

BOOK REVIEW

The Macroeconomics of Market Regulation

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Boeri, T., M. Castanheira, R. Faini and V. Galasso, eds., *Structural Reforms Without Prejudices*. Oxford: Oxford University Press. 2006.

Schindler, M., H. Berger, B. B. Bakker and A. Spilimbergo, eds., *Jobs and Growth: Supporting the European Recovery*. Washington, D.C.: International Monetary Fund. 2014.

Solow, R., ed., *Structural Reform and Economic Policy*. Basingstoke: Palgrave Macmillan. 2004.

I. Introduction

In each country, a complex set of laws and institutions regulates the functioning of product and labour markets. Broadly defined, the regulation of labour directly affects hiring and firing decisions, the number of working hours, the intensity of job search and wage dynamics. Examples include employment protection legislation, the generosity and duration of unemployment benefits, restrictions on the length of contracts, the level of centralization in wage bargaining, labour unions and

minimum wages. Product market regulation affects producer entry and exit in a given market or industry, the incentives to create and commercialize goods and services, and the behaviour of prices. Examples include the procedures governing market entry (e.g. the legal requirements to be met for a business to start operating), the laws and institutions that limit the market supply of goods and services, and price controls.

The rationale for the emergence and consolidation of such laws and institutions has been related to various factors, including the promotion of social equity goals, the correction of market imperfections (e.g. financial market incompleteness, imperfect information, etc.) and the strategic behaviour of politicians who use regulation to create rents to be extracted through campaign contributions, votes and bribes.

By the beginning of the 1980s, as employment performance started to diverge across developed countries, the debate about the macroeconomic consequences of market regulation gathered momentum. In particular, the strong record of job creation and low unemployment in the United States relative to much of Europe raised questions about whether Europe's more stringent labour regulation might be a contributing factor. Controversy about the implications of market regulation for economic efficiency has continued since then.

The wave of crises that began in 2008 reheated the debate. Calls for market deregulation have been part of policy discussions on both sides of the Atlantic. Policies aimed at deregulating product and labour markets, the so-called 'structural reforms', have been the cornerstones of international agencies' policy advice to the euro-area periphery since the onset of the recession. The argument is that more flexible markets would foster a more rapid recovery and, in general, would result in better economic performance. Deregulation of product markets would help accomplish this by facilitating producer entry, boosting business creation and enhancing competition; deregulation of labour markets would do so by facilitating reallocation of resources and speeding up adjustment to shocks.

However, opposing views persist, with many fearing that reforms would entail short-run adjustment costs, including increased unemployment and higher business cycle volatility. These concerns are often expressed in relation to current macroeconomic developments, as recent calls for deregulation have come at a time of fiscal retrenchment and when the ability to use monetary policy is limited by the zero lower bound on interest rates and/or exchange-rate commitments (such as in the eurozone). A recurrent argument is that the inability to manage transition dynamics with demand-side macroeconomic policies may result in more sizable transition costs, discouraging the implementation of reforms.

In light of these arguments and discussions, it is not surprising that a vast academic literature studies, both theoretically and empirically, the macroeconomic consequences of goods- and labour-market regulation. Broadly defined, this literature addresses four research questions:

1. How does market regulation affect labour-market outcomes, prices and productivity across countries and over time?
2. What is the relationship between market regulation and business cycle dynamics?
3. How does macroeconomic policy interact with market regulation and reform?
4. Which factors can explain the historical difficulty in implementing market deregulation?

The books under review, *Structural Reforms Without Prejudices* ('BCFG'); *Jobs and Growth: Supporting the European Recovery* ('IMF') and *Structural Reform and Economic Policy* ('Solow'), skilfully contribute to this literature with different perspectives and methodologies. BCFG focus on product-market regulation, comparing a number of reforms across various service sectors in Germany, Italy and the United Kingdom. Through an innovative multisectorial input–output analysis, the authors study the effects of liberalization reforms in key tertiary sectors such as telecommunications, energy and electricity. They also explore how governments can tailor their reform strategy to alter the redistributive effects of reforms in order to gain political support. IMF focuses on the role of market reform as a tool to boost the recovery in Europe, discussing the most promising areas of reform across countries. Finally, Solow collects a series of theoretical investigations and discussions about the macroeconomic consequences of market reforms spanning the four research areas around which the literature has evolved.

The purpose of this review is to discuss the key insights of these three books, relating their contribution to the most recent developments in the literature. In so doing, we aim to shed new light on the challenges faced by ongoing research.

II. Market Regulation and Macroeconomic Outcomes

A large strand of theoretical and empirical research analyzes product- and labour-market regulation and reforms. The vast majority of contributions focus on long-run (or cross-sectional) macroeconomic outcomes. Comparatively fewer recent contributions address market deregulation with a time series perspective, i.e., disentangling short- and long-run effects. The books under review offer a valuable perspective for identifying the channels through which market regulation contributes to macroeconomic outcomes.

A. Empirics

The empirical literature has typically considered cross-country and panel regressions, relying on aggregate indexes to capture the stringency of goods- and labour-market regulation. Existing evidence suggests that market regulation has largely

negative effects on macroeconomic outcomes. Higher barriers to market entry reduce competition and economic performance, typically measured by investment, employment, productivity and price-markups (Schiantarelli 2008). In the labour market, more stringent employment protection is associated with longer unemployment duration, lower labour-force participation and lower flows into and out of unemployment (Blanchard 2006). Labour unions and intermediate forms of wage bargaining centralization result in higher wage pressure and unemployment (Nickell and Layard 1999; Driffill 2006). Finally, limiting the duration of unemployment insurance, as well as making it contingent on searching for and accepting a job, leads to more active searches and shorter duration of unemployment (Fredriksson and Holmlund 2006).

However, these conclusions are not undisputed. At least three methodological issues need to be addressed. First, direct measures of regulation are often not available, meaning that only aggregate indices constructed from a complex set of rules across sectors and countries exist. Second, while the quality and availability of regulation indicators has improved over time, often the data are not available at the industry-country level, but only at the country level, and/or only for a few years. Data limitations pose econometric challenges, mostly related to unobserved heterogeneity. Drawing inferences about the effect of regulation on economic outcomes requires controlling for observed and unobserved factors that have an effect on performance independently from the regulatory environment. In the presence of time-varying industry-specific regulations, data that are only country-specific may generate biased estimates. Finally, there are endogeneity concerns related to the adoption of regulation policies that persist even after controlling for country- and industry-time-invariant effects.

In the first part of their book, BCFG offer an alternative approach to the analysis of structural reforms in the product market. Rather than drawing on aggregate, cross-country comparisons, the authors carry out a case-study analysis at the sectoral level. BCFG investigate the effects of liberalization episodes that occurred in the 1990s across various service industries in Germany, Italy and the United Kingdom: electricity, natural gas, telecommunications, railways, professional services, retailing, postal services and water. For each industry-country pair, BCFG detail the reform experience and discuss the evolution of within-industry employment, labour productivity and prices in the years following deregulation. Next, the authors combine input–output and regression analysis to study how deregulation in the tertiary sector affects the economic performance of non-service industries, measured in terms of labour productivity and foreign direct investment.

The contribution to the literature is threefold. First, the case-study approach makes it possible to identify the role of sector- and country-sector specificities in determining the outcomes of liberalization episodes. Second, the analysis provides new evidence about the inter-temporal behaviour of sectoral productivity, employment and prices following market reforms. Finally, the input–output analysis offers

an intriguing and seldom-used lens for understanding the economy-wide consequences of regulating services.

Chapter 3 of BCFG, which presents an insightful analysis of service-sector deregulation, offers several interesting results. First, there exist significant policy lags before deregulation policies become effective, suggesting that reforms are often implemented *de jure* but not *de facto*. The existence of legal constraints that limit competition partly explains this result. For instance, in the natural gas sector, pre-existing long-term contracts limit the ability of customers to switch providers. Political decisions are also important, as they can limit the scope of the reform process aimed at improving competition. For instance, in reform episodes where deregulation was mandated by European Commission's directives, countries often implemented the minimum set of measures needed to comply with the principles laid out by the Commission.

Second, following market reform, labour productivity increases in virtually all the sectors considered. However, it takes time for reforms to display positive effects, and productivity gains sometimes reflect lower levels of employment rather than higher output. The dynamic pattern of prices and employment remains very much sector specific and tightly linked to the effectiveness of the reform in fostering competition. Before discussing this issue, we note a caveat in interpreting the results above: the narrative nature of the analysis prevents the identification of causal effects since sectoral or country-sector macroeconomic shocks may have contributed to the observed dynamics.

A general principle established by BCFG is that the effectiveness of deregulation in fostering competition depends on sector-specific considerations. A 'one-size-fits-all' approach does not exist. BCFG illustrate this argument by analyzing how sector-specific characteristics and heterogeneous initial conditions can hamper or boost the effectiveness of product-market reforms.¹

First, reducing legal barriers to entry may not be sufficient to increase competition within a sector because of the existence of economic constraints that reduce entry profitability independent of market regulation. Industries such as energy and railways provide a clear example here. The microeconomic structures of such sectors limit the impact of reform efforts because of the strong degree of vertical integration between wholesale producers and retailers. Such production structure constitutes an additional barrier to market entry beyond any rules that limit the supply of services.

¹IMF, chapter 8, also shows that a 'one-size-fits-all' approach to structural reforms is not an option in practice. The chapter constructs an efficiency index to identify which product- and labour-market reforms may have the largest impact on economic growth in a given country, accounting for their cost of implementation. The latter is estimated using a function of the relative distance from best practice – the difference between a given regulation index and the average of the world's top five countries in each category. The analysis shows that different countries can indeed have widely different reform needs, depending on their specific initial conditions.

Second, the existence of self-regulatory authorities is another important factor. In professional services industries, these authorities legally control market access to monitor and guarantee the quality of services, protecting, at least in principle, the public interest. Sectoral authorities, however, can become an effective tool to promote collusion among insiders, restricting market access to increase monopoly rents. BCFG stress how the need to strike a balance between these conflicting outcomes poses a serious challenge to market liberalization in professional services.

Third, in some cases, liberalization of services is intentionally incomplete. For instance, some postal-service products remain 'reserved areas' under the control of an incumbent firm. The rationale is to ensure a smooth transition process toward a more competitive market in an industry that exhibits some features of a natural monopoly. However, the survival of monopoly prices acts as a subsidy for the incumbent, distorting competition.

Finally, BCFG stress the importance of technological innovation and adoption as a key factor in determining the effectiveness of reforms in the tertiary sector. An example is the successful experience of the telecommunication industries, in which the quick development of technology led to the introduction of a wide range of products and services, giving new entrants a much better chance to compete against established incumbents. Additionally, consumers benefitted from substantial price cuts.

Turning to the cross-sectoral spillover effects of service regulation, BCFG first document how service industries are a key supplier of the manufacturing sector – although there exists some cross-country heterogeneity, the input–output analysis presented in chapter 4 documents that the share of manufacturing value added from services averages 40%. Second, in chapter 5, BCFG provide econometric evidence of the effects of service regulation on the performance of 24 non-service sectors, including manufacturing, agriculture and mining. The methodology follows the standard approach in the empirical literature. Using data for the years 1994, 1997 and 1999, the authors consider a linear regression in which the dependent variable is either non-service-industry productivity or industry employment by foreign multinational firms, a proxy for the importance of foreign direct investment. The measure of service regulation constructed by BCFG is an aggregate index that weights disaggregated OECD indexes of regulation in service industries, with weights equal to the input coefficients of such services in the non-service sector. The regression includes country and sectoral fixed effects.

BCFG find that reducing service regulation has a positive and statistically significant effect on non-service industries, suggesting that positive sectoral spillovers may constitute an additional source of welfare gains. However, a quantitative interpretation of this result requires caution because of the methodological issues discussed at the beginning of this section. Moreover, the input–output analysis only covers a limited set of countries and years. Thus, while there is undisputed merit in focusing on sectoral spillovers, further research is needed to draw definitive conclusions.

In the same spirit of BCFG, chapter 5 in IMF offers useful insights about the evolution of labour-market regulation in several advanced European economies. The chapter contrasts three comprehensive labour-market reforms (in the UK, the Netherlands and Germany) with the approach of other countries with less successful reform records (Italy and Spain in particular). Comprehensive labour-market reforms typically include policies promoting wage moderation such as decentralization of wage bargaining, reductions in both the level and duration of unemployment benefits (making benefits conditional on an active job search), improvements in the quality of employment services, and significant deregulation of employment protection legislation and fixed-term contracts. In contrast, the approach of other European countries has been radically different, with reforms that have been fragmentary, incremental and often in pursuit of mixed objectives. Moreover, the largest reforms implemented have often strengthened dualism since they tended to be predominantly 'two-tier' (geared only to specific segments of the population). The chapter further discusses how the pre-crisis labour-market reforms may have affected recent employment dynamics across countries, focusing on the experiences of Germany, Spain and Italy. While the series of reforms implemented in Germany between 2003 and 2005 (Hartz I–IV) may explain why the German labour market has weathered the Great Recession particularly well, the experience of Spain and Italy may reflect structural weaknesses not addressed by previous reforms such as the mismatch between wages and productivity and the high inactivity rate.

In their analysis, both BCFG and IMF do not directly address an issue that has received significant attention in the literature: the interaction between the regulation of product and labour markets. As pointed out by Nicoletti and Scarpetta (2003), the correlation between indices of product and labour-market regulation is positive, raising the question of whether a more rigid labour market increases or reduces the effectiveness of pro-competitive reforms. Moreover, the seminal work by Blanchard and Giavazzi (2003) suggests that product-market reforms may facilitate labour-market deregulation by reducing the size of the rents shared by firms and workers. Recent empirical work addresses these issues. In particular, the empirical analysis in Fiori et al. (2012) documents that product- or labour-market deregulation is more effective in increasing employment when the other dimension of regulation is higher. Moreover, consistent with the theoretical argument in Blanchard and Giavazzi (2003), product-market reforms lead to labour-market reforms.

B. Theoretical Analysis

A large body of theoretical work studies the channels through which market regulation affects economic performance. Solow, chapter 2, investigates the consequences of industry-level collective bargaining, emphasizing the role of inter-sectoral spillovers. The perspective differs from BCFG in that the focus is on

aggregate externalities implied by wage bargaining rather than productivity spillovers. In a two-sector general equilibrium model, the chapter studies nominal wage Nash bargaining between a labour union and an employer industry association. The ability of bargaining parties to identify general equilibrium effects determines how within-industry wage setting affects aggregate employment. Three bargaining scenarios are considered: (i) only within-industry employment outcomes are internalized (myopic bargaining); (ii) within-industry effects on prices and employment are both internalized (partial equilibrium bargaining); (iii) all the macroeconomic effects, including those across industries, are internalized (general equilibrium bargaining). In equilibrium, there is an inverted-U relationship between the extent of short sightedness in wage bargaining and aggregate employment: myopic and general equilibrium bargaining result in lower wages and higher employment relative to partial equilibrium bargaining. The reason is that, in the latter scenario, wage-setting spillovers on the economy-wide price level are not internalized, resulting in higher wages within and across industries, and thus lower aggregate employment relative to general equilibrium bargaining. By contrast, myopic wage bargaining leads to wage moderation because the perceived surplus over which bargaining takes place is lowered by the fact that within-industry price effects are ignored.

This analysis relates to the large body of literature on labour unions. A robust conclusion of this research is that there is a non-monotonic relationship between the degree of labour unionization and economic performance. For instance, chapter 5 in Solow (reviewed below) presents a model that preserves the assumption of fully rational unions yet still yields this prediction. Other factors that affect wage-setting externalities in unionized labour markets include the union's ability to commit to future wages, the degree of heterogeneity among union members and the presence of search and matching frictions in the labour market.

Perhaps less ambiguous is the conclusion about the long-run (or cross-sectional) effects of other dimensions of market regulation. Many studies find that generous unemployment benefits, firing restrictions and high barriers to market entry reduce employment, output and aggregate welfare in the long run.² This conclusion holds in quantitative analyses that model policy-relevant trade-offs related to the heterogeneity of economic agents (workers and firms) and account for the distributional effects of market regulation and reform.

Less is known about the short-run consequences of deregulation. Do product- and labour-market reforms entail significant adjustment costs? How soon do expansionary effects manifest themselves? Understanding these dynamic effects is important for at least two reasons. First, they can help clarify how market reforms affect economic activity and welfare beyond steady-state outcomes. Second, they explain the historical aversion of governments to implement reforms.

²See Cacciatore and Fiori (2015) and references therein.

Solow, chapter 5, and IMF, chapter 7, are useful starting points for organizing the discussion. Both chapters study the short- and long-run dynamics following the implementation of market reforms. Solow discusses the results obtained using the European Commission's QUEST II model, a multi-sector, open-economy model that shares many features with the New Neoclassical Synthesis model (with the addition of workers' trade unions). The IMF chapter uses the International Monetary Fund's Global Integrated Monetary and Fiscal (GIMF) model, a multi-country model featuring sticky prices and wages, real adjustment costs and liquidity-constrained households. In both models, product-market deregulation corresponds to an exogenous increase in the substitutability of goods, which reduces the price markup. In the QUEST II model, labour-market deregulation corresponds to an increase in labour force participation – a reduced-form approach to capture activation policies – joint with a reduction in the workers' bargaining power. In the GIMF model, labour-market reform corresponds to an exogenous increase in aggregate labour productivity and/or an exogenous increase in labour supply with a corresponding increase in government consumption, capturing easing of employment protection and strengthening of active labour-market policies, respectively. Overall the simulation results show that reforms stimulate output and employment in the medium run. In the short run, reforms are in general expansionary or at least non-contractionary. Such a reduced-form approach, however, inevitably raises the question of whether the results are robust to a more structural modelling of product- and labour-market frictions and regulation. We turn to this issue next.

In the recent past, researchers have attempted to develop dynamic stochastic general equilibrium models that capture key empirical features of product- and labour-market regulation and reform. This task has attracted greater interest as part of the broader inquiry into how product- and labour-market frictions affect aggregate fluctuations (e.g. Mortensen and Pissarides 1994; Bilbiie et al. 2012 and subsequent literature).

Cacciatore and Fiori (2015) contribute to this literature by studying the macro-economic effects of goods- and labour-market deregulation in a real business cycle model featuring endogenous product creation and search and matching labour-market frictions. Regulation affects producer entry costs, firing restrictions and unemployment benefits. In contrast to previous studies, both product- and labour-market reforms are found to have short-run recessionary effects. Importantly, different types of reforms lead to adjustment along different margins. Product-market deregulation features a slow reallocation of resources from incumbents to new entrants. Labour-market deregulation in the form of lower firing costs leads instead to temporary layoffs of less productive workers, without triggering large-firm dynamics. In both cases, unemployment increases and output falls in the short run. These predictions are tested by estimating a panel VAR for OECD countries over the period from 1982 to 2005. The VAR includes indices of product- and labour-market regulation and various measures of real economic activity such as the

unemployment rate, GDP and aggregate investment. Consistent with the model predictions, deregulation is found to induce a sizable and statistically significant short-run decline in economic activity. These results show the importance of modelling salient empirical features of product- and labour-market regulation and reform. Policy recommendations based on reduced-form models should be taken with caution.

III. Market Regulation and Macroeconomic Fluctuations

Thus far, we have discussed the macroeconomic consequences of regulation without any reference to business cycle dynamics. Chapter 6 in Solow discusses existing empirical evidence on the effects of labour-market regulation for the propagation of aggregate shocks. The chapter focuses on the seminal work by Blanchard and Wolfers (2000), who study the role of shocks, institutions and interactions in accounting for the evolution of European unemployment. Using panel data covering twenty OECD countries since the 1960s, Blanchard and Wolfers identify macroeconomic shocks to total factor productivity growth, the real interest rate and labour demand intensity. Labour-market regulation includes the unemployment insurance replacement rate, the duration of unemployment benefits and measures of active labour-market policies, employment protection legislation, labour union density and the coordination of wage negotiations. The main finding is that empirical specifications that allow for shocks, institutions and their interactions can account for much of the rise and the heterogeneity in the evolution of unemployment in Europe.

Blanchard and Wolfers' work led various scholars to assess further the importance of market regulation for business cycle dynamics. Subsequent research has confirmed the importance of regulation for macroeconomic fluctuations. For instance, Balakrishnan and Michelacci (2001) find that European labour markets adjust more slowly to aggregate shocks than the US labour market, while Duval et al. (2007) reach a similar conclusion when studying the effects of more stringent product-market regulation. Various studies have also shown that labour-market frictions have contributed to shape the behaviour of marginal costs and, consequently, inflation in Europe.

While that literature predates the Great Recession, IMF chapter 3 documents the importance of labour-market regulation for the adjustment to the recent financial crisis. The analysis shows how firms in several European countries attempted to raise corporate profitability by closing down loss-making production capacity and by reducing the total wage bill through reductions in wages or payrolls. This latter strategy accounted for a large share of the improvements in profit during the period 2008–11. In countries with higher degrees of labour-market duality, the adjustments were primarily on payrolls since wage dynamics were limited by the strong position of insiders.

These results suggest that the evaluation of market reforms should account for the business cycle implications of deregulation. In particular, since regulation affects the volatility and persistence of macroeconomic fluctuations, market reforms may have first-order effects on the welfare cost of business cycles. Cacciatore and Fiori (2015) address this issue. They show that increased flexibility in both goods and labour markets (reductions across barriers to entry, unemployment benefits and firing costs) leads to a sizable reduction in the welfare cost of business cycles. Yet, when only firing costs are removed, the cost of fluctuations more than doubles. The reason is that when both barriers to entry and unemployment benefits are high, the removal of firing costs results in business cycles that are more inefficiently volatile, increasing (instead of lowering) dynamic distortions. From this perspective, the interdependence of policies is a key factor to consider when implementing market deregulation.

Solow, chapter 7, addresses a second relevant issue: the welfare-maximizing timing of the implementation of labour-market reforms, especially reductions in firing costs, in light of macroeconomic fluctuations. According to economic theory, the impact of a reduction in firing restrictions is threefold. First, there is destruction of non-productive jobs which existed only because it was less costly for firms to keep the jobs than close the positions and pay the dismissal cost. Second, lower firing costs increase job creation by reducing the expected future dismissal costs as well as the expected costs of keeping workers in unprofitable positions. Third, the destruction of unproductive jobs boosts firm productivity, leading to higher average wages.

This chapter challenges the view that the social cost of a reduction in firing costs is necessarily higher during recessions. Instead, other effects and considerations should be taken into account. First, there is a discount effect, which makes it costly to postpone reforms that would be welfare enhancing in the long run. This effect holds if the positive flow of net social gains induced by job creation and higher productivity materializes sufficiently soon. Moreover, the *ex ante* cost in terms of frictional unemployment is not necessarily higher in busts than booms. In a deep recession, firms may still find it optimal to pay the firing costs and dismiss unproductive workers, despite the firing restrictions. In contrast, during an economic expansion, it could still be more profitable not to pay the firing costs, keeping low-productivity workers on the payroll.

The qualitative nature of the analysis in chapter 7 does not offer quantitative guidance about the importance of appropriately timing market reforms. Nakajima (2012) provides a first step in this direction. He builds a quantitative real business cycle model with heterogeneous agents to study the consequences of the extension of unemployment insurance (UI) benefits enacted by the US government during the Great Recession. He finds that the extension of UI benefits increased the unemployment rate by 1.4 percentage points between 2007 and 2011; in normal times, the same reform would have generated an increase only half as large. Cacciatore et al.

(2015a) focus on the role of business cycle conditions and external borrowing constraints at the time of reform implementation for a broader set of regulations. Their findings about unemployment benefits reforms are in line with Nakajima (2012). In addition, they show that a reduction in firing costs entails larger and more persistent adverse short-run effects on employment and output when implemented in a recession. However, the impact of product-market reforms is less sensitive to business cycle conditions.

When studying the relationship between market reforms and business cycle dynamics, a third issue involves the consequences of market reform for the external competitiveness of the economy. For instance, in European policy debates, market reforms are generally viewed as a way to rebalance external positions. Chapter 9 in IMF focuses on this issue. The starting point of the analysis is the worsening of current-account balances in the periphery of the euro area (most notably Greece, Ireland and Spain) and several emerging economies during the period 1999–2007 and the subsequent need for rebalancing. While the absence of a flexible exchange rate complicates the rebalancing, chapter 9 argues that market reforms could boost external competitiveness by reducing unit labour costs. The chapter, however, does not identify specific reforms that would accomplish such a rebalancing, an issue addressed by Cacciatore et al. (2015b). By extending the model in Cacciatore and Fiori (2015) to a small open economy framework, they show that current account rebalancing is not an automatic consequence of structural reforms. For instance, product-market deregulation comes at the cost of a weaker current account, at least initially. This result reflects higher foreign investment in the deregulating economy, which contributes to the financing of product creation and market entry. In the first phase of the transition, this effect more than compensates for the reduction in producers' markups that takes place in the medium term.

IV. The Role of Macroeconomic Policy

How do market regulation and reform affect the policy trade-offs faced by central banks and fiscal authorities? Moreover, how do fiscal and monetary policy affect the short-run adjustment to market deregulation? Chapters 4, 5 and 6 in Solow discuss the relationship between market regulation and the conduct of macroeconomic policy. Chapter 4 focuses on the interdependence between monetary policy and labour-market regulation in a static two-country model featuring monopolistically competitive firms and non-atomistic, symmetric labour unions. When setting the nominal wage, each union weighs the positive effect of higher wages against the reduction in the demand for labour services of its members. In equilibrium, employment depends on the institutional characteristics of both countries: firm monopoly power, the degree of wage bargaining centralization (henceforth, WBC, capturing the relative size of the representative union) and the degree of monetary

policy accommodation with respect to inflation. There are two main results. First, for a given degree of WBC, unions set lower wages when monetary policy is less accommodative toward inflation, since the union internalizes that higher wages, by leading to higher prices, would result in contractionary monetary policy and, therefore, lower aggregate demand. Second, the conduct of monetary policy affects the consequences of a reform that lowers the degree of WBC. On the one hand, a relative price effect implies that increased competition among unions leads to wage moderation for a given monetary policy regime.³

On the other hand, smaller unions internalize to a lesser extent the consequences of their wage decisions on the aggregate price level. In turn, the strength of this effect depends on the importance that the central bank assigns to the objective of low inflation.

The analysis in chapter 4 of Solow suggests that labour-market regulation affects the monetary policy trade-offs faced by central bankers. Recent work further explores this issue in the context of quantitative, dynamic, stochastic general equilibrium models. A noticeable contribution is Blanchard and Galí (2010), who study how the interaction between labour-market frictions and nominal rigidities affects monetary policy stabilization. The authors show that in the presence of staggered price setting by firms and real wage rigidities, stabilizing unemployment in response to productivity shocks requires allowing for transitory movements in inflation. A policy that is 'tougher on inflation' (i.e. more hawkish) is more desirable in markets in which the firing and the hiring rates are high (e.g. the United States) and more costly, in terms of aggregate welfare, in more sclerotic economies (e.g. Europe). This is due to the larger cost, in the form of a persistent rise in unemployment, that results from policies that seek to stabilize inflation in response to adverse productivity shocks in the European labour market.

While Blanchard and Galí focus on the (exogenous) levels of job separation and hiring costs, Cacciatore et al. (2013) study the monetary policy implications of primitive measures of product and labour regulation, including sunk administrative barriers to entry, employment protection legislation and unemployment benefits. Toward this end, the authors model a two-country monetary union with endogenous product creation, labour-market frictions and price and wage rigidities. They show that high market regulation constitutes a hitherto unexplored motive for non-zero optimal inflation, both in the long-run and over the business cycle. Positive trend inflation (partially) offsets the distortions induced by high levels of regulation,

³The relative price effect works through goods substitution. Each union anticipates that setting higher wages leads the firms employing its labour to increase their prices relative to competitors, experiencing a reduction in output demand. The prospect of a lower labour demand induces the union to wage moderation. This effect is stronger when more unions control fewer workers, i.e., when the degree of WBC falls.

boosting job creation and reducing markups. More volatile inflation (around the trend) allows for smoothing cyclical unemployment fluctuations, reducing the welfare cost of business cycles. Market deregulation eventually makes price stability more desirable by reducing static and dynamic inefficiencies.

In the context of a monetary union, the policy trade-offs induced by market regulation have an important open-economy dimension. Asymmetric levels of regulation across the monetary union's members could introduce new policy trade-offs because the central bank must strike a balance between countries that differ in how desirable they find price stability in the long run and over the cycle. For this reason, internationally synchronized reforms can remove this trade-off, resulting in larger welfare gains for each country in the monetary union. In a related contribution, Cacciatore (2014) shows that business cycle synchronization induced by trade integration depends on the labour-market characteristics of the integrating partners, since countries with heterogeneous labour markets experience an asymmetric propagation of external shocks that weakens business cycle synchronization. Thus, countries that pursue a wide-ranging agenda of economic integration are better off harmonizing their labour-market structures, particularly when integration implies relinquishing national autonomy in the conduct of monetary and fiscal policy.

Chapters 5 and 6 in Solow focus on the role of macroeconomic policy in supporting the short-run adjustment to deregulation. Chapter 5 considers alternative monetary and fiscal policy rules in the QUEST II model described in Section II above. Regarding monetary policy, inflation targeting is compared to a regime with a fixed money supply. Regarding fiscal policy, a policy rule that keeps expenditure (as a share of GDP) and taxes constant is compared to a rule that keeps the deficit-to-GDP ratio constant by changing labour taxes. The main finding is that monetary policy has a limited impact on transition dynamics, while fiscal policy is more effective in supporting the adjustment. Since the model predicts that reforms are expansionary (both in the short and in the long run), stabilizing the deficit-to-GDP ratio implies that the extra net revenue reduces labour taxes, further increasing aggregate welfare.

Solow, chapter 6, discusses why macroeconomic policies can assist or hinder the impact of structural market reforms. The general message is that adapting the macroeconomic environment at times of deregulation can counterbalance possible negative short-run effects on output and employment. The analysis follows a narrative approach, reviewing historical episodes in which the interplay between macroeconomic policy and market regulation has been more important in determining aggregate outcomes. The discussion includes the conduct of monetary and fiscal policy in Europe in the late 1970s, following the development of labour-market regulation and the associated wage dynamics, as well as the experiences of developing and transition economies during the waves of product-market liberalization and privatization.

Following the recent European crisis, various contributions have re-addressed the role of macroeconomic policy at times of market reforms. Cacciatore et al. (2013) show that the optimal response to product and/or labour-market deregulation is more expansionary than what would be implied by a policy of price stability. Eggertsson et al. (2013) find that an exogenous reduction in price and wage markups does not support short-run economic activity when the nominal interest rate is at the zero lower bound. This result, however, directly stems from the assumption that deregulation induces deflationary pressure, which, at the zero lower bound (ZLB), increases the real interest rate, further depressing economic activity. As discussed previously, further research should assess how the constraints imposed by the ZLB affect the consequences of market reform in models that explicitly microfound product- and labour-market frictions, since the resulting price and wage dynamics may be rather different.

V. Political Economy

As Blanchard and Giavazzi (2003) observe, market deregulation is fundamentally about redistributing or reducing rents. Thus, by their nature, reforms have heterogeneous effects across economic agents, creating winners and losers. In addition, uncertainty about individual outcomes typically creates *ex ante* opposition to reforms, even those that are beneficial for a large fraction of the population (Fernandez and Rodrik 1991). For these reasons, the adoption of reforms often faces important political economy constraints that favor the status quo. Under any circumstance, the government has to come to terms with the various economic players directly affected by deregulation.

Several contributions in the political economy literature study the factors behind the failure and success of market reforms. The literature identifies the type of legislative system, the nature of the reform process and whether the reform affects specific interest groups or the entire population as key determinants of political support for reforms.

BCFG contribute to this strand of the literature by discussing the political-economy context of various reform episodes in the product and labour market, as well as in the pension system. For each case, BCFG characterize the type of reform, describe the surrounding political institutions and identify the veto players that determine the political strength of the government. The objective is to identify a set of common country characteristics that make reforms politically successful (or unsuccessful), in order to draw a set of general policy prescriptions.

Chapters 9 and 10 of BCFG discuss the reform experience of strong (e.g. backed by a large parliamentary majority) and weak governments, respectively. Overall, there is only mixed evidence that stronger governments are more successful in attempts at reform. For example, in the United Kingdom, Margaret Thatcher

exploited a cohesive majority and a fragmented opposition to push forward a systematic reform of the pension system. In contrast, an initially strong parliamentary majority in Italy was not successful in achieving a similar reform in 1994: various interests that cut across the electorate opposed the widespread slash in retirement benefits, which ultimately resulted in a split of the ruling coalition.

BCFG also emphasize the interaction between the electoral system and the strength and cohesiveness of different groups that oppose reforms. In Italy, one year after the failure to enact the reforms in 1994, a weaker coalition government successfully reformed the pension system by reducing the burden of the reform on middle-age and elderly voters and concentrating the cuts on younger, less politically represented generations. This evidence suggests that even a weak government can adopt reforms if it is capable of appealing to a sufficiently large fraction of the voters or opposition.

Overall, BCFG conclude that majoritarian electoral systems produce stronger majorities and therefore may promote the adoption of reforms. However, as discussed in Persson and Tabellini (2000), majoritarian systems are more sensitive to marginal changes in the distribution of votes, increasing the probability of policy reversals that may wipe out reforms implemented by an outgoing government. Moreover, most of the successes and failures described by BCFG remain the product of country-specific characteristics and events that occurred at a particular time. As such, it remains difficult to identify a unique set of policy settings and institutions that a given country should aim to improve in order to increase political support for market reforms.

In chapter 11, BCFG turn to the relationship between the pattern of reforms and the creation of political support. For instance, reforms that are gradually phased in can reduce the fraction of voters immediately affected by new provisions and, therefore, reduce the strength of the opposition. Another approach is the 'dual-track reform' principle, which aims to design Pareto-improving reforms that can reap efficiency gains without making anybody worse off. An example of dual-track reform is the Spanish labour-market reform that took place in 1984, when some workers were allowed to remain under rigid indeterminate contracts. This strategy reduces the costs associated with deregulation because new 'reformed' contracts apply only to newcomers, while the status quo applies to existing workers. A drawback of this approach is that a two-tier market structure induces profound heterogeneity among workers, which may violate principles of fairness.

VI. Conclusions

BCFG, IMF and Solow offer rich and insightful analyses of the macroeconomic consequences of market regulation and reform. Each volume sorts out key issues at stake in the current policy debates, offering useful references for researchers and policymakers.

While the literature on the macroeconomic effects of regulation has made significant progress in the last decades, important challenges remain for future research. New and more disaggregated time-series data on market regulation will improve the empirical analysis; further developments regarding the microfoundations of product- and labour-market frictions will allow better estimates of the costs and benefits of regulation. Important avenues for future research include the optimal design of goods- and labour-market regulation, strategic policy interactions and the role of imperfect commitment to market reforms.

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