	0.41	0.69	0.7	0.53	0.55	1									
FI	0.72	0.9	0.9	0.89	0.83	0.77	1								
FR	0.67	0.78	0.59	0.5	0.41	0.78	0.8	1							
GB	0.45	0.57	0.79	0.79	0.8	0.24	0.54	0.1	1						
GR	0.62	0.8	0.93	0.95	0.95	0.52	0.85	0.49	0.83	1					
IE	0.74	0.88	0.95	0.92	0.91	0.61	0.89	0.58	0.81	0.95	1				
IT	0.42	0.43	0.57	0.67	0.62	0.18	0.5	0.16	0.69	0.68	0.63	1			
NL	0.76	0.78	0.87	0.88	0.84	0.45	0.8	0.46	0.84	0.9	0.93	0.67	1		
PT	0.78	0.66	0.33	0.37	0.24	0.31	0.49	0.59	0.19	0.4	0.48	0.37	0.41	1	
SE	0.48	0.76	0.86	0.81	0.8	0.66	0.74	0.47	0.76	0.8	0.81	0.55	0.72	0.38	1

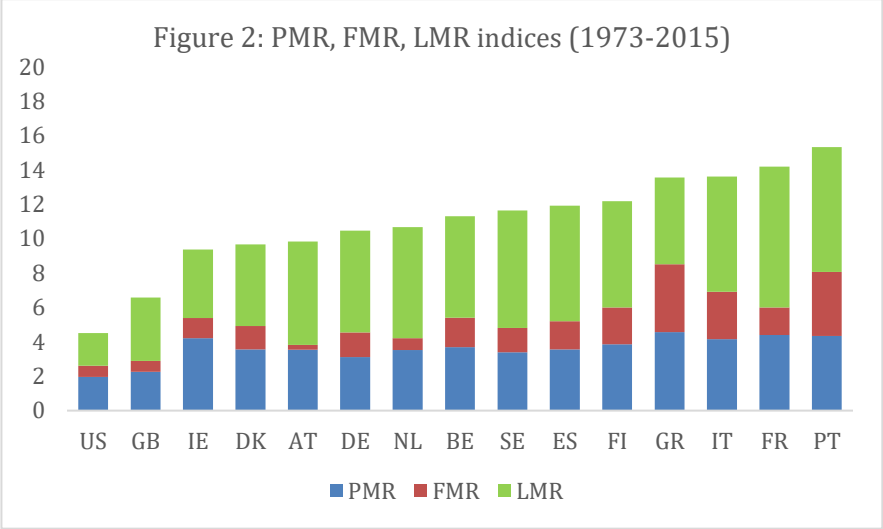
Source: authors' calculation

Table 4. Correlations in regulations within countries (1973-2015)

	corr(pmr, lmr)	corr(pmr, fmr)	corr (lmr, fmr)
NL	-0.99	0.79	-0.75
GR	-0.97	0.79	-0.81
IE	-0.97	0.74	-0.78
AT	-0.91	0.69	-0.84
BE	-0.90	0.88	-0.72
DE	-0.86	0.83	-0.70
US	-0.84	0.96	-0.80
DK	-0.84	0.81	-0.58
FI	-0.83	0.93	-0.93
SE	-0.81	0.78	-0.50
IT	-0.74	0.87	-0.52
UK	-0.65	0.76	-0.12
ES	-0.53	0.87	-0.56
FR	-0.50	0.77	-0.74
PT	-0.35	0.79	-0.69

Source: authors' calculation

The second set of stylized facts is illustrated in Figure 2 which uses the same data as Figure 1 but highlights the degree of heterogeneity across countries instead of over time. It presents the average sum of the three reform indices for each country during 1973-2015. We observe considerable country heterogeneity concerning the levels of regulations existing in product, financial, and labor markets, with some countries being leaders (i.e., the Anglo-Saxon countries) and others being laggards (i.e., Portugal and Greece, Italy, and France). This reinforces the earlier notion that differences in varieties of capitalism and political institutions are likely to be associated with considerable divergencies in the reform processes across countries. A similar finding can be found in Campos, Eichenauer, and Sturm (2020), based on an analysis using OECD data.

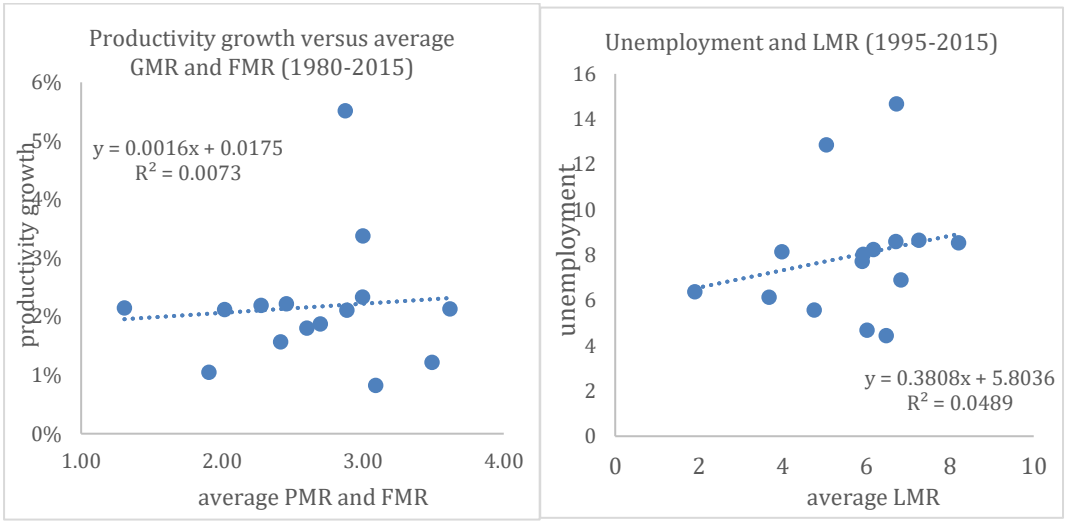


Source: Constructed using OECD data and the methodology developed by Campos, Eichenauer, and Sturm (2020).

The third set of stylized facts focuses on the impact these reforms may have on the performance of the economies. In Figure 3, we present simple unconditional correlations between measures of performance (productivity growth and unemployment) and reform indices (FMR, PMR, and LMR). In the left chart, we show the simple unconditional correlation (regression) between the average growth in productivity (output per hour) during 1980-2015 and the average measure of regulation

in product and financial markets (PMR and FMR) during the same period. We observe that this correlation is weak.[3] Low levels of regulation in these two markets are not associated with higher productivity growth (see also De Grauwe and Ji (2016) based on an analysis using OECD data). The right chart shows the relation between unemployment and the labor market reforms index (LMR). We find a slightly positive correlation (more regulation is associated with more unemployment). This relation, however, is weak and statistically insignificant.

Figure 3: Reforms and measures of performance



Source: Computed using the same data sources as in Figures 1 and 2. Unemployment data from the OECD are only complete starting in 1995.

These stylized facts are only suggestive. Much of the literature that will be surveyed in this paper is concerned with the question of how proper econometric specifications of the relation between measures of performance and reforms can reveal a causal relation from the latter to the former. The evidence in Figure 3 suggests that

[3] Note that cross-country empirical research often analyzes the relationship between the level of regulation and productivity growth. One could also focus on the relation between productivity growth and the reform process as measured by the changes in the regulation. We also correlated the productivity growth with the changes in regulations in PMR and FMR. This leads to the same weak correlation.

this may not be an easy task but, as will be shown, it is possible to gain significant knowledge about how reforms affect the economy and social welfare.

3. Product market reforms

There is little doubt among economists that structural reforms that increase competition and allow domestic markets to operate freely lead to input reallocation from low to high marginal revenue product firms and hence to important efficiency gains (see e.g., Hsieh and Klenow (2009)). These efficiency gains increase consumer welfare, mainly because they lower prices (by reducing markups) and increase product varieties and service quality. This has also been shown in the international trade literature that recognizes the positive impact of free trade and foreign competition (Krugman (1979) and Krugman and Helpman (1985)).

In this paper, as noted, we focus on advanced countries such as the US and the European Union. As these countries have achieved the highest level of liberalization in product markets, their experience may provide empirical evidence for other countries on how economic performances are affected by structural reforms in product markets (Appendix 1 discusses how product market reforms are measured).

We analyze two main issues in this section. First, how deregulation of product markets contributes to a sustainable increase in competition. This is crucial, as increased competition leads to static efficiency gains by reducing markups and benefiting consumers. However, it is essential to ensure that this outcome is permanent, as competition can also create dynamics where successful entrepreneurs increase their market shares. If left unchecked, this could potentially reduce competition, leading to higher markups and a loss of welfare.

The second issue is how increased competition in product markets affects economic growth. The link between competition and economic growth has been difficult to establish (Aghion et al. (2009)). The key nexus between competition and growth is technological innovation. This has led to a large literature studying how competition affects technological change; although, as we will show, the same degree of attention to the link between structural reforms and technology is still lagging.

3.1 Competition and concentration

Do structural reforms that enhance competition in product markets ensure that competition will be sustained in the long run? The question is of great importance because if competition, enhanced by structural reforms, turns out to ultimately lead to more concentration, the social benefits of these structural reforms will be reduced.[4]

This question has led to two markedly different yet equally influential views. The first view has stressed that antitrust policies are needed to ensure continuing competition. It has a much longer intellectual history; it can be found in the old writings of Hilferding (1910). In a nutshell: competition can lead to a dynamic that tends to diminish competition. In a competitive environment, some firms will be successful and others not. The successful ones will see their market share increase. In addition, the successful firms will be tempted to increase their profit margins by takeovers, mergers, and acquisitions. As a result, success breeds market concentration. To prevent this dynamic from undermining competition and destroying the benefits of competition for consumers, an active antitrust policy is required. This theory has been the cornerstone of the American competition policy that took shape after the great concentrations in the

[4] This is also implicit in the work of Mankiw and Whinston (1986) who show that free entry does not always lead to an efficient outcome.

oil industry in the United States in the early 20th century. It continued to guide the US competition policies until the 1980s and very much inspired the EU competition policies.

This theory was challenged in the late 1970s and 1980s. The challenge came mostly from the University of Chicago. This school of thought contested that product market competition would lead to concentration as described in the previous paragraph, provided free entry into the market was guaranteed (Brock (1983); Posner (1978, 1979)). Thus, even if in one market only one producer were to exist, free market access would guarantee the contestability of the position of the sole supplier, forcing the latter to behave as if they were operating in a competitive market (Baumol (1982); Baumol et al. (1982); see more detailed discussion on the major US antitrust cases by Kwoka and White (2014)). Free entry and contestability would ensure low prices for the consumer.

The Chicago School became hugely influential and contributed to the gradual softening of American antitrust policies from the 1980s onwards. A reverse movement was followed in the European Union where the European Commission, as the sole legal authority to make laws and regulations governing competition policies, increased its reach and became the guardian of competition in the EU.

These two theories generate dramatically different policy implications. This has led to a large empirical literature analyzing the different trends in competition and concentration in the US versus the EU. These two provide something close to a natural experiment, the former having dismantled much of its antitrust policies while the latter enhanced them at about the same time.

Yet, in evaluating these two schools of thought, it is not enough to study the trends in industry concentration. One may be tempted, wrongly, to conclude that if

concentration increases, this is evidence supporting antitrust actions. In order to evaluate these two schools of thought, it is useful to distinguish two types of concentration, i.e., "good" and "bad" concentrations (see Philippon (2019); Covarrubias, Gutiérrez, and Philippon (2020)). Good concentrations are the result of competition that forces firms to exploit economies of scale. The increasing concentration does not imply that competition declines. It may even be intensified providing free entry is maintained. Good concentrations will, therefore, be accompanied by declining prices and even declining markups. Quite often firms in an environment of good concentration will invest a lot in a strategy to "beat the competition".

In contrast, bad or inefficient concentrations are the result of takeovers and acquisitions that reduce competition in product markets. They are often intensified by political lobbying aimed at raising entry barriers and reducing free entry into the industry. When this happens, concentration is accompanied by increasing markups and increasing prices. As the degree of competition declines, investment is also likely to decline.

The empirical evidence emerging from US data has raised concerns: since the 1980s, the bad (inefficient) concentrations have gained force in the US. This phenomenon is analyzed in detail in Philippon's recent book *The Great Reversal*. Concentration is increasing in many US industries. At the same time, markups and profit rates have been increasing, while investment has been declining. These trends indicate that a significant portion of the concentration dynamics in the US is of the inefficient type.

This conclusion is supported by several empirical studies. De Loecker, Eeckhout, and Unger (2020) provide a critical assessment of the existing

methodologies for measuring markups (see especially p.563-565). They use a new approach to estimate markups, the so-called production approach, using firm-level data for the US economy since 1955. They use both markup and profitability as measures of market power. In 1980, aggregate markups started to rise from 21 percent above marginal cost to 61 percent in 2020. The increase is driven mainly by the upper tail of the markup distribution: the upper percentiles have increased sharply. This rise occurs mostly within industries. These authors also find an increase in the average profit rate from one percent to eight percent.[5]

Grullon et al. (2019) analyze US trends since the late 1990s. They find that over 75 percent of US industries experience an increase in concentration levels. Firms in industries with the largest increases in product market concentration show higher profit margins and more profitable mergers and acquisitions deals. At the same time, these authors find no evidence for a significant concomitant increase in operational efficiency. They conclude that market power is becoming an important source of value in the US, and that competition in the American product markets has weakened.

Covarrubias et al. (2020) study the evolution of profits, investment, and market shares in US industries over the past 40 years. They find evidence for the 1990s (when levels of initial concentration were initially small) of efficient concentration driven by price competition, intangible investment, and increasing productivity of leaders. After 2000, however, there is evidence of inefficient concentration, decreasing competition, and increasing barriers to entry as leaders become more entrenched. Concentration is then associated with lower investment, higher prices, and lower productivity growth.

[5] There is literature on estimating markups properly, as marginal costs cannot easily be measured. In addition, some cost components, e.g., intangible assets are hard to measure. This has led to criticism of using markups to measure concentration (Syverson (2019)).

This phenomenon of declining investment associated with inefficient concentration is further confirmed by Gutiérrez and Philippon (2017 and 2023) and Eeckhout (2021). The US business sector has underinvested relative to Tobin's Q since the early 2000s. Gutiérrez and Philippon (2017) use both instrumental variables and natural experiments to find a causal relationship, indicating that declining competition is partly responsible for the observed decline in investment.[6]

Thus, it appears that inefficient concentration has been on the rise in the US. There is evidence that this phenomenon is related to an increase in barriers to entry. This is confirmed by Gutiérrez and Philippon (2019), who study the entry and exit of firms across US industries over the past 40 years. The elasticity of entry with respect to Tobin's Q is found to be positive and significant until the late 1990s but declined to zero afterward. The authors argue that economic factors such as returns to scale and technological costs cannot explain the decline in the Q-elasticity of entry, but other factors such as lobbying and regulations can.[7]

There is also an important body of literature analyzing the implications of these phenomena for the labor share in GDP. The consensus is that concentration has contributed to a decline in the labor share in GDP. This decline in the labor share occurs both in the cases of good and bad concentrations. This phenomenon is related to what has been called the emergence of high-tech "superstar" firms (e.g., Google, Amazon, Facebook, Microsoft). Important contributions to this literature are Autor et al. (2020a), Gutiérrez and Philippon (2019), De Loecker, Eeckhout, and Unger (2020), and Eeckhout (2021). We return to these issues in the section on the political economy of reform.

[6] See Gutiérrez and Philippon (2016), and Crouzet and Eberly (2018) concerning the US retail sector.
[7] See Coffey et al. (2020) who analyze the cumulative costs of regulations.

What about other advanced countries? Two empirical phenomena stand out here. First, the recent increase in concentration is observed as an international phenomenon, not limited to the US alone. Second, in contrast to the US, it is less evident whether this concentration in other advanced countries is of the inefficient type.

Regarding the first phenomenon, Bajgar et al. (2019) study industry concentration trends in Europe and show that during 2001–2012, the average industry across ten European countries experienced a two to three percentage point increase in the sales share of the ten percent largest companies. There is a clear increase in industry concentration in Europe as well as in North America. This increase is observed in both manufacturing and non-financial services.

De Loecker and Eeckhout (2018) analyze over 70,000 firms worldwide and document the evolution of markups over the last four decades. They reveal that the average global markup has increased from close to 1.1 in 1980 to around 1.6 in 2016. Markups have experienced the most significant rise in North America and Europe, while emerging economies in Latin America and Asia have seen the smallest increases.

While De Loecker and Eeckhout (2018) find similar increasing markups in the US and Europe, other studies have different findings. Philippon (2019) finds that markups and profit shares have not increased significantly in the European Union, in contrast to the situation in the US (see also Gutiérrez and Philippon (2023)). This is supported by Cavalleri et al. (2019), who examine the degree of market power in the major four countries of the Euro area using macro and firm micro data. They find that, in contrast to the situation in the US, measures of market power have been relatively stable over recent years in the Euro area and—specifically in terms of the markup—marginally trending down since the late 1990s, driven largely by manufacturing (see also Calligaris et al. (2018)).

The evidence suggests that while inefficient concentration has tended to dominate the observed phenomenon of increasing concentration in the US, this is less the case in Europe where the evidence seems to suggest greater importance of efficient concentration. The why question immediately arises, i.e., why does one observe such differences between the US and Europe?

Philippon (2019) develops an interesting hypothesis explaining this divergence. To begin with, and as mentioned earlier, the trends in antitrust policies in the US and the EU have been the reverse, i.e., a gradual dismantling of antitrust policies in the US and a strengthening in the EU. The weakening of the US antitrust policies, which also enabled an increase in lobbying efforts by US corporations, has made it possible for them to obtain favorable rulings concerning mergers and acquisitions. As a result, mergers and acquisitions have been on the rise. In addition, this lobbying effort has been focused on reducing market access in many US industries, including service sectors, such as the banking sector and the health sector. The phenomena explain why so much of the concentration in the US is of the inefficient type.

This has not happened in the same way in the European Union where antitrust policies have been implemented more forcefully. In addition, as hypothesized by Philippon (2019), the transfer of power to pursue antitrust policies from national governments to a supranational institution (the European Commission) has reduced the effectiveness of lobbying in favor of mergers and acquisitions or in favor of reducing market access.

These differences in competition policies between the US and the European Union are likely to have affected the economic welfare of these countries. As mentioned earlier, the weakening of US competition policies may have contributed to a decline in the US wage share in national income. Additionally, it is likely to have contributed to

higher prices in many US industries compared to the EU, as documented by Philippon (2019), thereby leading to a decline in the welfare of US consumers relative to EU consumers.

What remains unclear is how these two different approaches to competition policies have affected economic growth. It is not to be excluded that the US approach may have boosted economic growth in the short run. It is unclear though whether this is a permanent effect of the US policies allowing market concentration to increase at the expense of consumers. More research will have to be done to understand these long-term effects better.

To conclude, we return to the question formulated at the beginning of the section: Do structural reforms in product markets lead to a sustainable increase in competition? The answer is that "it depends". In countries where the authorities pursue vigorous antitrust policies, structural reforms in the product markets seem to lead to permanent increases in competition and improvements in consumers' welfare. However, in countries where antitrust policies are weakly enforced; structural reforms, while temporarily increasing competition, may very well lead to increasing concentration of the inefficient type in which firms increase markups and profit margins leading to increased prices and a loss of welfare.

3.2 Competition, technological innovation, and growth

Based on the experience of OECD countries, there is strong empirical support for the notion that product market reforms that increase competition may play a positive role in promoting innovation performance. For example, Bassanini and Ernst (2002) use data for the manufacturing industries of 18 OECD countries from 1993 to 1997 and provide cross-country evidence that increasing competition in product markets has a

positive impact on the innovation activities of a country. Bourlès et al. (2013) use a panel of 15 OECD countries and 20 industries, finding evidence that anticompetitive upstream regulations have significantly curbed multifactor productivity growth from 1985 to 2007 (see also Blind (2012)). This negative effect of regulations on productivity growth is stronger for observations that are close to the productivity frontier. The evidence obtained by these authors does reveal a positive association between competition and innovation; however, one should be careful in interpreting the results found in the literature as potential endogeneity problems may bias their estimations.

This evidence contrasts with the Schumpeterian view (1942) which emphasizes that technological innovation requires limitations to competition. The reasoning is that too much competition makes it difficult to appropriate the rents generated by technological innovation. The latter typically generates rents that are better protected when the firm creating this innovation has a strong monopolistic position than when it operates in a highly competitive environment. Firms that are shielded from too much competition will, according to this view, be better incubators of innovation. This implication also comes out of standard IO models of product differentiation and monopolistic competition such as Salop (1977) and Dixit and Stiglitz (1977). Thus, too much product market deregulation could reduce innovation and productivity growth. This idea has been supported in a few empirical studies. For example, Amable et al. (2016) analyze the manufacturing activities in the OECD countries and show a positive effect of product market regulation on both innovation (as measured by patents or by R&D) and total factor productivity close to the world technology frontier.

Recent developments in industrial organization suggest that the relationship between competition and innovation is complex and that the Schumpeter view, while important, is only one part of the dynamics that link competition to technological

innovation. This relationship depends among others on the nature of the innovation and the market structure. Aghion et al. (2005) investigate this relationship using a panel of seventeen UK industries over the period 1973 to 1994 and find evidence of an inverted-U relationship between competition (as measured by the Lerner Index) and innovation (as measured by citation-weighted patents). These authors use a theoretical model which distinguishes between two types of competition: 'neck-and-neck' and 'leader-laggard'. It is revealed that competition can lead to two opposite effects: (1) when there is not much product market competition, reforms to increase encourage neck-and-neck firms to innovate; (2) when the competition level is initially very high, more competition discourages laggard firms from innovating. As a result, one should observe an inverted-U relationship.

Polder and Veldhuizen (2012) provide evidence from Dutch data supporting the inverted-U relationship. Hashmi (2013) identifies a mildly negative relationship between competition and innovation in the US data. In contrast, Beneito et al. (2017) find a positive relationship between competition and patents using Spanish data. From our perspective, the relationship between product market competition and innovation depends on whether the industries in question are technologically closely matched. This implies that policymakers should consider the potential impact of product market reforms aimed at increasing competition within this dynamic context.

Aghion et al. (2009) offer a good synthesis that combines the Schumpeterian perspective with the idea that competition plays a crucial role in driving technological change. Using the UK data, the authors find heterogeneity across industries in terms of how firm entry affects innovation incentives in incumbent firms. Specifically, in technologically advanced industries, incumbent productivity growth and patenting are

positively correlated with greenfield foreign firm entry rates; however, this correlation is not observed in laggard industries.

The authors argue that these correlations are rooted in Schumpeterian growth theory. The threat of technologically advanced entry triggers incentives for innovation in sectors positioned near the technological frontier. In such cases, successful innovation serves as a defense mechanism for incumbents, particularly large firms benefiting from monopolistic rents, allowing them to fend off external threats. However, this scenario simultaneously suppresses innovation in laggard sectors, where the same threat diminishes incumbents' anticipated gains from engaging in innovation.

The insight from Aghion et al. (2005, 2009) helps us to explain the puzzle of a significant productivity slowdown at the macroeconomic level. This has been documented in great detail by Gordon (2017) in his book, *The Rise and Fall of American Growth*. What is happening is not so much the slowing down in the rate of innovation at the global frontier, but rather rising productivity at the global frontier coupled with an increasing productivity divergence between the global frontier and laggard firms. In fact, the slow productivity growth of the "average" firm masks the fact that a small cadre of firms are experiencing robust gains. For example, between 2001 and 2013, average labor productivity at the global productivity frontier grows at an average annual rate of 2.8 percent in the manufacturing sector and 3.6 percent in the market services sector, while the corresponding growth rate of all other firms is around 0.5 percent in both sectors. Thus, while at the frontier there is no productivity slowdown, the divergence with laggard firms has tended to increase so that at the macroeconomic level one observes a decline in productivity growth.

In this connection, Andrews et al. (2015, 2016) shed light on the behavior of global productivity frontier and laggard firms in OECD countries. Frontier firms are

not only more productive than laggards, but they are also more capital-intensive. In addition, they are mostly multinational, characterized by larger sales and a higher volume of patent production. All this leads to more profitability. Despite the slowdown in aggregate productivity, it is found that productivity growth at the global frontier remained robust over the 2000s.

Many econometric studies surveyed in the previous sections use granular data about sectors and firms within the same sectors. These studies are quite often successful in revealing the substantial impact that competition has on the notable differences in innovation and productivity growth. On the other hand, empirical investigations that employ macroeconomic data at the country level, such as exploring how product market reforms impact a country's economic growth, have not been as successful and have often come to opposing results.

Newly developed econometric techniques may help to overcome some of the econometric issues that arise using macroeconomic data. One major issue that arises when using macroeconomic data is that it is difficult to construct a counterfactual. The use of the Synthetic Control Method (SCM), which was first proposed by Abadie and Gardeazabal (2003) and later developed by Abadie, Diamond, and Hinmueller (2010), can help to answer the question, "What would have happened without product market reforms?" The SCM is a program evaluation tool that estimates the effect of a treatment (e.g., a structural reform) on a given unit (e.g., a country) at a certain point in time. The method focuses on the construction of the synthetic control group and does so by searching for a weighted combination of other countries chosen to mimic the country affected by the intervention given a set of predictors of the outcome variable. The evolution of the outcome for the synthetic control group is therefore an estimate of the counterfactual of what would have been the behavior of the outcome variable for the

affected country if the intervention had happened in the same way as in the control group.

The SCM has been used in various empirical studies in the field of structural reforms. The overall goal of this literature is to determine the effect of a reform in each country by estimating the difference between "what has happened with the reform" (e.g., observed growth experience of the reforming country) and "what would have happened without the reform" (e.g., growth experience of a synthetic counterfactual composed of non-reforming countries) in the period following the reform introduction.

Using the SCM, Terzi and Marrazzo (2017) find an overall positive impact of liberalizing the economy, while uncovering significant variations in these effects, particularly between advanced and emerging economies. The payoffs to product market reforms seem to emerge earlier but are smaller in advanced countries than in emerging countries. This may be related to the "low-hanging fruit problem" we discussed earlier.

Adhikari et al. (2018) use the SCM approach to identify the effect of product (and labor) market regulation on economic performance focusing on six high-income countries, specifically Australia, New Zealand, Denmark, Ireland, and the Netherlands in the 1990s, as well as Germany in the early 2000s. Their analysis suggests that structural reforms had positive impacts on income per capita in four out of our six cases, compared to the synthetic control unit. Once more, substantial heterogeneity is detected in the estimated effect of reforms on per capita income.

The Schumpeterian view of technological innovation has remained influential. It leads to the question of the role of the state in the innovation process; in particular, whether the state has a role in supporting technological leaders. While this view had been on retreat, especially in the European Union where the single market, launched in the 1990s, introduced strong restrictions on state aid, the view of the state as the

"entrepreneur" capable of identifying national champions and having the resources to promote innovation has made a comeback (Mazzucato (2014)). This comeback has also been accelerated by the collateral damage produced by the COVID-19 pandemic on worldwide supply chains and by the geopolitical tensions that have intensified after the Russian invasion of Ukraine. This has convinced many governments, including the American and European governments, that they have to promote strategic industries to ensure independence in various key industries.

Whether this national retrenchment will be permanent is unclear. It is also uncertain whether it will be successful in promoting technological change. It is true, as Mazzucato (2014) has stressed, that governments can have a strong impact on technological developments. For example, it has been documented that the American program to land astronauts on the moon has promoted the miniaturization of chips and has been instrumental in boosting a new computer industry. Similar stories can be told of the internet. These examples are important but insufficient to understand the role of the state versus the market in promoting technological change.

In summary, the link between product market competition, innovation, and productivity growth is complex. While we better understand the effects of competition on innovation and productivity growth at the microeconomic level, much noise is introduced when aggregating the granular analysis to the macroeconomic level. The macroeconomic relation between competition, innovation, and productivity growth depends on the nature of the innovation itself, on the dynamics and intensity of the competitive process, on the heterogeneity between frontier and laggard firms, and on the governance in which these dynamics are embedded. This complexity makes it very difficult to predict how structural reforms in the product markets will affect technological change and productivity growth at the country level. This also explains

why we still do not have a fully convincing theory allowing us to understand the productivity growth slowdown (Gordon (2017)). We have learned a lot about this but there is still a lot of research to be done.

4. Financial market reforms

Financial market reforms have been implemented in many advanced economies following years of financial repression, resulting in significantly high levels of liberalization, as evident from Figure 1. The objective of these reforms was chiefly to enhance economic efficiency and foster growth, taking the form of either internal, targeting domestic markets, or external, focusing on cross-border financial liberalization. The literature on the impact of financial market reforms on the economy has centered around two key issues: efficiency and stability.

4.1 Financial reforms and efficiency

There is little doubt that the movement from financial repression, which was common in many countries (both advanced and emerging) in the early postwar period, toward more liberal financial systems has been beneficial and has promoted financial development, greater efficiency, and economic growth. Positive effects arise from the fact that more liberal capital markets are more effective at pooling the savings of individuals and facilitating the allocation of resources (see Levine (1997), Beck and Levine (2004)). Additionally, they make it easier for productive firms to finance investment, thereby boosting innovation, investment, and growth.

The seminal work of Aghion and Howitt (1992) provides the basis for theoretical research on the nexus between finance and growth. According to this view, the financial system affects steady-state growth by altering the rate of technological

innovation. For example, finance is key to boosting the rate of technological innovation by identifying those entrepreneurs who can successfully initiate new products or production processes. This idea is elaborated further in the important theoretical work of King and Levine (1993) who developed an endogenous growth model in which liberalized financial systems improve the probability of successful innovation and accelerate economic growth.

There is a large empirical literature documenting the positive effect of financial liberalization on economic growth (see King and Levine (1993), Levine (1997), Levine and Zervos (1998)). This literature generally finds a significant and positive relationship between aggregate measures of financial development and output per capita across countries. This is further confirmed by Valickova, Havranek, and Horvath (2015) from a meta-analysis of 1,334 estimates from 67 studies that examine the effect of financial development on economic growth.

King and Levine (1993) are probably the first to identify a Schumpeterian effect of financial liberalization, i.e., by facilitating "creative destruction", liberalized financial markets can boost economic growth. These authors present cross-country evidence consistent with Schumpeter's creative-destruction view, using data on 80 countries over the 1960–1989 period. Levine and Zervos (1998) show that from 1976 to 1993, stock market liquidity and banking development in 47 countries positively predict growth, capital accumulation, and productivity improvements. Bekaert, Harvey, and Lundblad (2005) find that equity market liberalizations lead to a one percent increase in annual economic growth. All these results are consistent with the view that financial markets generally provide important services that lead to more growth (see also Buera et al. (2011)).

It is worthwhile to point out that international financial integration (capital

account liberalization) is often found not to be a robust factor in promoting economic growth (e.g., Levine and Zervos (1998)). We refrain from analyzing in detail here the huge literature on financial globalization and efficiency (see Wei (2018) for a survey on this topic concerning developing countries). Still, we will come back to this issue in Section 4.2 on stability and in Section 7.1 on reforms and inequality.

The empirical literature on finance and growth stresses the impact of finance on innovation at the firm level. Brown, Fazzari, and Petersen (2009) present evidence that financial liberalization stimulates innovation in small US high-tech firms by providing cash flow and external equity. Cornaggia et al. (2015) show that banking competition increases innovation among small and private firms that are dependent on external finance and lack access to credit from local banks. Amore, Schneider, and Žaldokas (2013) use interstate US banking data during the 1980s and 1990s; and find that interstate banking deregulation has significant beneficial effects for innovation activities among manufacturing firms.

Financial liberalization also affects the structure of the product markets and generally allows for easier entry into such markets. A recent study by Didier et al. (2021) analyzes the connection between a well-developed capital market and firm growth using a data set of 62,653 listed firms in 65 countries from 1990 to 2016. The growth effect is found to be pronounced among firms that are more likely to face tighter financing constraints, i.e., small, young, and high-R&D firms.

Empirical evidence also shows that bank competition can help foster a Schumpeterian process of "creative destruction". For example, Bertrand et al. (2007) study the French banking liberalizations of the 1980s and find that following deregulation, banks are less willing to bail out poorly performing firms and that firms in the more bank-dependent sectors are likely to undertake restructuring activities.

Confirming evidence can be found for the US too: Cetorelli and Strahan (2006) show that competition in local banking markets reduces barriers to entry and has a significant positive effect on the creation of non-financial firms with smaller average sizes.

Although there exists a large empirical literature supporting the notion that financial reforms have strong positive effects on growth, Valickova, Havranek, and Horvath (2015) point out that this effect should be treated with caution. This is because: (1) individual estimates in the existing empirical studies vary widely; and (2) some studies in this area do not address endogeneity, and as a result, these studies tend to overstate the positive impact of finance on growth.

Since the global financial crisis of 2008, there is a growing literature questioning the positive link between finance and growth. For example, Rousseau and Wachtel (2011) find that the positive relationship between finance and growth is not as strong in more recent data as it is in the original studies of the 1990s, which use data for the period from 1960 to 1989. They highlight the problem of excessive finance and argue that this problem may be a result of widespread financial liberalizations in countries that lack the legal or regulatory infrastructure (e.g., high-quality institutions that strengthen creditor rights, enforce contracts, and ensure good accounting practices) to fully harness financial development. This view is indirectly confirmed by empirical findings by Levine, Loayza, and Beck (2000); Bekaert, Harvey, and Lundblad (2005); and Prati et al. (2013).

The positive relationship between finance and growth may also depend on the income level of a country. For countries that are less well integrated in the world economy, financial liberalization supports firms in tradable sectors in these countries by increasing their productivity and growth (see e.g., Braun and Raddatz (2007) and Christiansen et al. (2013)). Increasing both household and firm financial participation

in these economies positively contributes to smoothing the business cycle (Epstein and Shapiro (2021)). Financial reforms, especially when transitioning from complete financial repression, have strong positive effects on growth. However, the importance of finance on economic growth declines once these countries are fully integrated into the world economy, and finance becomes less important. This view is supported, for instance, by Terzi and Marrazzo (2017) who find that the payoffs to financial liberalization reforms are significantly smaller in advanced than in emerging countries, suggesting again that there are benefits to be obtained from "low-hanging fruit".

Other empirical studies show that the relationship between finance and growth is non-linear. Law and Singh (2014) find that the level of financial development is beneficial to growth only up to a certain threshold, beyond which further development of finance tends to adversely affect growth. Using large samples of developed and developing countries, Arcand, Berkes, and Panizza (2015) and Samargandi, Fidrmuc, and Ghosh (2015) reach a similar conclusion: there exists an inverted U-shaped relationship between finance and economic growth.

This is consistent with the literature claiming that too much finance may be bad for growth (see Rousseau and Wachtel (2011) and Arcand, Berkes, and Panizza (2015)). Rousseau and Wachtel (2011) argue that excessive finance, in the form of too rapid credit growth, may have led to inflation and a weakened banking system, resulting in negative effects on growth. Such negative impacts of finance on growth occur in advanced countries. Cecchetti and Kharroubi (2019) use a panel of 20 advanced countries over 25 years and find that the higher the growth rate of credit, the lower the growth rate of output per worker. They stress that one of the possible mechanisms behind this negative relationship is related to the fact that the growth of the financial sector disproportionately benefits projects with high collateral but low productivity.

According to these authors, the financial sector grows disproportionately at the expense of the real economy.

A related finding is provided by Philippon and Reshef (2012) who study the allocation and compensation of human capital in the US finance industry over the past century. They find that financial deregulation has been associated with an increase in skill intensity, job complexity, and wages for finance employees after 1985. This has contributed to attracting highly skilled human capital into the finance industry at the expense of other sectors of the US economy.

Concluding this section on the link between financial liberalization and economic growth (efficiency) the following features stand out. There is strong evidence that the effect is positive. However, there is some uncertainty surrounding this result. First, it seems to crucially depend on the nature of the financial liberalization process and the institutional environment in which this liberalization is implemented. Second, the link may not be linear. When moving away from financially repressed systems, financial liberalization has a strongly positive effect on economic growth. There is some point when financial liberalization crosses a threshold and when further liberalization may start having negative effects on innovation, productivity, and growth. All this leads to the question of how far a country should pursue financial reforms before potentially experiencing a declining effect of these reforms on efficiency and economic growth.

4.2 Financial liberalization and stability

Financial liberalization, much more than the liberalization of labor and product markets, can lead to issues of macroeconomic stability. There is a large literature on how financial liberalization in some areas has contributed to financial instability and

even to banking and economic crises.

One author who stands out in this literature is Hyman Minsky (1986), a post-Keynesian economist. His importance is to have identified the mechanisms by which businessmen, investors, and banks after a period of tranquility, which typically is also a period of low returns, start to look for higher returns. The latter, however, can only be found by taking more risks. Thus, after a period of financial stability, turbulence becomes almost inevitable. These mechanisms tend to gain force in liberalized financial systems. Academically not well recognized before the financial crisis of 2007 to 2008, his analysis has become very influential as it has raised fundamental issues of the stability of the financial system.

More theoretical work has established a link between financial liberalization and moral hazard behavior in the banking sector. For example, Hellmann, Murdock, and Stiglitz (2000) use a dynamic model to analyze this issue. They argue that financial liberalizations, such as reduced barriers to bank entry, fewer restrictions on opening branches, and the presence of more foreign banks, intensify competition among banks. Consequently, this reduces the profitability of existing domestic banks and increases the potential for excessive risk-taking. One interesting finding of their theoretical work is that capital requirements (based on the Bank of International Settlements (BIS) standards of the Basle Accord) alone are not sufficient to reduce these incentives, as they also hurt banks' franchise values, thus encouraging gambling and ultimately leading to more instability in the financial system. As a result, Hellmann, Murdock, and Stiglitz (2000) suggest that adopting additional regulatory instruments, such as controls on deposit rates and restrictions on holdings of risky assets, can generate more effective outcomes.

Another important theme in this literature on financial stability is the "too big

to fail" problem. Many economists argue that the 1999 repeal of the Glass–Steagall Act (which separated commercial banking from investment banking) changed the culture of commercial banking and created ever larger banks that are considered too big to be allowed to fail. Rajan (2011) analyzes how this provided incentives for excessive risk-taking and led to moral hazard and mispricing of risk. This is one of the fundamental causes of the financial crisis that erupted from 2007 to 2008. A similar theme can be found in Kroszner (2012) who recognizes that a larger and more developed financial sector could allow greater concentrations of risk, thereby making the entire system more vulnerable.

Progress has been made in linking finance and stability from a macroeconomic perspective. For example, Bernanke et al. (1999) use the financial accelerator approach to study how credit markets can act as an important channel to amplify and propagate shocks in the macroeconomy. Behavioral macroeconomists also warn that there are several pro-cyclical features in the behavior of banks. De Grauwe and Macchiarelli (2015) find that banks amplify movements of optimism and pessimism (animal spirits) which create a greater scope for booms and busts. De Grauwe and Ji (2020) analyze the same problem, assuming that banks are not just financial intermediaries, but that they also create money. They find that if left unchecked, the financial system can destabilize the economy and ultimately lead to financial crises more frequently.

Economists also provide a historical account that financial crises are more pervasive than generally perceived. In the book *Manias, Panics and Crashes,* Aliber and Kindleberger (2015) review ten important financial crises of the past and argue that since the 1980s (the period when financial liberalizations became more prevalent), there have been four waves of financial crises. Each followed a wave of credit bubbles causing a large number of banks to collapse and leading to recessions. In their book

This Time is Different: Eight Centuries of Financial Folly, Reinhart and Rogoff (2009) analyze how booms and bubbles, often interpreted to be different from the past and therefore overlooked, lead to excesses in financial markets and eventually to crashes.

Demirgüç-Kunt and Detragiache (1999) are among the first to analyze econometrically the link between financial liberalization and stability using a panel of 53 countries from 1980 to 1995. They reveal that banking crises are more likely to occur in liberalized financial systems. This result supports the view that financial liberalization should be approached cautiously in countries where institutions that ensure legal behavior, contract enforcement, and effective prudential regulation are not fully developed. Kroszner, Laeven, and Klingebiel (2007) arrive at a similar conclusion using data from 38 developed and developing countries that experienced financial crises during the last 25 years. This has been a recurrent theme in this literature, from Southeast Asia and the Scandinavian countries in the 1990s to the advanced countries from 2007 to 2008. It seems most financial crises erupt when financial liberalizations are implemented without simultaneously reforming the domestic regulatory and supervisory structure.

The literature on financial liberalization and stability after 2008 has also revived the idea of the optimal sequencing of these reforms.[8] This is an important body of literature for emerging countries that have often struggled to find the right way of sequencing their financial reform programs. In particular, the liberalization efforts have often started with external liberalization, attracting massive amounts of cross-border capital inflows. As a result, in the absence of reforms in the domestic financial sectors, the free movement of capital has often led to major distortions in the domestic

[8] For earlier research, see e.g., Williamson and Mahar (1998); Demirgüç-Kunt and Detragiache (1999); Stiglitz (2000); Ranciere, Tornell, and Westermann (2006, 2008)).

allocation of financial resources. This contributed to the financial crises in several Southeast Asian countries.

The literature on the sequencing of financial liberalization makes clear how domestic and external financial liberalization are intertwined. Although our focus is on domestic financial liberalization, we cannot avoid a discussion of capital account liberalization in the context of the sequencing of liberalizations. The literature on capital flow liberalization makes a distinction between long-term capital flows, including foreign direct investment, and short-term capital movements (see e.g., Ghosh, Ostry, and Qureshi (2016)). There is strong evidence that foreign direct investment promotes economic growth while posing little risk of financial instability.

The same cannot be said of short-term capital mobility which generally is found to create limited scope for economic growth (Edison et al. (2002)), while creating important risks of financial instability (see Dell'Ariccia et al. (2008); Ostry, Prati, and Spilimbergo (2009); Ostry et al. (2012)). As noted by Ghosh et al. (2016), since 1980 there have been about 150 episodes of large increases in capital inflows resulting from capital account liberalizations. In about 20 percent of these episodes the large capital inflows were followed by a financial crisis, with costly losses in terms of output.

Obstfeld (1998) notes that capital account liberalization generates both important efficiency gains stimulating economic growth and risks of financial instability. This "duality of benefits and risks" inherent in external financial liberalization has become relevant in the recent Eurozone sovereign debt crisis during 2010–2012. One of the features of the creation of the Eurozone in 1999 is that it led to a sudden liberalization of capital flows within the monetary union. The free movement of capital from the core countries, such as Germany, with excess savings to the periphery countries led to asset bubbles (in particular in real estate) and strong booms

in economic activity in the periphery countries such as Greece, Ireland, and Spain. This also led to losses of competitiveness and large external imbalances from 1999 to 2008. When the crash came, these countries had to implement an internal devaluation, which involved reducing wages and prices relative to those of their competitors. This could only be achieved by deflationary macroeconomic policies (mainly budgetary policies). Inevitably, this led to a recession and an increase in budget deficits.

De Grauwe (2012) points out that as these countries experience increasing budget deficits while they attempt to improve their competitiveness, government bond investors are likely to become distrustful, driving capital out of these countries. If outflows are strong enough, this may lead to a liquidity crisis (for empirical evidence see De Grauwe and Ji (2013)) and severe recessions. The lesson we learn from the Eurozone crisis is that government bond markets in a monetary union are fragile and can be subject to capital movements that ultimately destabilize the system if complementary reforms are not carefully designed and implemented.

In short, all the intellectual rethinking about the financial system in advanced economies leads to the view that the implementation of financial market reforms, if not embedded in a strong regulatory or supervisory environment, can create substantial short-term costs. There is a need to introduce macroprudential tools together with monetary policy to improve financial and macroeconomic stability (see Galati and Moessner (2013, 2018) for a discussion on macroprudential policies).

5. Labor market reforms

Labor market reforms are particularly difficult to design and implement. This complexity arises because labor market institutions cover a very wide range of government policies that are related to employment protection legislation (EPL),

unemployment benefit systems, minimum wages, taxes on labor, social security systems, and more. Consequently, labor market reforms are often debated extensively in parliaments and government circles. They are contentious and hard-fought, usually approved in bundles that frequently include agreed-upon implementation lags.

The effects of labor market reforms are profound and far-reaching, taking a long time to materialize. In addition, there are important complementarities between specific reforms in labor, product, and financial markets. These complementarities are key to understanding how labor market reforms affect the economy. These factors contribute to labor market reforms being simultaneously one of the most important structural reforms and one of the least well-understood.

Much of the measuring and empirical assessment of these reforms has been carried out by the OECD, the World Bank, the IMF, and the ILO. While product and financial market reform measures show progressive liberalization since 1990, the opposite can be concluded regarding labor market reforms (e.g., Campos et al. 2020; see also Figure 1 in the introduction), where the data shows an increase in labor market regulations.

In this section, we first review the major theoretical arguments and give an empirical assessment of how labor market reforms affect (1) unemployment, and (2) economic growth, before (3) discussing complementarities between reforms in labor markets and reforms in product or financial markets.

5.1 Labor market reforms and unemployment

Since the early 1980s, one of the main reasons for designing and implementing labor market reforms has been to reduce the unemployment rate, especially when comparing the US and Europe. This disparity in labor market flexibility has generally been

considered the major cause of divergent unemployment trends between the US and Europe observed since the 1970s. Until the end of the 1960s, unemployment in the US and Europe was following essentially the same trends. However, the 1970s acted as a turning point when European unemployment rates started to increase substantially, leading to structurally higher unemployment rates than in the US.

There are large differences in the functioning of the labor markets between the US and Europe. The former is characterized by more flexibility in labor contracts, including ease of termination of labor contracts, a generally low level of minimum wages, a relatively low level of unemployment benefits, and the absence of rigid working time legislation. In contrast, most European countries have more rigid labor contracts, with employment protection legislation preventing firms from easily firing their workers, relatively high minimum wages and unemployment benefits, and strong working time regulations. This disparity in labor market flexibility has generally been considered the major cause of divergent unemployment trends between the US and Europe observed since the 1970s.

These differences between the US and Europe received a great deal of attention. Blanchard and Summers (1986) stress how the supply shocks of the 1970s, in conjunction with structural rigidities in the European labor markets, introduced "hysteresis" in European unemployment, leading to a permanent increase in its level. The mechanisms that bring this hysteresis about are now well-known.

The supply shocks of the 1970s created a sudden surge in unemployment both in the US and in Europe. In Europe, many unemployed found it difficult to be integrated again into the labor market, mainly because of rigidities. Wage rigidities, for example, prevented unemployed workers from finding profitable employment elsewhere at a lower wage, and a relatively high level of social protection (e.g., high unemployment

benefits) provided weak incentives for some workers to actively search for new employment. This is less the case in the US where a large number of unemployed workers are reintegrated in the labor market, albeit often with less favorable conditions. These mechanisms are further elaborated by Siebert (1997) and Blanchard and Wolfers (2000). Ball (1997) presents additional support for the "hysteresis" theory and finds that unemployment benefits magnify the effects of disinflation.

All this led to the view that, for Europe to reduce its structurally high unemployment rate, it would have to emulate the American labor market by implementing structural reforms that would introduce more flexibility to the functioning of European labor markets. This idea became very influential and led many countries to initiate labor market reforms to reduce unemployment.

It should be noted that this attempt at emulating the US by structural reforms also encountered resistance in many European countries. The need to introduce wage flexibility and reduce the level of social protection would lead to a "commodification" of labor. Polanyi (1944), who coined this term, stresses that this would inevitably lead to great resistance. Commodities are indifferent when their price declines; workers are not. We will come back to these issues when we discuss the political economy of structural reforms.

These attempts at structural reforms of the labor markets in Europe have given rise to a substantial body of literature examining their consequences on labor market outcomes, such as employment, labor force participation, and unemployment. There are already numerous excellent, more comprehensive reviews of the literature available. The theoretical literature is reviewed by Nickell and Layard (1999), and more recently by Chan and Moffitt (2018), as well as by Duval and Loungani (2021). Regarding early empirical evidence, Boeri and van Ours (2008) have provided a review, while more

recent efforts have been made by Brancaccio, De Cristofaro, and Giammetti (2020); and Heimberger (2020).

An excellent starting point to understand the issues related to labor market reforms and unemployment remains Nickell and Layard (1999), in which the authors formulate an equilibrium unemployment model to highlight different aspects of labor market institutions that may play different roles in the long-term equilibrium level. Nickell (1997) places these different institutional factors in the context of comparing the European and North American experiences and argues that some labor market rigidities such as employment protection legislation (EPL), generous unemployment benefits, and unionization, may not always have serious implications for average levels of unemployment. However, negative employment effects can arise when labor markets are too protective (i.e., unemployment benefits are too generous and are allowed to run on indefinitely) or when wage costs are too high due to the absence of coordination in wage bargaining or due to high wage taxes.

Empirical evidence published since seems to confirm the conclusions of Nickell (1997) on labor market rigidities and unemployment. For example, using data over the period 1982–2003, Bassanini and Duval (2006) find that in 21 OECD countries, employment protection legislation does not have a significant impact on unemployment rates. These authors also find that in these countries, high and long-lasting unemployment benefits and high tax wedges tend to increase unemployment, while coordinated wage bargaining systems decrease unemployment. Based on a meta-analysis of research on this topic, Heimberger (2020) finds that among studies on the OECD countries, employment protection does not seem to have a significant and adverse impact on unemployment. Brancaccio, De Cristofaro, and Giammetti (2020) point out that the empirical support for the view that "labor market deregulations

increase employment and reduce unemployment" has weakened significantly in the last decade or so.

As for other potential sources of labor market rigidity such as the minimum wage, the path-breaking research of Card and Krueger (1994, 2015) should be mentioned. Focusing on the fast-food industry, these authors reveal that an increase in minimum wages for low-income workers does not necessarily hurt employment. This result goes against the conventional wisdom that minimum wages always lead to a loss of employment and an increase in unemployment. The authors identify the conditions under which their result would hold more generally, i.e., the existence of monopsonistic behavior among employers who, because of their market power, pay a wage below the marginal product. A minimum wage is then a policy instrument that eliminates this distortion and improves welfare. It should be stressed, however, that the increases in minimum wages studied by Card and Krueger (1994) are relatively small. It is unclear whether large increases in minimum wages would have the same effect.

Finally, one can argue that the most important factor behind our still limited understanding of labor market reforms is measurement. Heimberger (2020) finds that the choice of the employment protection variable matters: estimates that build on survey-based EPL variables report a significantly stronger unemployment-increasing impact of EPL than estimates developed using EPL indices based on the OECD's methodology. The latter relies on coding information from legal provisions. Improved measurement of labor market reforms should thus be an important focus of future research (see Appendix 1 for a discussion of labor market reform indicators).

5.2 Labor market reforms and economic growth

Labor market institutions may affect productivity growth through different mechanisms

such as human and physical capital accumulation and technological innovation. The relevant literature tends to stress the complexity of the impact of labor market reforms on economic growth. For example, changes in employment laws that lower the costs of hiring and firing workers encourage job separations, which increase job creation and may positively impact the ability of firms to respond to shocks (Saint-Paul (1997)). Yet, these very same reforms can have substantial negative effects on productivity. For example, lower firing costs, by leading to more rapid job turnover, can reduce the incentives to invest in human capital (Nickell and Layard (1999)). This is an example of why the productivity effects of employment protection are so difficult to pinpoint and identify (Holmlund (2014)).

Many econometric studies examine the impact of labor market rigidities on economic and productivity growth. In general, these studies tend to find weak effects of these measures of rigidity on economic growth. This is especially the case with labor market employment protection legislation. In a seminal piece, Nickell and Layard (1999) exploit cross-country variation and find a positive association between employment protection and productivity in OECD countries. Belot, Boone, and Van Ours (2007) use a richer data set, including time-varying indicators of employment protection legislation in 17 OECD countries, and find that there is an inverted U-shaped relationship between employment protection and growth, i.e., when the index of employment protection (on regular jobs, fixed term contracts, and temporary work) increases it first raises the growth of GDP per capita among these countries. With too much protection growth tends to be lower. Dabla-Norris et al. (2015) use sectoral-level data and fail to find a significant effect of employment protection on employment and productivity growth in a sample of industrialized countries. Bassanini, Nunziata, and Venn (2009) use industry-level data to analyze the relationship between employment

protection and productivity growth. They find that employment protection legislation has a negative impact on productivity growth in industries where layoff restrictions are more binding.

The effects of labor market reforms on innovation can be significant. A movement toward increasing labor market flexibility involves a reduction of employment protection. Many economists have argued that some minimum protection is necessary in the presence of market failures: employment protection could be a second-best instrument to ensure growth (e.g., Pissarides (2001)). In a world of little employment protection, firms and workers may have few incentives to invest in skill accumulation and human capital. This, in turn, can lead to a reduction in labor productivity and economic growth. This idea is discussed in Abe, Inversen, and Soskice (2001) and is modeled by Wasmer (2006).

Acharya et al. (2013) argue that employment protection legislation reduces the turnover of highly skilled workers and in so doing promotes technological innovation. The opposite conclusion is reached by Francis et al. (2018) using firm-level data. Another important paper is by Bartelsman et al. (2016). The authors suggest that high-EPL countries, such as those in the EU, are less likely to adopt new risky technologies than low-EPL countries such as the US, due to the higher cost of shedding workers. This may lead to lower productivity growth in Europe. On the other hand, the results from Vergeer et al. (2015) suggest that employees' loyalty and commitment are key. They use firm-level data to show that more flexible labor relations reduce labor productivity growth in sectors where innovation is 'routinized'. The mechanism they identify is that easy firing diminishes the loyalty and commitment of workers, which, in turn, hurts innovation.

It appears that the effects of labor market reforms on unemployment and

economic growth remain very uncertain. As mentioned earlier, this has much to do with problems of measurement of reforms. It is also related to the econometric problems that we mentioned in the section on product market reforms. There are also problems arising from endogeneity and omitted variables, as well as the difficulty economic science encounters from the absence of counterfactuals. New econometric methods, such as the SCM, have been developed to address these issues. Saka et al. (2020) use the SCM to analyze the effects of labor market reforms on economic growth. They apply this method to four countries of interest (France, Denmark, Portugal, and Greece) and study reform efforts that occurred in the 1980s and 1990s. Their analysis reveals several interesting patterns; however, drawing valid conclusions across all four countries proves challenging. They conclude that labor market reforms are generally not good predictors of subsequent developments of economic growth and employment.

5.3 Labor market reforms and complementarity

In order to understand the effects of labor market reforms, one has to consider that there are important complementarities between reforms in labor markets and reforms in product and financial markets. Complementarity can be defined in various ways. Strictly speaking, complementarity is about the effects of a reform in, say, the product market when at the same time a reform occurs in the labor market. In other words, complementarity refers to the relevant cross-partial derivatives ($\partial^2 \text{outcome}/\partial \text{Reform1} \partial \text{Reform2}$). There are few studies that analyze complementarity in this strict sense. The study of Estevão (2005) comes to mind, showing that wage moderation is more effective in stimulating growth if it occurs in countries with more deregulated product markets. The implication is that insufficient competition limits the benefits of labor market reforms. Murtin and Robin (2018) examine a set of nine OECD

countries (including the US, Australia, and Japan) and find that reducing unemployment benefits together with product market deregulation complement each other powerfully in reducing the unemployment rate.

We will use a broader concept of complementarity and survey the studies that examine spillovers between different markets. These can be spillovers of a reform in, say, the product market on the labor market (e.g., on employment). Spillovers also relate to how reforms in one market induce reforms in other markets. So, in a sense, we will survey different interactions between reform processes in various markets.

One complementarity (interaction) that has been extensively explored in theory is that between labor and product markets. Various theoretical models analyze the positive interaction effects between labor and product markets.[9] Product market deregulation, which allows the entry of new firms, should increase firms' labor demand. This allows the economy to benefit from the liberalized labor market in creating more employment. This conclusion is confirmed by several empirical studies. Bertrand and Kramatz (2002) show that stronger deterrence of entry in the French retail sector has increased retailer concentration and slowed down employment growth in France since 1970. Berger and Danninger (2005) examine interactions among reforms in OECD countries between 1990 and 2004 and find evidence of complementarity between product and labor market reforms.

However, there is no consensus on this matter. Fiori et al. (2012) look at the same relationship in OECD countries between 1980 and 2002 and find evidence of substitutability between those same reforms. The lack of empirical consensus may be driven by the difficulties that theoretical works have encountered in pinpointing such

[9] See Blanchard and Giavazzi (2003), Bassannini and Duval (2006), Danninger and Berger (2007), Koeniger and Vindigni (2003), Amable and Gatti (2006), Krueger and Pischke (1997), and Kugler and Pica (2004).

complementarities. For example, Amable and Gatti (2004) use a model of dynamic efficiency wages combined with monopolistic competition in product markets to show that increased product market competition can increase or decrease the level of employment.

Annett and Debrun (2004) find that, within the Euro area, product market reforms appear to cause labor market reforms, and there is a spillover effect from product market deregulation into labor market deregulation. Piton and Rycx (2018) analyze the data for 24 European countries from 1998 to 2013 and find that product market deregulation overall reduces unemployment, while labor market deregulation is mostly detrimental to employment in the short term but beneficial in the long run. Amable et al. (2007) find that decreasing product market regulation makes deregulation in labor markets a detrimental policy for employment, suggesting that these deregulation policies are not complementary but rather substitutes.

A second specific complementarity (interaction) that has received attention is the one between labor and financial market reforms**.** Wasmer and Weil (2004) consider a macroeconomic model where imperfections in both labor and credit markets interact. Imperfections rely on informational and search frictions and are modeled using matching functions. Entrepreneurs must find credit before setting up a firm and they must find workers before producing. Credit market imperfections delay the setting up of firms and make the whole process more expensive, which ultimately depresses labor demand and contributes to raising the unemployment rate above the level that would have resulted from the existence of labor market imperfections alone.

The econometric results of Campos et al. (2020) shed light on the joint effects of labor, product, and financial market reforms on growth. They use sectoral- and country-level data for a more granular set of reform measures to compare the

productivity effects of labor, product, and financial reforms. Interestingly, they report that only their aggregate indicator of labor market reforms shows positive effects in terms of productivity growth, while neither their product market reform nor their financial market reform indexes show such effects. Furthermore, when decomposing these effects, they find that increasing "regulation and supervision" of the financial market and "legislation on firing costs and working time" in the previous year are positively associated with valued-added growth while strong regulation of "permanent and fixed-term contracts" and "part-time and agency contracts" are negatively correlated.

A third interaction exists between labor market reform and other related policies and institutions. Bassanini and Duval (2006) examine the employment patterns in OECD countries and find that any reform that lowers unemployment is likely to be complementary with reforms that align in the same direction (such as unemployment benefits, public spending on active labor market programs, statutory minimum wages, and the tax wedge). They estimate that a ten-percentage point reduction in the tax wedge or unemployment benefits may lead to a drop in the unemployment rate of about 2.8 and 1.2 percentage points, respectively.

There is a growing interest in the interactions between the labor market and tax reforms in Europe as European countries generally have rather high taxes on labor. Notably, Italy and Spain offer two intriguing cases in recent years, potentially serving as valuable sources for future case studies. Earlier studies find that in regimes where highly protected workers have strong bargaining power and can easily resist attempts by employers to transfer the burden of payroll taxes onto wages. As a result, tax wedge and employment protection legislation negatively affect unemployment. Empirical evidence based on European data has shown an increase in labor tax rates could account

for a rise in EU unemployment (see e.g., Elmeskov et al. (1998), Belot and Ours (2004), Daveri and Tabellini (2000)). Additionally, Bassanini and Duval (2006) find that tax incentives appear to affect the job prospects of individuals who are on the edge of the labor market (e.g., youth, females, and older workers). Specifically, high implicit taxes on continued work discourage older workers from staying in the workforce, while low tax incentives for part-time work contribute to higher female employment rates (see also Gal and Theising (2015)).

Danninger and Berger (2007) develop a theoretical model to study how more flexible labor markets can benefit employment, especially when taxes on labor are favorable. In a highly rigid labor market, reducing the strictness of labor regulation shifts the labor supply curve to the right, leading to a lower real wage and a higher employment rate. This positive effect on employment is further enhanced by lowering taxes on labor. The latter has the effect of shifting the demand for labor to the right. These two changes (i.e., labor market deregulation and lower taxes) have complementary effects on employment and tend to reinforce each other. This idea is supported by Martelli et al. (2020). By addressing potential endogeneity concerns, these authors find robust evidence pointing toward the complementary impacts of labor and tax reforms within EU countries over the period spanning from 1990 to 2015.

To conclude this section on labor market reforms, it appears from the empirical literature that the effects of labor market reforms on growth, innovation, and unemployment remain difficult to predict with precision. There is also little consensus on how other labor market reforms are transmitted to the rest of the economy. This has mainly to do with methodological and measurement issues, with issues relating to complementarity (as discussed above), and timing issues which we discuss in greater detail in the next section.

6. Structural reforms and the business cycle

In addition to differentiating among key types of domestic structural reforms (we discussed product, financial, and labor market reforms above in Sections 3 to 5), there are important additional considerations that can help deepen our understanding. In this section, we analyze a key issue related to the *timing* of structural reforms, specifically the one related to the question of when during the business cycle structural reforms should ideally be implemented.[10]

The macroeconomic literature after the global financial crisis has recognized that reforms implemented during recessions have different effects on economic growth and unemployment compared to those implemented during expansions. This timing problem not only affects the *size* of the immediate impact of reforms, but it can also affect the *sign* of these effects. For example, relaxations of employment protection legislation implemented during a recession can intensify the recession: as workers are fired more quickly in an environment of declining aggregate demand there is no offsetting increase in employment. As unemployment increases and disposable income declines, the recession intensifies. Thus, the short-term effect of a liberalization of employment legislation on growth and employment can be negative. As the short term can sometimes be surprisingly long, it may be difficult to identify the nature of the relationship between economic growth and employment, on the one hand, and structural reforms, on the other. Hence more nuanced policy advice about product and labor market reforms along the business cycle especially during recessions, is advocated by Blanchard (2015), De Grauwe and Ji (2016), Fatás (2016), and IMF

[10] There is literature on whether reforms should be implemented quickly or gradually (see Lipton and Sachs (1990), Dewatripont and Roland (1995)). This literature focuses on political economy issues (i.e., winners vs. losers of reforms) in transition economies.

(2015). We first survey the theoretical literature analyzing the dynamics over time of the implementation of structural reforms and then turn to a survey of the empirical evidence.

6.1 Theoretical models

The negative effect of the implementation of structural reforms during recessions is modeled by Eggertsson et al. (2014). These authors develop a theoretical framework showing that in a crisis that pushes the nominal interest rate to its lower bound, reforms do not support economic activity in the short run and may well be contractionary. In the absence of the appropriate monetary stimulus, reforms fuel expectations of prolonged deflation, thereby increasing the real interest rate, and depressing aggregate demand. Put differently, when the zero lower bound (ZLB) prevails, reforms tend to push the economy into negative territory and tend to keep the economy there for a relatively long time (De Grauwe and Ji (2017)).

When monetary policy is constrained by the ZLB, the output loss triggered by structural reforms creates a potential role for fiscal stimulus in boosting the short-run aggregate demand. This idea has been analyzed by Sajedi (2018) using a model to quantify the short-run fiscal costs and long-run fiscal benefits of reforms. It is found that reforms in labor markets have little negative effect on public finances in the long run and that their short-run costs can be offset by long-run gains arising from product market reforms.

Not every macroeconomist agrees with the views developed by Eggertson et al. (2014). Many have argued that there is great complexity in the transmission of structural reforms to the economy. This has much to do with the fact that structural reforms that appear to be pure supply-side instruments may interact with aggregate

demand, creating a complex dynamic transmission. This problem has been analyzed recently in the context of DSGE models in which the interaction of demand and supply takes center stage (see, for example, Cacciatore et al. (2016, 2021), Asturias et al. (2016), Hamano and Zanetti (2017)). This literature has developed models stressing the idea that reforms are multi-dimensional. Instead of being treated separately in individual markets, different reforms should be analyzed in a general equilibrium framework. One important policy implication from this literature is that policymakers should not focus on one reform; instead, they should try to achieve the right balance among different reforms.

Cacciatore and Fiori (2016) provide a theoretical framework to study the short-term macroeconomic effects of deregulating product and labor markets. Unlike the analysis of Eggertsson et al. (2014), who model product and labor market reforms as exogenous cuts to price and wage markups, Cacciatore and Fiori (2016) model product market reforms as a reduction in entry costs and labor market reforms as a reduction in firing costs and/or unemployment benefits. In this setup, deregulations in product and labor markets create an endogenous dynamic of product creation and capital accumulation. The latter tends to boost aggregate demand. These authors find that these reforms have a long-term positive impact on economic growth. However, due to slow adjustments in the labor and product markets, reforms can induce recessions and increase unemployment in the short run. Another interesting finding in this study is that joint deregulation in product and labor markets could reduce the volatility of business cycles and hence alleviate the short-term costs of these reforms.

Cacciatore, Duval, Fiori, and Ghironi (2016a, 2021) provide a related macroeconomic analysis of reforms in a monetary union. They stress that some reforms can lead to short-run transition costs; however, reforms do not produce significant

deflationary pressures as suggested by Eggertsson et al. (2014). As a result, they conclude that the existence of a ZLB should not be an obstacle to the introduction of structural reforms. They also point out that reforms (in particular, product market reforms) can have a positive impact when the economy is hitting ZLB.

The analysis of Cacciatore and Fiori (2016) and Cacciatore, Duval, Fiori, and Ghironi (2016a, 2021) has important policy implications. The models developed by these authors lead to the conclusion that structural reforms may lead to short-term pain (i.e., loss of jobs, recession) and long-term gains. The long-term gains arise when the economy bounces back thanks to the creation of new jobs and new enterprises. This is an application of Schumpeter's creative destruction, whereby the destruction phase precedes the creation phase. This leads to a political economy problem in which politicians who, facing destruction first, come under pressure to turn back the reform process.

Confidence and market sentiment may also play a role in the macroeconomic effects of reform. Gerali et al. (2015) investigate the short- and medium-term macroeconomic effects of reforms aimed at increasing competition in the service sector. They consider the situation in which the monetary policy rate is hitting the ZLB in a monetary union. Their findings are, first, that reforms by a single country have weak medium-term expansionary effects on output. Second, when simultaneously implemented in the entire monetary union (Euro area in their case), reforms can induce an early exit from the ZLB provided they have sufficiently inflationary effects. This occurs mainly as a result of a confidence effect à la Alesina-Giavazzi, i.e., the expected increase in output creates so much confidence that it boosts investment. If the confidence effect is weak, so that investment cannot immediately react to the reforms, then the latter has a deflationary impact.

Structural reforms during recessions can also have different impacts on the economy through the influence of confidence and market sentiment even if they are not constrained by the ZLB. De Grauwe and Ji (2020) use a New Keynesian behavioral macroeconomic model to analyze this issue. The model is characterized by the fact that agents experience cognitive limitations preventing them from having rational expectations. Instead, they use simple forecasting rules (heuristics) and evaluate the forecasting performances of these rules ex-post. This heuristic switching model produces endogenous waves of optimism and pessimism ("animal spirits") that drive the business cycle in a self-fulfilling way, i.e., optimism (pessimism) leads to an increase (decline) in output, and the increase (decline) in output in turn intensifies optimism (pessimism). The authors find that uncertainty about the transmission of structural reforms to the economy can also be driven by market sentiments at the time reforms are introduced. When market sentiments are negative, especially during recessions, the positive impact of efficiency gains from structural reforms may be very small or turn negative.

However, these authors also find that in a more flexible economy, the trade-off between output and inflation stabilization improves. This means that the central bank can achieve less volatility of inflation and output by applying the same interest rate policies in a flexible economy as compared to a more rigid economy. There are, however, diminishing returns to this effect, i.e., at some point, more flexibility stops improving the trade-offs.

To summarize, we emphasize the political economy implications of the various theoretical models surveyed here. On the one hand, the existence of short-run costs following individual reforms (e.g., barriers to entry and employment protection legislation) offers a macroeconomic explanation for the historical resistance of

governments to implement market deregulation. On the other hand, joint deregulation in key domestic reform areas reduces short-run costs (see Cacciatore and Fiori (2016) and De Grauwe and Ji (2020)), suggesting that a broad reform agenda may alleviate the short-term pain and weaken the political opposition to reforms.

6.2 Empirical studies

Given the latitude of these theoretical conclusions, empirical evidence gains further importance in evaluating the short-term effect of reforms along the business cycle. There is now a range of available empirical studies to confirm that many structural reform programs when implemented during recessions, have a negative impact on short-term economic outcomes.

One important method used in recent empirical literature to identify whether macroeconomic conditions matter for the short-term impact of reforms is the local projections (LP) method developed by Jordà (2005). Unlike traditional VAR approaches, the LP method calculates impulse responses without relying on strong data assumptions. This method allows for easy estimation through standard econometric packages and can handle nonlinear and flexible specifications.

Duval and Furceri (2018) use the LP method to estimate the effects of labor and product market reforms on output, employment, and productivity. They investigate how these effects depend on prevailing macroeconomic conditions and policies on a data set of 26 advanced countries which have experienced reform shocks in labor and product markets since 1980. The authors find that product market reforms increase productivity and output, but these gains take time to materialize. On the other hand, labor market reforms affect employment, but these effects differ depending on the types of reforms

and business-cycle conditions. In contrast to labor market reforms, product market reforms appear to be insensitive to the business cycle.

Duval and Furceri (2018) also find that reductions in labor taxes in the context of active labor market policies have larger effects during periods of economic downturns. This is partly because these reforms (expansionary fiscal policies) tend to increase aggregate demand. Conversely, reductions in employment protection and decreases in unemployment benefits have positive effects in good times but become contractionary during recessions, partly because these reforms are contractionary fiscal policies that tend to reduce aggregate demand.

In their study, Duval et al. (2020) use the LP method within a difference-in-difference framework to examine how the prevailing business cycle affects the short-term employment impact of deregulating employment protection for workers with permanent contracts. Their findings reveal that the employment response to deregulation depends on the economic state during the reform: employment increases if implemented during an economic expansion but decreases if carried out during a recession.

Empirical research based on other methods, such as case studies, comes to similar conclusions on various labor market reforms. Gehrke and Weber (2018) use a novel approach to identify structural long-term driving forces of the labor market and their short-run effects. Using search and matching models, the authors extract these effects using an unobserved components approach. The authors obtain interesting results for Germany and Spain indicating that labor market reforms have significantly weaker positive effects when they are implemented during recessions. Lalive et al. (2015) provide an empirical analysis of unemployment insurance programs in Austria,

suggesting that temporary extensions of the programs enacted in reaction to business-cycle downturns have positive macroeconomic effects.

De Haan and Wiese (2020) examine the impact of labor and product market reforms in terms of economic growth in 25 OECD countries between 1985 and 2013. Different from existing research, their empirical analysis stresses the importance of the potential endogeneity of reforms with respect to economic growth. Their results show that after correcting for endogeneity, product market reforms often cause negative growth, except when implemented during periods of neutral fiscal policy. Labor market reforms also decrease economic growth under restrictive and neutral fiscal policy stances but are conducive to economic growth when implemented during periods of expansionary fiscal policy. A similar argument for the case of monetary policy can be found in Lastauskas and Stakėnasb (2020).

To conclude this section, it appears from our overview of the literature that the timing of the implementation of the reforms is very important for their effectiveness. Thus, in most general terms, reforms that are implemented during recessions appear to be less effective than those implemented during economic upturns. There is, however, uncertainty about this timing effect. In particular, it appears that the effectiveness of labor market reforms is more sensitive to the business cycle, i.e., they are less effective during downturns than product market reforms. Some of these labor market reforms' effects even appear to intensify the recession.

All this leads to a paradox. There is strong empirical evidence showing that the introduction of structural reforms during a recession is likely to reduce the effectiveness of these reforms. They may then even have negative effects on growth, employment, and welfare. However, we observe that quite often structural reforms tend to be introduced during recessions, as it is during crises that governments feel forced to

institute reforms. This then leads to the following paradox: Why do politicians engage in structural reforms during recessions when the chances of success are the lowest, and when these reforms will be resisted most by the voting population? This paradox creates a risk that these reforms trigger political upheaval and ultimately turn out to be unsustainable. We return to these important political economy aspects in the next section.

The recent launch in 2020 of the "NextGeneration-EU" plan creates an interesting experiment. It is a substantial public investment plan coupled with a program of structural reforms administered by the European Commission. It was launched during the deepest recession (Covid-induced) of the postwar period. Linking structural reforms to a massive stimulatory investment plan financed by issuing debt, may overcome a central problem that we identified in this section, i.e., that structural reforms instituted during a recession do not work well unless they are linked to a macroeconomic policy that offsets the short-term negative effects of such reforms. We expect important lessons to be learned from this policy experiment.

7. Political economy of reforms

An important dimension of the relationship between structural reforms and economic performance has to do with political economy aspects. This is the main motivation for us to review the literature on the political economy of reforms. In the last two decades, a lot of progress has been made in this area.

Even if the necessary reforms may benefit the population as a whole in the long run, the search for flexibility may affect existing economic and social institutions and these may have important indirect effects on various economic outcomes. We referred to this issue above in the context of labor market reforms where we focused on some

reforms that can lead to the "commodification" of labor. In this section, we will discuss the issues related to the impact of reforms on income inequality, political support for reforms, as well as populism.

7.1 Structural reforms and income inequality

Since 1980, income inequality has risen in most advanced countries, with significant differences in the trends across countries. Anglo-Saxon countries have experienced stronger increases in income inequality than most continental European countries.[11] It is generally believed that reforms aimed at enhancing market forces would affect income distribution. This leads to the issue of whether these income inequality trends are associated with the liberalizing reforms that advanced countries have undertaken since 1980.[12]

A major theoretical contribution to this discussion is Blanchard and Giavazzi (2003) who study the interaction between product and labor markets in the reform process. Using a model of monopolistic competition in the product market and bargaining in the labor market, they show that product market deregulation reduces markups leading to higher real wages, and labor market deregulation leads to a higher employment rate, and that these deregulations together reduce income inequality among workers.

The Blanchard-Giavazzi model has been subjected to extensive empirical testing. While there is some support concerning the impact of product market and labor market deregulation through the employment channel (Fiori et al. (2012)), the empirical

[11] See Atkinson (2003), Piketty (2014), and Milanovic (2016).
[12] Income inequality in emerging economies has been found to rise too (see Mitra and Yemtsov (2007), Guriev (2021), Milanovic (2003), Milanovic and Ersado (2012), and Milanovic (2016)).

support for reforms reducing income inequality remains weak.

Empirical findings confirm that strong labor market institutions (i.e., strong labor unions and centralized wage setting) have the effect of keeping income inequality low (see Wallerstein (1999), Checchi and García-Peñalosa (2008)). Conversely, when the strength of labor market institutions is reduced, income inequality tends to increase (Checchi and García-Peñalosa (2010)). Further support for this relationship can be found in Freeman (2008), Campos and Nugent (2018), and Arestis et al. (2020)).

Jaumotte and Osorio (2015) examine the rise of inequality in a sample of advanced economies and present evidence that the erosion of minimum wages is correlated with increases in overall income inequality. Moreover, the decline in unionization is found to be related to the rise of the share of the top income brackets, as weak unions decrease influence on corporate decisions concerning the share of capital income and top executive compensations.

All this leads to the view that structural reforms that weakened traditional labor market institutions have contributed to the observed increase in inequality in the advanced world since 1980. This may also explain why the resistance against labor market reforms has typically been more intense than against reforms in the product and financial markets. It may also help to explain why the trends in the reform process in the labor markets differ from those observed in the product and financial markets since the 1970s (see Figure 1 in which we observe that labor market regulations increased).

Labor market reforms alone are, of course, not responsible for all these effects. Our survey of the literature on product market reforms in Section 3 has highlighted how product market deregulations, without strong antitrust policies, have contributed to increasing concentration and reducing the labor share in GDP. In addition, the increased wage inequality we observe in many advanced countries today is driven by the increase

in inequality between firms, i.e., high-productivity firms pay high wages to their highly productive workers while other firms pay low wages. More than two-thirds of the rise in wage inequality is due to an increase in inequality between firms (Song et al. (2019), Card et al. (2018)). This trend has been reinforced by rapid technological progress which allows a few firms to build up market power and dominance over other firms leading to market concentration with less competition, fewer start-ups, and a decline in labor mobility (Eeckhout (2021).

In their book *Deaths of Despair and the Future of Capitalism*, Case and Deaton (2020) document the impact of income inequality on health inequality in the US. While the college-educated become healthier and wealthier, working-class Americans without a degree are "dying from pain and despair". The authors provide deep insights into the weakening position of labor, and the growing power of corporations, in particular the healthcare sector, as root causes of this social crisis.

Thus, it appears that both labor market reforms and product market reforms are part of a broader political economy dynamic that has shifted power away from labor and in favor of capital (in particular, a few owners of capital who enjoy monopoly power). It is not surprising that the share of labor income has declined in many countries and industries (Karabarbounis and Neiman (2014)).

In this discussion of the trends toward increasing income (wage) inequality, the role played by technology in the production process looms large. There is an important body of literature (mainly using US data) analyzing how the acceleration in skill-biased technology is depressing the wages of less-skilled workers, leading to higher income inequality (see earlier work in Acemoglu (2002)). More recently, a growing theoretical and empirical literature reveals that automation depresses wages and employment (see the theoretical contribution by Acemoglu and Restrepo (2018)). Acemoglu and

Restrepo (2020) find a robust negative impact of robots on employment and wages across the US. This effect is significant over the period 1990 to 2007 when rapid advances in robotics technology occurred. According to these authors, one more robot per thousand workers reduces the employment-to-population ratio by 0.2 percentage points and wages by 0.42 percent. Relative wage declines have been found in the US industries which experience rapid automation (see e.g., Acemoglu and Restrepo (2022) and Moll, Rachel, and Restrepo (2022)).

The issue that interests us here is how the flexibility of labor and product markets impacts how automation affects employment and wage inequality. Most empirical studies available today relate to the US, which is characterized by strong flexibilities in labor markets. The question that arises is whether the results obtained for the US and the suggestion that automation increases wage inequality can translate to European countries with less flexibility in their labor markets. Could it be that automation is likely to lead to less wage inequality in European countries at the expense of greater losses in employment? The answer to this question will become clearer when more empirical research becomes available.

It should be stressed that the same new digital technologies that are responsible for automation in the production processes also create new products and services. These in turn are a source of increasing employment (see Acemoglu and Restrepo (2019)). As a result, it will remain unclear what the long-term effects of automation on employment and wage inequality are likely to be.

The financial system can also play a role in amplifying income inequality. Early studies find some empirical evidence that financial liberalization that increases access to credit by larger segments of the population, may reduce income inequality (see e.g., Bumann and Lensink (2016), Agnello et al. (2012), Delis et al. (2013), Naceur and

Zhang (2016)). However, there is growing empirical evidence showing that financial liberalization or deregulation has contributed to the increase in within-country income inequality (see e.g., Claessens and Perotti (2007), Gimet and Lagoarde-Segot (2011), De Haan and Sturm (2017)).

There are various channels through which financial liberalization can increase income inequality. One important channel identified in advanced countries is that once liberalized, the financial sector has been able to attract the "best and the brightest" because of significantly higher remuneration. These high remunerations in turn have been made possible by the rise and the application of new financial technologies with high rates of return. In this context, Atkinson (2003) and Piketty (2014) argue that the increased share of top incomes has come about mainly via executive remuneration and the rents earned by "superstars". Although this phenomenon has occurred in many sectors, it is particularly prevalent in the financial sector.

Another important channel affecting income inequality is capital account liberalization (see Quinn (1997), Jaumotte et al. (2013), Ostry et al. (2019), and Eichengreen et al. (2021)). For example, outward FDI is found to be associated with a decline in the demand for less-skilled labor in advanced countries. The threat of relocating production elsewhere may reduce the bargaining power of labor and, thus, the labor income share (see Choi (2006); Jaumotte et al. (2008)). This idea is corroborated by Furceri et al. (2019), who use a sample of 149 advanced and developing economies from 1970 to 2019 and find that capital liberalization episodes reduce the share of labor income, particularly for industries with higher external financial dependence and a higher elasticity of substitution between capital and labor.

A few conclusions stand out. There is a large literature analyzing the impact of liberalizing reforms on income inequality (less on wealth inequality) in advanced

countries. The distributional impacts of the reforms depend on whether reforms are in the product, labor, or financial markets and on the interaction of the reform processes in these different areas. Labor market reforms that undermine traditional labor market institutions (such as labor unions with strong bargaining power) tend to reduce the wage share in national income and lead to more income inequality. This inequality problem has been reinforced when product market reform leads to market concentration and rises in the markup of big companies. The evidence for financial market deregulations, especially when accompanied by external liberalization, suggests they lead to increases in income inequality.

Policies aimed at liberalization in product, labor, and financial markets generally reflect dynamics set in motion since the early 1980s that changed the balance of power between labor and capitalists (owners of factors of production). These dynamics have led to a redistribution of income from labor to capital resulting, in most developed countries, in a decline of the labor share in GDP (see Philippon (2020); Eeckhout (2021)). It is still unclear how these trends interact with technological innovations that have intensified automation in the production process. There is evidence for the US that automation tends to lead to greater wage inequality. The extent to which this is weakened or rather intensified by the existence of labor market rigidities is yet unknown.

Finally, the decline of the labor share in GDP has had significant macroeconomic effects, i.e., it has contributed to the savings glut which negatively affected aggregate consumption. Since private investment is affected by future consumption, investment opportunities have declined. The increase in savings and the reduction in investment opportunities may therefore have negatively affected potential growth and may have pushed major economies into a “secular stagnation” dynamic that

has been discussed since the global financial crisis (Summers (2014)).

7.2 Political support for reforms

In the previous section, we concluded that structural reforms could have large distributional consequences. This sets the stage for an analysis of the political drivers of reforms. Political action is much driven by distributional issues intertwined with other factors. It is clear, therefore, that the expected distributional consequences of the reforms are likely to influence the political support for these reforms.

The research question of what factors influence political support for liberalization has led to significant literature analyzing the role of political systems and institutions in the reform process. Democracy and inclusive political institutions are often considered positive factors in generating support for more liberalized economic reforms in product, labor, and financial markets (see Acemoglu et al. (2005); Acemoglu and Robinson (2012); Dethier et al. (1999); Kim and Pirttilä (2006); Campos and Horvath (2013); Giuliano et al. (2013); Fernandez and Rodrik (1991); Dewatripont and Roland (1992); Spector (2004)).

Other institutional factors also matter in explaining differences in reform preferences among advanced countries. Persson (2004) finds that successful reforms (i.e., those promoting economic growth) are more likely to occur in parliamentary (as opposed to presidential) and proportional (as opposed to majoritarian) democracies. Alesina et al. (2006), however, suggest that reforms are more likely under “strong” governments, such as presidential systems and unified governments with a large majority of the party in office and when the executive branch faces fewer constraints.

Lobbying plays an increasingly significant role in shaping US regulatory changes made by government officials, legislators, and members of regulatory

agencies. As discussed in Section 3.1, large firms' lobbying efforts in the US are found to hinder free entry reforms and obstruct policy and regulation changes. Many of the regulations tend to impede the entry and growth of small firms in comparison to larger ones, particularly affecting small firms in industries with substantial lobbying expenditures (see Gilens (2012); Gutiérrez and Philippon (2019); Philippon (2019)).

The level of labor market regulation varies among advanced countries, with Botero et al. (2004) attributing this to the origins of the legal system. In countries where Common Law prevails, labor regulations tend to be less restrictive compared to Civil Law countries. Civil Law systems are often associated with labor laws that exhibit greater rigidity, comprehensiveness, and top-down imposition compared to countries following English Common Law, where regulations tend to be simpler and more flexible.

Product market liberalization can pave the way for employment-enhancing labor market reforms. Dias da Silva et al. (2018) show that reforms in product markets tend to increase the likelihood of labor market reforms in OECD countries, but not the other way around (see also Fiori et al. 2012). This is particularly interesting in light of arguments made by Obstfeld (1997) suggesting that labor market reforms are often enacted to compensate for changes in product markets. This way, the political support literature offers another perspective on the issue of reform complementarities (interactions) discussed in Section 5.

Being part of the EU Single Market helps the implementation of product market reforms in Europe (see Campos et al. (2020); Duval et al. (2021)). An important issue has arisen concerning the Euro area, or more generally membership in a currency union. As there is some consensus that the Euro area is not an optimal currency area, member countries should implement structural reforms aimed at making the product and labor

markets more flexible (De Grauwe (2020)). However, Duval and Elmeskov (2006) find that countries participating in the monetary union appear to undertake fewer reforms. Campos, Eichenauer, and Sturm (2020) find that the introduction of the Euro triggers some product market reforms but does not lead to labor or financial market reforms.

Economic and financial crises may open windows of opportunity for the implementation of reforms in product and labor markets. Agnello et al. (2015) find an important role for economic crises in triggering reforms based on an analysis of 60 countries between 1980 and 2005. Dias da Silva et al. (2018) show that the implementation of structural reforms in OECD countries is more likely during periods of deep recessions, economic uncertainty, and high unemployment rates. External financial assistance programs also facilitate product market reforms. Duval et al. (2021) find that high unemployment and/or recessions tend to be significantly associated with a greater likelihood of reforms in product markets, with lower employment protection legislation, and lower unemployment benefits (see also Duval and Elmeskov (2006)).

Unlike other reforms, liberalizing financial reforms often prove to be unsustainable and easily reversible following financial crises. Abiad and Mody (2005) provide empirical evidence supporting the idea that banking crises lead to setbacks in liberalization. Saka et al. (2020) use a sample of more than 100 countries in the postwar period and find an interesting cycle in financial reforms. Financial liberalization, after some time, tends to lead to a financial crisis. The latter then triggers reversals in the reform process and re-regulation of financial markets and banks. However, after eight to ten years following a financial crisis, the level of financial liberalization is restored to its pre-crisis level. However, these authors find a lack of evidence on the de-liberalization process after crises for the EU countries and the US.

7.3 Populism and globalization

Above we have focused on domestic reforms, but even the analysis of advanced countries with largely open trade and capital accounts cannot escape examining the implications of globalization, particularly when it comes to the political economy of reform. Following the global financial crisis of 2008, populism has witnessed a notable surge, particularly in the United States and Europe (see Guriev and Papaioannou (2022)). Populism represents a range of political movements that prioritize the "will of the people". Often characterized by an anti-establishment stance, populism is known for its opposition to liberal economic reform policies and globalization. Therefore, it is essential to review this literature.

The dynamics of globalization are a strong drive of populism. Guriev (2018) argues that economic factors, such as an increase in unemployment during the Great Recession, skill-biased technological change, and inequality, create losers and thus contribute to the rise of populism. Empirical studies show that different forms of populism are related to specific types of globalization shocks, i.e., trade, financial crises, and immigration (see Rodrik (2018)).[13]

The political impact of the China trade shock has been investigated extensively. Autor et al. (2020a) analyze whether rising import competition contributed to US political polarization from 2000 to 2016. Exploiting the exogenous component of rising import competition by China, the authors find that voters in trade-exposed areas show growing ideological polarization, favoring strong-left and strong-right views.

Colantone and Stanig (2018) investigate the impact of the China trade shock on electoral outcomes in 15 Western European countries from 1988 to 2007. They find

[13] Automation is another important factor contributing to the rise of populism. We do not discuss automation here. For a survey on this topic, see Guriev and Papaioannou (2022).

that an increase in exposure to Chinese imports leads to an increase in support for nationalist parties, a general shift to the right in the electorate, and an increase in support for radical right parties (see also Guiso et al. (2018)).

All this may also explain why recent American administrations have introduced legislation of a protectionist nature. The Trump administration imposed large tariffs on Chinese imports. The Biden administration introduced the Inflation Reduction Act (IRA) which grants subsidies to individual firms active in the sectors of energy transition and chip manufacturing but attaches protectionist clauses to these subsidies. The EU has moved in the same direction by allowing national governments to subsidize national champions.

Other studies focus on the populist surge following financial crises. Funke, Schularick, and Trebesch (2016) use a data set covering 20 advanced economies and more than 800 general elections from 1870 to 2014 and find that political polarization rises after the financial crises. The vote share of far-right parties increases by around four percentage points and voters are found to become more supportive of extreme-right rhetoric, which often attributes blame to minorities or foreigners. Mian, Sufi, and Trebbi (2014) use a larger sample of countries and show that after a financial crisis, voters become more ideologically extreme while the ruling coalition becomes weaker. The authors highlight that since 2008, the US household debt overhang has resulted in the rise of political fragmentation.

Guiso et al. (2018) find a surge of populist parties during the 2008 to 2011 financial and sovereign debt crises in European countries. This trend of rising support for populist parties is found to be substantially larger in Euro Area countries than in other Western European countries. This result is consistent with the view that voters are frustrated by the failures of the Eurozone national governments and European

institutions to react to large global financial shocks. This finding is consistent with Frieden (2015), who argues that the international conflict between creditor and debtor nations on how to distribute the burden of adjustments following a debt crisis can fuel nationalistic responses.

The presence of immigrants is another globalization factor leading to support for populism. Mayda, Peri, and Steingress (2022) use data from 1990 to 2016 to examine the impact of immigration on US politics. They find that an increase in high-skilled immigrants decreases the share of Republican votes, while an inflow of low-skilled immigrants increases this share. Moriconi, Peri, and Turati (2018) identify a negative relationship between the share of highly educated immigrants and the vote for nationalism and a positive relationship between the share of less-educated immigrants and the vote for nationalism in 12 European countries during the period from 2007 to 2016.

In the UK, empirical evidence shows that exposure to EU immigration did not play a significant role in the referendum Brexit vote. Individual characteristics of the voting population are key drivers of the Vote Leave share, in particular their education profiles, their historical dependence on manufacturing employment, as well as low income and high unemployment (see Becker, Fetzer, and Novy (2017)).

In an analysis based on a sample of voters having voted for Trump in 2016 and for Obama in 2012, Rodrik (2021) shows that Trump voters are more likely to be white, older, college-educated, and more hostile to racial equality. However, those voters who switched from supporting Obama to Trump are both more hostile to racial equality and feel greater economic insecurity.

The existing empirical findings have provided insights into the potential political backlash resulting from liberal economic reform policies and globalization. It

would be paradoxical if the liberalization programs introduced after 1980, which enabled globalization, ended up contributing to its demise and a resurgence of nationalism due to a populist backlash, fueled by the redistributive effects and other economic aspects of these programs. Understanding these political economy dynamics is crucial as it sheds light on the complex and sometimes non-positive relationship between structural reforms and welfare.

Some of the empirical findings above are also closely related to the debate about the significance of cultural factors in explaining populist politics. Using the European Social Survey (2002–2014), Inglehart and Norris (2016) study the cultural backlash thesis and identify the ideological location of 268 political parties in 31 European countries. They find that the cultural backlash predicts the election successes of populist parties well. De Vries (2018) stressed that election outcomes in Europe and the US since 2016 reflect a growing public skepticism towards open borders. The Brexit vote in the UK and the election of Donald Trump in the US were driven by a rhetoric that is critical of international organizations, cooperation, FDI, international trade, and migration. In many European countries, there exists a cosmopolitan–parochial divide within the electorate, influencing voting behavior independently of economic concerns.

In light of these new findings, we believe there is a need for more empirical research to further evaluate the distinct roles of economic and cultural factors in shaping political preferences and populism. Such research will be essential in gaining a deeper understanding of the complex dynamics behind political support for further reforms in Europe and the US.

8. Conclusions and suggestions for further research

In this paper, we have provided an overview of the state of the art of the theoretical and empirical literature on structural reforms, focusing on the experience of advanced market economies.

Once one moves into mature economies one must look for "higher-hanging fruit", and new issues arise that may reduce the scope for welfare gains from further reforms. In this survey, we regularly contrasted the experience of the US and Europe. The existence of greater flexibility in the US economy relative to European economies has had a great influence on the reform processes initiated in Europe since the 1980s. The latter have typically tried to emulate the American economy by introducing more flexibility in product, labor, and financial markets.

We surveyed the increasingly important literature on the political economy of structural reforms. This literature asks the question of how these structural reforms come about and why they are often discontinued, reversed, or terminated. A key dimension here is how structural reforms interact with distributional outcomes, in particular with the question of who wins and who loses. If these reforms tend to lead to too many losers, they are likely to be resisted. This appears to be true both in the European countries and in the US. In the latter, globalization appears to have had largely negative distributional effects that, in a country with less-developed social safety nets, have led to a major backlash against the forces of globalization (Autor et al. (2020b), Becker, Fetzer, and Novy (2017), Frieden (2018)).

An important issue that has arisen recently is to what extent the US will continue to lead the world in promoting the flexibility provided by free and open markets. The Inflation Reduction Act (IRA) of 2022 is a large US government program of public investment in energy and environmental projects aimed at facilitating the energy

transition and the fight against climate change. This is certainly an important public investment program. However, the IRA also contains direct subsidies to firms engaged in activities (such as electric cars, batteries, and chips) with strong protectionist features. As a result, the US authorities now also take on the role of "picking the national champions", a role that European governments tended to take on. As a result of the past American lead in emphasizing the role of free and open markets in selecting winners, the European Union has been led to outlaw state subsidies to firms within the internal market. The IRA has already led to a turnaround in the EU, allowing national governments to directly subsidize their national champions. It is unclear today to what extent the IRA will be used as an excuse in Europe and elsewhere to give a stronger role to governments in directing production and investment at the expense of markets.

The research agenda that one can distill from the discussions in this paper contains the following priority issues.

First, the measurement and interaction of different types of reforms is a subject that is worth studying in much more detail. Surely, a lot has been done in the literature in terms of theoretical developments, but much remains to be done regarding the empirical evidence. For example, there is a need to improve available reform measures to better understand the relation between reforms in labor markets and product markets. Do these reforms reinforce each other, or could it be that they weaken their joint effectiveness? What role do other reforms, such as financial reforms and tax reforms, play in this relationship?

Second, a key factor in the success of structural reforms is the nature and the quality of political and social institutions in which these reforms are embedded. This leads to the need to analyze the distributional effects of reforms and how in turn these distributional effects affect these institutions. In this connection, a particularly

important research area is whether and how the structural reforms that lead to more flexibility require the strengthening of a social safety net. The contrast between the US and Europe is stark. The dynamics toward more flexibility and competition have been at work in both the US and Europe under very different institutional conditions and very different social safety nets. It will be important to better understand these differences.

Related, structural reforms, if significant, tend to be disruptive with crucial consequences in terms of political support. They change the economic and social positions of many people, leading to reactions and attempts to change their course. More research is needed to help understand the factors influencing the sustainability of reforms and the reasons for the regular reversal of structural reforms. In this connection, we mentioned the fact that labor market reforms since the early 1980s have led to a power shift from labor to capital, resulting in a decline in the wage share of GDP and an increase in profit share (cf., among others, Gutiérrez and Philippon (2023)) This dynamic has not been without political economy consequences that have led to political upheavals and populism. Quite often these phenomena build up new forces aimed at reducing the importance of market forces in the economy.

Third, the nature and effectiveness of structural reforms appear to be highly context-dependent. Different regions have given rise to different measures, different priorities, and, unsurprisingly, different results. Future research focusing on Europe should be attentive to these matters when drawing lessons from other countries (such as the US). To what extent and why Europe differs is an important topic for future research. Moreover, thanks to the EU enlargements after 1980, the European experience has offered economists and other social scientists something close to a natural

experiment that should be exploited by adopting more robust methodologies in future research (Campos, De Grauwe, and Ji (2019)).

Finally, the timing of the implementation of reforms is of great importance for their success. One common finding from the existing literature is that it is not a good idea to introduce some structural reform (e.g., reducing employment protection) during recessions. It is less clear whether this holds for all types of structural reforms. In addition, we want to know more about the paradox that while structural reforms may not work well when implemented during recessions, it is also true that a majority of reforms are implemented during recessions. Why do governments do this while they (should) know that it is during recessions that the chances of success of these reform programs are the weakest? More research in this direction will help us better understand the political economy of structural reforms and will assist policymakers in increasing their effectiveness in the future.

Appendix 1. Measuring structural reforms

We provide a brief overview of measurement issues of financial market reforms, followed by product market and then labor market reforms.

The seminal effort regarding the measurement of financial market reforms remains Abiad, Detragiache, and Tressel (2010). Their database covers 91 economies from 1973 to 2005 and includes seven aspects of financial sector liberalization. This is an IMF data set that has been updated and extended by researchers at the OECD. Denk and Gomes (2017) extend the IMF's *de jure* financial reform index by ten years from 2006 to 2015. The data includes seven indices related to the financial sector: credit controls, interest rate controls, entry barriers, capital account liberalization, privatization, security market regulation, and banking supervision. This data set provides general information on three aspects concerning financial markets: "credit market controls", "market structure", and "regulation and supervision".

The work measuring product market reforms has been led, to a very large extent, by the OECD. This has been carried out over the last 25 years or so and is carefully documented, both in terms of the various methodological improvements along the way and in terms of the different vintages of the data. These indicators are constructed at two main levels: country and sector. The economy-wide indicators measure the regulatory barriers to firm entry and competition in a range of policy areas, ranging from licensing and public procurement to governance of state-owned enterprises, price controls, evaluation of new and existing regulations, and foreign trade. The sectoral data measure of product market reforms concentrates on the energy, transport, and communication sectors regulation (ETCR) (OECD, 2017). The ETCR index covers seven sectors (telecoms, electricity, gas, post, rail, air passenger transport, and road freight). It is based on information on entry barriers, public ownership, market shares

(only for the telephone, gas, and railroad sectors), and price controls (only for the road freight sector).

Much of the empirical monitoring and assessment of labor market reforms has been carried out by international organizations, and it tends to be mostly confined to high-income countries and the period after the year 2000. Concerns about the measurement of labor market reforms in the literature are more severe than those concerning the other two reforms and hence there are different measures for labor market reforms. These different measures aggregated in different groupings of countries seem to generate slightly different conclusions about the overall trend of labor market reforms over time. One can argue that one of the most important factors behind our still limited understanding of labor market reforms is measurement.

In chronological order, we discuss the OECD measure, the World Bank, the IMF, and the ILO. Any change in the level of employment protection afforded by the national laws is considered for our purposes here as a labor market reform.

In terms of measuring the level of employment protection afforded by existing legislation, Grubb and Wells (1993) is arguably the first effort at the OECD to synthesize the then already increasing body of relevant information. This work continued during the 1990s and culminated with the publication of the first aggregate measure of employment protection legislation (EPL), as well as a set of underlying components in 1999. This set of measures has been revised substantially at least three times (2008 and 2013, the last of which was published by OECD (2020)). The EPL index measures the strictness of protection using a series of 24 indicators or components (which are quantified) and, after being weighted, they yield an aggregate indicator that ranges from 0 to 6, where higher index values indicate more rigid employment protection. The data collection is based on questionnaires that are standardized and

answered by the governments of all OECD member states. The information reflects existing legal provisions (national labor laws as well as collective bargaining agreements) and their changes. In other words, this is a *de jure* indicator that does not strive to capture the effectiveness or the actual enforcement of national legislation. These legal provisions focus on the hiring and firing of workers; importantly distinguishing between workers on regular and on temporary contracts. These measures have been available yearly since 1990.

The World Bank's measure of changes in employment protection legislation is part of the well-known suite of regulatory measures indicators under the *Doing Business* initiative (DB for short). Similarly, to the OECD efforts, these World Bank measures (called the "Employing Workers" index) have been subjected to intense debate and have changed substantially over time. Indeed, after a major revision in 2010, the labor measures were excluded from the overall Doing Business index (further concerns have resulted, in the World Bank management pausing the Doing Business report in June 2020 and initiating a series of reviews and audits of the report and its methodology (see Alfaro et al. (2021)). Differently from the OECD measure, the World Bank covers a much larger set of countries. The latest version focuses on hiring rules, regulation of working hours, and costs and rules of redundancy. It is important to mention that like most other Doing Business areas, the underlying work for this labor protection index is academic. Related, the seminal paper is Botero et al. (2004), which puts forward an index of the rigidity of employment protection legislation (EPL) based on the labor laws of 85 countries for one point in time, around 1997. Botero et al. (2004) discuss three main alternative explanations for EPL; namely, the level of development (which they call "efficiency theory"), legal origins, and political theories. They find that the "legal origins" explanation dominates, showing that Common Law countries

have less restrictive labor regulations than Civil Law countries. Civil Law is associated with labor laws that are more rigid, all-encompassing, and imposed in a top-down manner than in countries with English Common Law, where the regulations are likely to be simpler and more flexible, making labor markets more flexible in adjusting to shocks.

Another important measure of labor market reforms has been proposed by the IMF through a narrative approach to construct a database of "major" labor and product market reforms for 26 advanced countries over the period from 1970 to 2015 (see Duval et al. (2018)). This new measure focuses on identifying whether each year there is indeed an occurrence of a major labor market reform. Duval et al. (2018) consider changes in several labor market regulation areas, i.e., employment protection legislation for regular workers, employment protection legislation for temporary workers, replacement rates of unemployment benefits, and the duration of unemployment benefits.

Finally, the ILO measure of labor market reforms provides coverage of a much larger country sample and period than other data sets. Adams et al. (2019) document and code individual pieces of legislation for every year from 1970 to 2015 in 117 countries. The data set contains 40 different variables capturing different aspects of labor market regulations and are divided into: (A) regulations about different terms of employment, (B) regulations of working time, (C) dismissal laws, (D) employee representation, and (E) collective action. Like all previous efforts, it is not an objective to capture the quality of the enforcement of these regulations.

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