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WHY LISBON FAILS

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Why Lisbon Fails*

On the Political Constraints to Growth in an Economic Union (Preliminary, comments welcome)

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Abstract

This paper looks at the political economy of structural reforms and growth in an economic union. As the economy approaches the world technology frontier, structural reforms that increase competition in intermediate goods sectors are necessary to boost innovation and productivity growth. Reforms, however, raise the opposition of incumbents and, therefore, are politically difficult to implement. When there are important policy spillover effects, national governments are more easily captured by vested interests, as they fail to internalize the benefits of reforms on the rest of the union. In this situation, productivity growth is sluggish and the economy can fail to converge to the frontier. This is not the case when policy is chosen by a union government (or a collective body that takes into account union welfare), as the internalization of the spillover effect raises the perceived benefit of reforms and, consequently, lowers the ability of lobbies to obtain high levels of protection. This model suggests that the weak political governance of the Lisbon Agenda, which is centred on the peer pressure of national governments, -and the ensuing inability to complete the single market in non-manufacturing sectors- explains the Lisbon failure.

JEL Codes: D72, F42, O30, O40.

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“We all know what to do, we just don’t know how to get re-elected after we have done it.”

Jean-Claude Juncker, President Eurogroup

“The Eurogroup is giving increasing attention to structural reforms (...). However, the approach of the Eurogroup is limited to comparing the experiences of different countries, encouraging the laggards to learn from the more active reformers. (...) I believe that what is missing is the Union. If reforms are not implemented, the reason is often that national governments agree so. We have seen it with energy, we have seen it with finance, we have seen it with services. (...) I know how difficult and rare it is to abandon this comparative approach to work as a real Union. I think, however, that it is of vital importance for our economies to realize that the destiny of most structural reforms is in Brussels, not in national capitals.”

Tommaso Padoa-Schioppa, Economy Minister of Italy

1 Introduction

It is standard to compare the European economy (or subsets of it) to the US. According to the Organization for Economic Cooperation and Development (OECD, 2007), GDP per head in the Euro area is almost 30% lower than in America and the average annual growth of GDP per person in the EU15 in the last ten years has been 0.4% points below that of the US. This gap implies that in the last decade income per head in the EU has begun to decline in comparison to that of the US. As noted by Blanchard (2004), the transatlantic gap can be exaggerated: faster per capita GDP growth in America partly reflects longer hours of work compared to Europe and differences in measurement. However, productivity growth slowed in Europe in the late 1990s, whereas in America it speeded up, and the wide perception is that the EU has stopped catching up with the US. One reason for the failure of most European countries -in particular, continental ones- to narrow the productivity gap is that the increase in capital intensity (i.e. capital services per hour worked) has been faster in the US due to stronger investment in information and communication technologies (ICT) (see Figure 1).¹

FIGURE 1

Europe’s response to its economic difficulties came in Lisbon in March 2000. The Lisbon European Council famously set out the goal for the European Union *“to become the most competitive*

¹Recent economic figures in Europe are better than expected: in 2006 GDP in the Euro area grew by 2.7% and by 2.9% in the EU. As noticed in the OECD report, this improvement largely stems from cyclical factors and only partly to progress achieved through reforms. As a result, it is unclear whether these higher growth rates will be sustainable.

and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion". This goal was to be achieved through a series of policies to incentive R&D, structural reforms for competitiveness and innovation, completing the internal market and modernizing welfare systems. However, the "Lisbon Agenda", as this objective and the system of policies and reforms have since been referred to, is largely viewed as a failure.²

The report of the High Level Group on the Lisbon strategy chaired by Wim Kok (Kok, 2004) concluded that the disappointing delivery of the strategy was due primarily to a lack of determined political action. The Commission's mid-term review of the Lisbon strategy (European Commission, 2005) pointed out that slow pace of policy reforms hold back economic growth in Europe and proposed a new process. The renewed Lisbon strategy (or Lisbon 2) recommends a stronger focus on growth and employment: simplification and national ownership are the key elements to relaunch the Lisbon reforms agenda. In particular, the Commission proposed that member states present national reforms programmes, after broad discussion at national level. While improving along several dimensions, Lisbon 2 -as its predecessor- assigns to the peer pressure of national governments and to the influence of the European Commission the difficult task of implementing those reforms necessary to transform Europe into an innovation-based economy. Pisani-Ferry and Sapir (2006) point out that, after one year, the outcome of Lisbon 2 is mixed at best.

Why does Lisbon fail? In a nutshell, I argue that the reason is the presence of political constraints to growth and the lack of appropriate political institutions. In an economic union, when structural reforms in each country create losers within countries and positive cross border spillovers, national governments are easily captured by vested interests that stand to lose from reforms. The reason is that, while fully internalizing the political cost of a reform, national governments only internalize its effect on the welfare of their citizens and not on the rest of the union (hence the above quote from Jean-Claude Juncker). This would not be the case if structural reforms were decided by a union government (or a collective body such as the Eurogroup) maximizing *union* -as opposed to *national*- welfare. This simple observation has quite important implications for the political economy of structural reforms in an economic union. The internalization of the positive spillover raises the benefit of reforms and makes it more difficult for vested interests to obtain preferential treatments. As in the above quote of Tommaso Padoa-Schioppa, the future of structural reforms is in Brussels (i.e. deciding at the EU level), not in national capitals. This is particularly true in heavily regulated sectors such as energy, transport, communication (telecom and posts), financial and professional services where the benefits of stronger competition would be mostly perceived at the EU level, but the costs are clearly sustained by incumbents sheltered by national regulation. This paper argues that failing to realize this political economy mechanism has negative consequences

²There are substantial differences in the ability of countries to introduce timely reforms. An interesting research agenda, which I shall not pursue here, investigates the determinants of such differences. For an overview of this literature, see Hoy et al. (2006).

for economic growth in the EU.³

The model builds on the work of Acemoglu, Aghion and Zilibotti (2006a) (henceforth, AAZ) who introduce the idea of *appropriate* (economic) institutions. They create an endogenous growth model where certain rigid arrangements that reduce competition (e.g. high regulation) have positive effects on growth when an economy is far from the world technology frontier and the main economic problem is to fund investment in existing technologies. However, as the economy approaches the frontier, the potential for growth by simply adopting existing technologies shrinks and the anti-competitive arrangements are no longer optimal. Economic efficiency would require a change in economic institutions to more competitive relationships that favor innovation through a better selection of entrepreneurs and firms. However, governments might fail to switch to policies that support the adoption of appropriate institutions. The reason is that anti-competitive policies that favor growth through investment in early stages enrich incumbents. When economic power determines political power, governments find it difficult to reverse policies that are opposed by economically powerful constituencies. This political opposition to reforms holds back the adoption of appropriate institutions and reduces economic growth, possibly to the point where the economy stops converging to the frontier.

In this paper, I extend this framework to consider an economic union under two alternative political regimes. Under the first regime (which I will refer to as *political separation*), national governments decide policy independently. As discussed above, this is the political governance implicit in the Lisbon Agenda.⁴ In the second regime (defined as *political integration*), a union government chooses policy for the entire union. Groups that stand to lose from reforms (i.e. the reduction of anti-competitive regulations) lobby national governments under political separation and the union government under integration. Consistently with the above intuition, the model shows that in an economic union where incumbent firms are national and governments do not coordinate, reforms are politically difficult to implement and regulation is higher. National governments fully internalize the political cost of removing anti-competitive policies while only partially internalizing its benefit. This implies that growth will be slower under political separation than under integration. Interestingly, it is possible to have an equilibrium such that an economic union converges to the technology frontier under political integration, while it fails to converge under separation.

³The other pillar of the Lisbon Agenda is the reform of labour markets and pension systems. Here cross border policy spillovers are likely to be important, however there are large differences across countries in preferences over welfare systems. This element of heterogeneity makes the argument of the present work less appealing for welfare reforms, as in the classic work of Oates (1972) and in the more recent political economy analysis (as Alesina, Angeloni and Etro, 2005). Writing about the tasks of a European Federation, Luigi Einaudi essentially made this point already in his studies in the 1940s.

⁴Some would argue that peer pressure can change the game under political separation. The argument goes that, if a country implements reforms, it increases the effort to reform of other members because of peer effects induced by social pressures or learning. In the appendix, I consider a third regime (referred to as *peer pressure*) that simply captures this idea and provide further discussion of this point.

The paper is organized as follows. The next section discusses the importance of this approach for the current situation in Europe. Section 3 describes the model, while section 4 studies the political economy of reforms and growth in an economic union. Concluding remarks follow.

2 Some basic growth facts in Europe

This section briefly discusses some growth facts for Europe that provide the main motivation for this research and the model used in the following section.

If we were to look at the growth performance of (Western) Europe and the US in the period that goes from the end of World War II to today, the picture would look quite different from the one described in the introduction. The annual growth rate of output per worker between 1950 and 2000 has been of 1.9% in the US, much lower than continental European countries such as Germany, France and Italy, which respectively achieved rates of 2.9%, 2.8% and 3.5%. The reason behind these apparently contradictory numbers is that the post-WWII period, and in particular the quarter of century between 1948 and 1973, has been a period of extraordinary growth in Western Europe, often referred to as the golden age of economic growth. Breaking up the period into the two quarters, one finds out that the growth rate of Western Europe was equal to 4.5% until 1973 and to 2.1% in the second subperiod.⁵

The rapid growth of the post war period in Europe reflected the process of catching up with the United States, the world technology leader at the time. European countries could sustain this extraordinary economic expansion by adopting technological and organizational knowledge that was developed in the US in the inter-war period and had not yet reached the other side of the Atlantic. Successful convergence was based on a set of economic institutions that had the ultimate goal of boosting investment (hence the name, *investment-based* growth strategy used in the model in the following section). Among these institutions, non-competitive arrangements as state intervention in the economic activity and long-standing relationships between banks and clients played an important role.⁶

This picture radically changed in the last quarter of the twentieth century. As the European economy was getting closer to the frontier and opportunities of imitating existing technologies were exhausted, growth in Europe was increasingly dependent on internally generated innovation (hence the name *innovation-based* growth strategy). However, economic institutions that were appropriate for imitation are not necessarily conducive to innovation. Non-competitive arrangements that successfully spurred investments in the post-war period increasingly imposed limits on economic growth in the following quarter. The logic of the Lisbon Agenda, as well discussed in the report to

⁵These data are from Eichengreen (2007).

⁶This is essentially the theory of economic growth of Gerschenkron (1962). Eichengreen (2007) provides an extensive discussion and several examples that highlight this point.

the European Commission known as the Sapir Report (2004), is essentially to endow Europe with a set of economic institutions that would facilitate the switch from an investment to an innovation-based growth strategy.

Obviously one cannot discuss economic developments in Europe without making reference to the process of economic integration that started in 1957 and had a strong boost with the Single Market Program and Monetary Union in the 1990s. In particular, the effects of these initiatives on the increase in intensity of product market competition in the manufacturing sector has been especially beneficial to productivity growth, as documented by the OECD (2002). However, economic integration in the EU is de facto limited in several key non-manufacturing sectors such as network industries, finance and professional services. In what follows, I will briefly argue that the lack of economic integration in these sectors -mostly due to heavy national regulations- is holding back Europe from fully reaping the benefits of an innovation-based growth strategy.⁷

As discussed by the OECD (2007), even if product market regulation has substantially decreased in the past decades, some important differences persist across sectors. In particular, in several non-manufacturing sectors in continental Europe the regulatory stance remains restrictive. This is true for gas, postal services, rail transport, professional services, finance, electricity, telecommunications.⁸ Figure 2 compares regulation in these sectors in the EU15 and in the US between 1975 and 2003, showing that anti-competitive regulation has been consistently lower in the latter.⁹ Quite importantly, as these sectors produce intermediate inputs used in final goods production, competition restraining regulation has severe “knock-on” effects throughout the economy. As the model in the following section shows, limited competition among suppliers increases the cost of inputs and reduces productivity of intermediate goods when an economy is close to the technological frontier.

FIGURE 2

Anti-competitive regulation in the non-manufacturing sectors substantially weakened incentives of incumbents to innovate, this in turn has compressed growth in the EU.¹⁰ The first effect can be clearly seen by looking at the correlation between ICT investment and regulation. Figure 3 plots

⁷On this, see also the detailed report by Faini et al. (2006).

⁸Clearly not all regulation is anti-competitive (or, more in general, unnecessary). However, the stringency of regulation varies significantly across OECD countries, suggesting that in several countries regulation is more restrictive than what it would be optimal.

⁹In the figure, the EU15 has a share of 60% or higher of total (i.e. EU15 plus US) regulation in network industries and the US of 40% or lower.

¹⁰The positive effect of innovation on growth is well established in the literature. The link between competition and innovation is more controversial. The empirical literature tends to be in favor of a positive effect of competition on innovation (see Nickell (1996) for a pathbreaking work). AAZ provide evidence that competition is more important when an economy (or a sector) is close to the world technology frontier.

the data on ICT investment in the period 1995-2003 of Figure 1 against an index of economy-wide product market regulation for the same sample of countries. The negative correlation provides a clear idea of the effect of anti-competitive regulation on ICT investment. Finally, the effect of anti-competitive regulation on growth is shown in Figure 4, where productivity growth over the period is calculated assuming that EU countries had aligned their regulations in each intermediate sector to the least constraining stance in the OECD area in that industry. The data for the US is included in the figure for comparison.

FIGURE 3
FIGURE 4

Figure 4 shows that annual productivity growth in the business sector in the EU15 between 1995 and 2003 could have been 0.87 percentage points higher if regulation in non-manufacturing sector were lower. This number is even higher for the Euro area (0.92%, also in the picture), where regulations are more important. Even if purely indicative, one can read these numbers as capturing the cost of non-Lisbon -i.e. the cost of the inability to implement structural reforms.

In the rest of the paper, I present a stylized model of endogenous growth in an economic union. The model shows that reducing regulation in the intermediate sector would increase productivity growth when the economy approaches the technology frontier. However, political economy factors refrain national governments from exposing national producers of intermediate goods to tougher competition. This negatively affects equilibrium growth.

3 The economic model

Consider an economic union with a population of size 1 formed of m countries indexed by $i = 1, 2, \dots, m$. These countries have equal size and similar economic and political structures. Consumers in the union have identical linear preferences in the consumption of the only final good produced. This simple framework allows us to focus on the production side of the economy.

3.1 Production

A unique final good, y , is produced at time t in all countries of the union. This final good is produced competitively using intermediate inputs according to the following aggregate production function:¹¹

¹¹This is a minor modification of the aggregate technology used in Alesina, Spolaore and Wacziarg (2000), where I abstract from labour inputs. Introducing labour would not alter any of the following results, as long as labour markets are perfectly competitive.

$$y_t = \sum_{i=1}^m A_{it}^{1-\alpha} x_{it}^\alpha, \quad (1)$$

where A_{it} is the productivity of intermediate input i at time t , x_{it} is the flow of input i used in final good production at time t and $\alpha \in (0, 1)$. The final good is the numeraire in this economy (with a price normalized to 1) and is used in the production of intermediate goods.

Condition (1) assumes that input i is supplied by country i only.¹² Each intermediate good is produced by a national monopolist that has access to the most productive technology A_{it} and then is sold to final good producers in the market independently of their location. Shares of national monopolists are indivisible and non tradable and are owned by a small fraction of individuals in each country. More importantly, since these countries have formed an economic union, there are no costs associated to trade. This will provide the channel through which the effects of policy in one country (to be introduced below) spill over onto other countries in the union.¹³

The intermediate good producer has access to a linear technology and transforms one unit of final good into one unit of intermediate good. The national monopolist faces a competitive fringe of imitators (possibly from other countries of the economic union) that can copy its technology and produce an identical intermediate good. However, competition in national intermediate good sectors is limited by government regulation that limits entry of both foreign and national potential competitors. Because of this regulation, the competitive fringe faces higher costs of production and needs $\xi_{it} \in (1, \frac{1}{\alpha}]$ units of final good at time t to produce one unit of the intermediate good i . The larger the parameter ξ_{it} , the higher the level of government regulation in country i and the less competitive will be the national market for the intermediate good. The existence of this fringe, however, forces the national monopolist to charge the limit price¹⁴

$$p_{it} = \xi_{it}. \quad (2)$$

Final good producers take intermediate goods prices as given and solve the following maximization problem

$$\max_{x_{1t}, \dots, x_{mt}} \left\{ y_{it} - \sum_{i=1}^m p_{it} x_{it} \right\} \quad \text{s.t.} \quad y_{it} = \sum_{i=1}^m A_{it}^{1-\alpha} x_{it}^\alpha.$$

¹²This could reflect the presence of country-specific knowledge in the production of input i . In alternative, one could model a country-specific factor that must be used in the production of x_i .

¹³One could argue that intermediate goods are mostly used as inputs by national firms. While this argument is certainly true, the idea captured by this production function is simply that aggregate productivity in an economic union is influenced by the productivity of the different intermediate sectors in member countries.

¹⁴This limit price is an equilibrium under the assumption that ξ_{it} is not so high that the national monopolist prefers to set a lower price. This is insured by the assumption that $\xi_{it} \leq \frac{1}{\alpha}$.

From the first-order condition, we obtain the demand of intermediate good x_{it} from the final good sector:

$$x_{it} = \alpha^{\frac{1}{1-\alpha}} A_{it} p_{it}^{-\frac{1}{1-\alpha}}. \quad (3)$$

Given the equilibrium price (equation 2) and the demand from the competitive final good sector (equation 3), equilibrium profits of the monopolist in country i are:

$$\pi_{it} = \delta_{it} A_{it}, \text{ where } \delta_{it} \equiv \alpha^{\frac{1}{1-\alpha}} (\xi_{it} - 1) \xi_{it}^{-\frac{1}{1-\alpha}}. \quad (4)$$

The function $\delta_{it}(\xi_{it})$ is monotonically increasing in ξ_{it} in the relevant range, therefore a less competitive national market implies higher profits for the national champion (as, sometimes, national monopolists are referred to).

From equations (1), (2) and (3) we obtain aggregate output in the economic union

$$y_t = \alpha^{\frac{\alpha}{1-\alpha}} \sum_{i=1}^m A_{it} \xi_{it}^{-\frac{\alpha}{1-\alpha}}. \quad (5)$$

As countries have equal size and economic structure, each one of them will produce an equal share of the final output given by

$$y_{it} = \frac{y_t}{m} = \frac{1}{m} \left[\alpha^{\frac{\alpha}{1-\alpha}} \sum_{i=1}^m A_{it} \xi_{it}^{-\frac{\alpha}{1-\alpha}} \right]. \quad (6)$$

Anti-competitive regulation in country i will reduce aggregate final output in the national as well as in the union economy because of standard monopoly distortions (from equations 5 and 6, we have that $\frac{\partial y_t}{\partial \xi_{it}} < 0$ and $\frac{\partial y_{it}}{\partial \xi_{it}} < 0$). Notice, however, that $\frac{\partial y_{it}}{\partial \xi_{it}} = \frac{1}{m} \frac{\partial y_t}{\partial \xi_{it}} < \frac{\partial y_t}{\partial \xi_{it}}$ for $m > 1$. This simply captures the main externality in this model: if country i increases anti-competitive regulation in its intermediate sector, it increases profits of its monopolist (see condition 4), but reduces its final output only for a fraction equal to $\frac{1}{m}$.

In most of this paper we will focus on the symmetric equilibrium (where countries choose the same level of national regulation, $\xi_{it} = \xi_t \forall i$). In this case, aggregate output in the union is given by $y_t = \alpha^{\frac{\alpha}{1-\alpha}} \xi_t^{-\frac{\alpha}{1-\alpha}} A_t$, where A_t is the aggregate level of technology in the economic union at time t

$$A_t \equiv \sum_{i=1}^m A_{it}. \quad (7)$$

This simplifies the discussion of the following section.

3.2 Technological progress

Economic growth in this model is driven by technological progress, that is, by increases in A_t . I follow AAZ and assume that each national monopolist can increase its A_{it} by two complementary processes: (i) innovation -i.e. the discovery of new technologies; and (ii) imitation -i.e. the adoption of existing technologies from the world technological frontier.

Denote the world technology frontier with \bar{A}_t and assume that it grows at the constant rate g so that

$$\bar{A}_t = (1 + g)\bar{A}_{t-1}. \quad (8)$$

Finally, assume that the process of imitation and innovation leads to the following law of motion of productivity of input i :

$$A_{it} = \eta\bar{A}_{it-1} + \gamma A_{it-1}, \quad (9)$$

where both η and γ are positive parameters. The first term in the right-hand side of this condition ($\eta\bar{A}_{it-1}$) captures the advances in productivity of input i coming from the adoption of technologies from the frontier, which depend on the stock of knowledge at the frontier in sector i at time $t - 1$. The second term (γA_{it-1}), instead, stands for the component of input i 's productivity growth due to innovation, which builds on the body of aggregate knowledge in the economic union in sector i at time $t - 1$.

Rearranging condition (9) and using definition (7), we can express the growth rate of aggregate technology as

$$\frac{A_t}{A_{t-1}} = \eta \frac{\bar{A}_{t-1}}{A_{t-1}} + \gamma.$$

This condition provides the central intuition of the AAZ model. When the economy is far from the frontier (i.e. \bar{A}_{t-1}/A_{t-1} larger), aggregate productivity growth is mostly driven by adoption of existing technologies. On the other hand, when \bar{A}_{t-1}/A_{t-1} becomes close to unity, then innovation matters more for economic growth.

Rearranging equations (8) and (9) and defining $a_t \equiv A_t/\bar{A}_t$ (where $a_t \in [0, 1]$) as the inverse measure of the economic union's distance to the world technology frontier at time t , we obtain the following condition:

$$a_t = \frac{1}{1 + g} (\eta + \gamma a_{t-1}), \quad (10)$$

which establishes a simple relationship between the union's distance to frontier at time t and the distance to frontier at time $t - 1$. Notice that, by definition of a_t and using condition (8), we obtain a simple relationship between aggregate productivity growth and the rate of growth of a_t :

$$\frac{A_t}{A_{t-1}} = \frac{a_t}{a_{t-1}} (1 + g).$$

According to this condition, for a given level of a_{t-1} , a higher level of a_t implies higher productivity growth.

3.3 Investment-based and innovation-based growth

In this section I present a simple reduced-form analysis of the AAZ model based on Acemoglu, Aghion and Zilibotti (2006b). This will require adding the following details to the model. Firms in the intermediate sectors are owned by capitalists and run by entrepreneurs. Firms' productivity is determined by entrepreneurial skills. There are two types of entrepreneurs: high-skill and low-skill. Entrepreneurial skills are initially unknown and are revealed after an agent works as an entrepreneur for the first time. Last, investment projects of firms can be financed either through the retained earnings of old entrepreneurs or by the capitalist who owns the firm.

The key economic decision in the AAZ model is whether to retain an entrepreneur with low skills and to replace him with a new entrepreneur with (on average) higher skills. One can interpret the retention decision as being determined by some institutional aspects as the kind of labor contract between the capitalist and the entrepreneur -i.e. long-term versus short-term contract. In this case, the choice an economy is making is between two alternative institutional settings, one that is based on stable contractual relationships and a second that favors entrepreneurial selection. The benefit of replacing a low-skill entrepreneur is traded off with the cost of financing investment projects, whereby the earnings of the retained low skill entrepreneur can be used to finance the investment project. Higher retained earnings will mitigate underinvestment problems that can emerge from market imperfections and moral hazard, but at the expense of making low skilled entrepreneurs more attractive to firms.

The decision to retain an entrepreneur at time t is denoted by $R_t \in \{0, 1\}$, where $R_t = 1$ and $R_t = 0$ correspond to retention and termination respectively. I start by making the following assumptions that capture two important facts documented in AAZ. First, the selection of high-skill entrepreneurs plays a more important role in innovation rather than imitation. Second, lack of investment is a more important problem for economies at earlier stages of development (i.e. further from the frontier).

- (A1) $\eta \in \{\underline{\eta}, \bar{\eta}\}$, with $\underline{\eta} < \bar{\eta}$;
- (A2) $\gamma \in \{\underline{\gamma}, \bar{\gamma}\}$, with $\underline{\gamma} < \bar{\gamma}$;
- (A3) if $R_t = 1$, $\eta = \bar{\eta}$ and $\gamma = \underline{\gamma}$; if $R_t = 0$, $\eta = \underline{\eta}$ and $\gamma = \bar{\gamma}$;
- (A4) if $R_t = 0$, $1 + g = \underline{\eta} + \bar{\gamma}$.

Under assumptions (A1)-(A4), condition (10) takes the form:

$$a_t = \begin{cases} \frac{1}{1+g} (\bar{\eta} + \underline{\gamma} a_{t-1}) & \text{if } R_t = 1 \\ \frac{1}{1+g} (\underline{\eta} + \bar{\gamma} a_{t-1}) & \text{if } R_t = 0 \end{cases}. \quad (11)$$

This condition captures the main dynamics of the AAZ model. If the economy is distant from the frontier (a_{t-1} low), assumption (A1) and (A3) imply that productivity growth is mostly driven by adoption of existing technologies and, therefore, growth is higher under retention ($R_t = 1$). In analogy to the discussion in section 2, we refer to this as an investment-based strategy, because the main benefit of retaining (low-skill) entrepreneurs is their ability to reinvest retained earnings, thus effectively increasing the investment rate of the economy. On the other hand, as the economy gets closer to the world technology frontier (a_{t-1} higher), growth increasingly depends on innovation and on the skills of the entrepreneur, thus growth is higher under termination ($R_t = 0$), as captured by assumptions (A2) and (A3). We refer to this as an innovation-based strategy, since the benefit in terms of growth of removing low-skill entrepreneurs is due to the process of “creative destruction”. Finally, at the limit, when the economy is on the frontier ($a_{t-1} = a_t = 1$), it only innovates and the growth rate of the world technology frontier is endogenously determined (assumption A4).¹⁵

FIGURE 5

Equation (11) is depicted in Figure 5. Economic growth is higher under the investment-based strategy for $a_{t-1} < \hat{a}$ (i.e. the economy is sufficiently far from the technology frontier), where the schedule ($R = 1$) implies a higher a_t for a given a_{t-1} . On the other hand, productivity growth is larger under an innovation based strategy ($R = 0$) for $a_{t-1} > \hat{a}$ (i.e. the economy is sufficiently close to the frontier), where \hat{a} is determined by the intersection of the two schedules ($R = 0$) and ($R = 1$) in Figure 5 and is given by

$$\hat{a} = \frac{\bar{\eta} - \underline{\eta}}{\bar{\gamma} - \underline{\gamma}}.$$

Therefore, an optimal growth sequence is one in which the economy starts with an investment-based strategy and later switches to innovation (this sequence is depicted with the bold segments in Figure 6). When the economy is far from the technology frontier, investment in existing technologies is the engine of economic growth. As investment is increased by old entrepreneurs’ retained earnings, the investment-based strategy maximizes the growth rate of the economy. As adaptation opportunities shrink, the invention of new products and production processes becomes crucial for

¹⁵ Assumptions A2 and A4 guarantee that there is no instability in the dynamic behavior of a_t because $1 + g = \underline{\eta} + \bar{\gamma} > \bar{\gamma} > \underline{\gamma}$.

growth. The selection of high-skill entrepreneurs is essential for innovation and switching from the investment-based to the innovation-based strategy allows the economy to achieve higher growth.

FIGURE 6

Naturally, nothing guarantees that the optimal strategy is an equilibrium. AAZ show that the economy will switch from the investment to the innovation-based strategy at $a_{t-1} = \tilde{a}(\delta)$, where $\tilde{a}(\delta)$ can be larger or smaller than \hat{a} depending on institutional factors (e.g. organization of credit markets), underlying economic conditions (e.g. incentives of entrepreneurs) and government intervention (the level of regulation ξ).¹⁶ Below $\tilde{a}(\delta)$, low-skill entrepreneurs are retained ($R_t = 1$), while above this threshold they are terminated ($R_t = 0$). In particular, there are two interesting equilibria. In the first one, defined as underinvestment equilibrium, $\tilde{a}(\delta) < \hat{a}$: here for any $a \in (\tilde{a}(\delta), \hat{a})$ the economy switches to the innovation-based strategy ($R_t = 0$), while it would reach a higher growth rate under the investment-based strategy ($R_t = 1$). The second equilibrium, referred to as sclerotic, is the one for which $\tilde{a}(\delta) > \hat{a}$: here for any $a \in (\hat{a}, \tilde{a}(\delta))$, low skilled entrepreneurs are retained ($R_t = 1$) even if a higher growth rate could be achieved through higher selection of entrepreneurs ($R_t = 0$). These equilibria are depicted in Figures 7 and 8 respectively (where the bold lines depict the equilibrium sequence).

FIGURE 7

FIGURE 8

AAZ show that reducing competition (i.e. increasing ξ and, therefore, δ) will increase $\tilde{a}(\delta)$. When intermediate goods market are less competitive, profits are higher (equation 4) and so are the retained earnings of entrepreneurs. This induces capitalists to retain old entrepreneurs whatever their skills (i.e. encouraging $R_t = 1$). This is the last assumption of the reduced-form set up:

- (A5) $\tilde{a}(\delta)$ is such that $\frac{\partial \tilde{a}(\delta)}{\partial \delta} > 0$.

Assumption (A5) has important implications for the role of government activity in the economy. For $\tilde{a}(\delta) < \hat{a}$, government intervention aimed at reducing competition will increase growth. This is essentially a second best argument: if the economy is characterized by underinvestment, lower competition increases retained earnings that are used to finance part of the investment costs. This static inefficiency, the rent to the insiders, creates a bias in favor of the investment-based

¹⁶Here I drop the country and time index from the policy variable. The next section, where the policy is endogenously determined, shows that indeed in the symmetric equilibrium policy is the same across country and time.

strategy that is beneficial to growth at earlier stages of development (i.e. far from the technology frontier). However, for $\tilde{a}(\delta) > \hat{a}$ limiting competition has the opposite effect on growth. Moreover, assumption (A5) implies that there is a level of δ , call it δ_{trap} , such that $\tilde{a}(\delta_{trap}) = a_{trap} \equiv \frac{\bar{\eta}}{1+g-\underline{\gamma}}$, where the economy never shifts to the innovation based strategy and does not converge to the frontier (see Figure 9).

FIGURE 9

Up to this point, I have considered economic policy ξ (and, therefore, δ) as exogenous. However, policies are endogenously determined through some political process. AAZ show that once restrictions to competition are in place, they are difficult to remove. In particular, if economic power is related to political power through lobbying activities, capitalists (who benefit from anti-competitive policy) can influence the government to choose restrictions to competition that move $\tilde{a}(\delta)$ well beyond the optimal level \hat{a} . At the limit, lobbying might be so effective in maintaining high restrictions that the political equilibrium level of $\tilde{a}(\delta)$ is larger than a_{trap} . In the next section, I model this endogenous policy determination in an economic union and discuss the effects on economic growth of two distinct constitutional regimes.

4 The political economy of structural reforms and growth in an economic union

This section studies the policy formation process in an economic union and its implications for economic growth. I consider two extreme situations: political separation and political integration. In the first scenario, national governments independently and non-cooperatively choose national regulations. In the second scenario, a union government is in charge of deciding the policy for the economic union. We proceed by comparing these two political economy equilibria.

I assume that governments are “politically motivated” as in the standard model of Bernheim and Whinston (1986) and Grossman and Helpman (1994). This implies that governments care about the general electorate (i.e. the median voter), but can be influenced by lobbying activities of politically organized groups. Here I take national and union output at time t respectively as a measure of national and union aggregate welfare in the governments’ objective function.¹⁷ This

¹⁷An alternative would be to assume that the measure of aggregate welfare corresponds to aggregate income (which includes profits of firms in the intermediate sector). However, by assumption, the assets of these firms are held by a negligible fraction of the population, as a result the welfare of the median voter is not affected by an increase in profits in the intermediate sector. In any event, little in the present analysis changes once aggregate income, rather than aggregate output, is considered in the governments’ objective function (the results of this case are available upon request).

assumption has two important implications. First, governments only consider the contemporaneous effects of their actions. This captures the fact that governments are short lived and -for electoral reasons- value the present to a larger extent than the long-run implications of their policy choice. Second, and more importantly, this hypothesis captures in a clear way the key economic problem at hand, whereas national governments only take into account the effects of their actions on national welfare (output). As discussed in section 3, this effectively creates the externality, which is driving the main result of the paper.

Capitalists are politically organized and can use their profits to lobby the government.¹⁸ The rest of the population has a clear interest in lobbying politicians as well, but it faces the standard collective action problem (as in Olson, 1965) and, in any case, does not have the financial resources to pay political contributions. This static lobbying game between the capitalists and the government determines the equilibrium level of regulation in the economy for each period and has important implications for the dynamics of the economy. I first describe the lobbying game under political separation and integration, I will discuss the effects on economic growth in the last subsection.

4.1 National governments

The political game has two stages. At the first stage, each lobby representing the interests of a monopolist offers to its national government a political contribution. This contribution is a binding commitment of payment and is contingent on the level of national regulation (ξ_{it}) chosen by the government at time t . This monetary transfer can be interpreted as a contribution to the electoral campaign of the government in country i . At the second stage, each national government observes the contribution schedule and chooses the national level of regulation to maximize its objective function, taking as given the level of regulation in the other countries (i.e. independently of the actions of the other governments of the union).

The objective function of national government i is given by

$$G^{it} = y_{it} + bc_{it}, \quad (12)$$

where c_{it} denotes the political contribution to government i and $b > 0$ is a constant that defines the extent of the “political bias” in the government objective function (i.e. its preferences for contributions). The higher b , the larger is the government’s predilection for contributions relative to our measure of aggregate welfare (here national output, given by condition (6)). This parameter

¹⁸This point requires some explanation. Capitalists receive profits at the end of the period. However, I assume that they can still use these profits to lobby the government by receiving funds from the financial sector. More precisely, at the beginning of the period capitalists can borrow from a set of competitive intermediaries, which collect funds from consumers, using the firm as collateral. Intermediation is without any costs and there is free entry into this activity. Since intermediation takes place within a period there are no interest costs to be covered. Lacking collateral, no other agent can have access to the financial sector to raise funds to lobby the government.

can be interpreted as capturing the level of checks and balances in government activity or, more in general, the quality of institutions.¹⁹ As extensively discussed in Grossman and Helpman (2001), this specification can be rationalized in several distinct ways.

As standard in this literature, I focus on a specific equilibrium where contributions take the following form

$$c_{it} = \max [0, \pi_{it} - k_{it}], \quad (13)$$

where k_{it} is a constant optimally chosen by the lobby and π_{it} is the incumbent's profit, which is given by equation (4). These contributions are often referred to as (globally) "truthful" as the shape of the contribution schedule reflects the effect that the policy has on the payoff to the lobby (i.e. $\frac{\partial c_{it}(\xi_{it})}{\partial \xi_{it}} = \frac{\partial \pi_{it}(\xi_{it})}{\partial \xi_{it}}, \forall \xi_{it}$). Under truthful contribution functions, the solution to the lobbying game corresponds to the solution of the following planning problem

$$\max_{\xi_{it}} \{y_{it}(\xi_{1t}, \dots, \xi_{mt}) + b\pi_{it}(\xi_{it})\} = \max_{\xi_{it}} \left\{ \frac{\alpha^{\frac{\alpha}{1-\alpha}}}{m} \sum_{i=1}^m A_{it} \xi_{it}^{-\frac{\alpha}{1-\alpha}} + b\delta_{it}(\xi_{it})A_{it} \right\},$$

where the politically organized group receives a larger weight that depends on the "political bias" of the government.

The first order condition implicitly determines the equilibrium level of regulation in country i :

$$\left[\frac{\partial \pi_{it}(\xi_{it})}{\partial \xi_{it}} \right]_{\xi_{it}=\xi_{it}^n} = -\frac{1}{b} \left[\frac{\partial y_{it}(\xi_{1t}, \dots, \xi_{mt})}{\partial \xi_{it}} \right]_{\xi_{it}=\xi_{it}^n}, \quad (14)$$

where we denote with ξ_{it}^n the equilibrium level of regulation at time t in country i under political separation.

In condition (14), the left-hand side is the positive effect that national regulation has on the profit of the incumbent firm. In the political equilibrium, this has to be equal to the cost of reduced output (and consumption), weighted for the political bias of the government. Quite intuitively, the larger the bias (the higher b), the lower the right-hand side of condition (14) in absolute terms and the more the equilibrium policy is distorted in favor of the lobby representing the interests of the national monopolist (i.e. the higher is ξ_{it}^n).²⁰

Under symmetry, we can get an explicit solution for the (Nash) equilibrium level of national regulation. Solving the above first-order condition and rearranging terms, we find that

¹⁹I abstract from differences in the political bias across countries, as the main focus of this paper is on comparing the equilibrium under political separation and integration. However, the extension to asymmetries in the quality of institutions is straightforward and will be further discussed below.

²⁰If we were to assume different levels in the quality of institutions in different countries, we would predict higher restrictions to competition in countries with lower checks and balances on government activities (i.e. countries with a higher b).

$$\xi_{it}^n = \xi^n = \frac{1}{\alpha} \left[\frac{\alpha^\alpha}{mb} + 1 \right]^{-1}. \quad (15)$$

This condition shows a very important point. The extent of restrictions to competition in national markets for intermediate goods depends on the importance of the externality, as captured by the number of countries m . The larger the number of countries, the less each one of them internalizes the negative effect of national regulation on the union welfare and the higher is the extent of anti-competitive restrictions in each member country (larger ξ^n). This effect is influenced by the parameter b . As we already noticed, the externality is more important the larger is the political bias of national governments, as a larger bias (a higher b) will induce each government to weight more the interests of its national champion. At the limit, ($b = 0$) corresponds to a "fully benevolent" government and implies a policy level $\xi^n = 0$ as each national government understands that limiting competition in the intermediate sector reduces the welfare of the median voter by reducing national output. The opposite limit case, when each national government is exclusively politically motivated and only cares about receiving political contributions (i.e. $b \rightarrow \infty$), the level of national regulations in each country is maximal ($\xi^n = \frac{1}{\alpha}$). Last, notice that the symmetric equilibrium level of regulation does not depend on time t ; this allows to abstract from time and country index.

4.2 Union government

Consider now the second scenario -political integration- where member countries of an economic union delegate the power to choose national regulation in the intermediate sector to a union (i.e. supranational) government. The union government can decide the level of regulation in each country (obviously, under symmetry it is sufficient to assume that the union government chooses the average level of regulation in the union). Its objective function is given by

$$G^{ut} = y_t + b^u \sum_{i=1}^m c_{it},$$

which is a weighted average of union aggregate output (given by condition (5)) and political contributions by national monopolists. The parameter b^u captures the political bias of the union government, where $b^u \leq b$.

The two-stage game between the lobbies representing the interests of national monopolists and the government has the same structure as before, with two main differences. First, by definition, the union government fully internalizes the effect of national regulations on union aggregate output. Second, national monopolists simultaneously and non cooperatively offer contributions to the union government. The truthful equilibrium of this game corresponds to the solution of the following maximization problem:

$$\max_{\xi_{1t}, \dots, \xi_{mt}} \left\{ y_t(\xi_{1t}, \dots, \xi_{mt}) + b^u \sum_{i=1}^m \pi_{it}(\xi_{it}) \right\} = \max_{\xi_{1t}, \dots, \xi_{mt}} \left\{ \alpha^{\frac{\alpha}{1-\alpha}} \sum_{i=1}^m A_{it} \xi_{it}^{-\frac{\alpha}{1-\alpha}} + b^u \sum_{i=1}^m \delta_{it}(\xi_{it}) A_{it} \right\}.$$

The first order conditions of the union government are given by a system of m equations of the form

$$\left[\frac{\partial \pi_{it}(\xi_{it})}{\partial \xi_{it}} \right]_{\xi_{it}=\xi_{it}^u} = -\frac{1}{b^u} \left[\frac{\partial y_t(\xi_{1t}, \dots, \xi_{mt})}{\partial \xi_{it}} \right]_{\xi_{it}=\xi_{it}^u}, \quad (16)$$

where we denote with ξ_{it}^u the equilibrium level of regulation in country i at time t under political integration. Notice that these conditions have the same interpretation of equation (14). Quite importantly, however, in the political equilibrium under integration the benefit to lobby i of more restrictive regulation (the left-hand side of equation 16) is equal to the marginal loss of union -and not only national- aggregate output (the right-hand side of equation 16).

As in the case of political separation, we can determine an explicit form for the equilibrium level of national regulation under symmetry. From the first-order conditions (14), this is equal to

$$\xi_{it}^u = \xi^u = \frac{1}{\alpha} \left[\frac{\alpha^\alpha}{b^u} + 1 \right]^{-1}. \quad (17)$$

As under political separation, the extent of anti-competitive regulation is independent of time and is crucially depends on the political bias of the government (b^u). Notice that the size of the union, m , plays no role in the determination of the equilibrium regulation under political integration, as the union government fully internalizes the policy spillover effect.²¹ Our main interest here is to compare the equilibrium regulation under political separation and integration and to draw implications for the growth dynamic in the economic union. This is what we do in the next subsection.

4.3 Structural reforms and growth

I proceed by making comparisons between the two static political economy equilibria of the previous subsections and drawing implications for the dynamic pattern of the economy.

4.3.1 The politics of regulation under political integration and separation

In this section I discuss the central static result of the paper. When comparing the equilibrium under political separation and under integration there are two mechanisms at work, one working

²¹ However, the size of the union plays an important role in the determination of equilibrium contributions, whereas increased competition for political influence increases lobbying expenditures in equilibrium. Under political separation each national monopolist faces no competition to influence its national government. On the other hand, under political integration m national monopolists attempt to influence the union government. While important, this effect plays no role in this model and I do not further discuss it (see Ruta, 2003, for details).

through the internalization of the policy externality, the second through the change in the quality of political institutions. It is convenient to address them separately.

First, the union government internalizes the (negative) effect of national regulations on the total output of the economic union (and not only on a fraction of it). For this reason -and for given institutional quality (i.e. assuming $b^u = b$)- the right hand side of condition (16) is larger than the right hand side of condition (14), implying that the union government chooses a lower level of (national and aggregate) regulation. Direct observation of the symmetric equilibrium (conditions (15) and (17)) confirms that $\xi^u < \xi^n$ for $b^u = b$ and $m > 1$. The intuition of this result is as follows: the non-cooperative structure of decision-making under political separation makes it easier for special interests to capture national governments and induce the adoption of stricter anti-competitive regulation compared to political integration. National monopolists find it harder to lobby the union government, because -differently from national governments- the union government internalizes the effect of national regulation on the rest of the economic union, implicitly increasing the social welfare loss of an excessive anti-competitive regulation. This explains why structural reforms in an economic union -defined here as the reduction of national regulation that create barriers to entry in the intermediate sector- can be more easily achieved under political integration than under political separation.²² This result is reminiscent of the literature on strategic trade policy (Brander and Spencer, 1983 and 1985), where the unilateral decisions of governments in the attempt to shift profits towards domestic firms is inefficient from the point of view of aggregate welfare.²³ However, here the motivation for choosing a high level of regulation is purely political.²⁴

Second, the assumption that the checks and balances on government activity (in short, the quality of political institutions), as captured by the parameters b and b^u , are the same under political integration and separation plays a key role. If institutional quality were higher at the supranational level (i.e. $b^u < b$), then a union policymaker would unambiguously choose lower national regulations.²⁵ This would reflect the combination of the two effects: internalization of the externality and weaker influence of special interests on politicians. On the other hand, if the political bias were to be larger under political integration (i.e. a union government is more easily captured by special interests), then the benefit of political integration coming from the internalization of the externality would be weakened by the increase in the effectiveness of lobbying. This sort of trade off

²²Notice, however, that groups that stand to lose from political integration anticipate this effect and could lobby to maintain policy prerogatives (i.e. the choice of ξ) at a national level. In other words, the allocation of competencies between different levels of government in an international union could be influenced by lobbying activities as well. I disregard this possibility here. See Ruta (2003) for an analysis of this point.

²³See Brander and Spencer (2007) for a recent overview of this literature.

²⁴As a comparison, consider the special case where $b^u = b = 0$ (i.e. benevolent governments). In this situation, it is immediate to see that there is no lobbying both under political integration and separation and $\xi^u = \xi^n = 0$ as governments correctly understand the effect of their policy choice on output.

²⁵Assuming that the quality of institutions differs among member countries of a union implies that this effect will be larger for countries with the higher initial level of b (i.e. for countries with the lower checks and balances on government activities under political separation).

is at the center of several papers on the political economy of centralization.²⁶ Notice, however, that there is no presumption that the quality of institutions would be lower or higher under one regime or the other. In any case, the normative implication is clear: a sufficient condition for political integration in an economic union to deliver lower regulations in equilibrium is that the quality of institutions is not lower than under political separation. A key open research question is then how to device proper political institutions at the union level.

From conditions (15) and (17), it is possible to obtain the following necessary and sufficient condition: $\xi^u < \xi^n$ if and only if $b^u < \hat{b}^u \equiv mb$. The level of national regulation is lower under political integration than separation provided that the quality of institution under political integration is higher than a certain threshold, which depends on the checks and balances on government activity at the national level (b) and the spillover effect (the size of the union, m). The higher the quality of national institutions (i.e. the lower b), the higher the required quality of institutions under political integration (i.e. the lower \hat{b}^u). The larger the economic union -and, therefore, the more important the externality- the lower the threshold \hat{b}^u .

4.3.2 Growth dynamics under political integration and separation

The last step of this analysis consists in studying the effects that the static political economy distortions have on the dynamics of the economy. Recall from assumption (A5) that the threshold level of a in equilibrium is an increasing function of δ (itself increasing in the policy variable ξ), $\tilde{a}(\delta)$. The above result implies that $\tilde{a}^n \equiv \tilde{a}[\delta(\tilde{\xi}^n)] > \tilde{a}^u \equiv \tilde{a}[\delta(\tilde{\xi}^u)]$ if and only if $b^u < \hat{b}^u$. Assuming that checks and balances on the union government are sufficiently good, there are four interesting configurations that describe the dynamic adjustment of this economy:

- $\hat{a} < \tilde{a}^u < \tilde{a}^n < a_{trap}$. The economic union will eventually converge to the technology frontier independently of its political regime. This growth sequence is depicted in Figure 10 (where the bold lines, as in the following figures, depict the equilibrium sequence under political separation -i.e. the Lisbon type political institutions). The economy starts with a set of economic institutions ($R = 1$) that favor the investment-based strategy, which is optimal for $a < \hat{a}$. As the economy gets closer to the frontier ($a > \hat{a}$), it would be optimal to adopt short-run contracts that favor innovation through enhanced entrepreneurial selection i.e. to switch to ($R = 0$). However, lobbying by national monopolists induces governments to choose high levels of anti-competitive regulation, thus increasing the (short-run) convenience to retain old entrepreneurs (and maintain the investment-based strategy for $a > \hat{a}$). Importantly, the economy fails to achieve the maximum growth rate for a range of values of a that depends on the political structure of the economic union. More precisely, political integration entails a lower level of anti-competitive regulation, which implies that the economy will switch to

²⁶See Ruta (2005) for a survey of this literature.

the innovation-based strategy closer to the growth maximizing strategy compared to political separation. For values of $a \in [\tilde{a}^u, \tilde{a}^n]$, growth is larger under political integration than under separation. In the long run, however, the economy switches to the innovation based strategy independently of its political regime.

FIGURE 10

- $\hat{a} < \tilde{a}^u < a_{trap} < \tilde{a}^n$. Political integration in the economic union leads to convergence to the technology frontier, while political separation does not (see Figure 11). More precisely, for $a < \hat{a}$ there is growth with anti-competitive policies under both political regimes. For $a > \hat{a}$, growth is higher if the economic union switches from an investment-based to an innovation-based growth strategy, but lobbying by national monopolists keeps regulation high and initially prevents the strategy switch. Differently from the previous configuration, the political regime here determines whether the economy will be stuck in a non-convergence trap or will ultimately converge. In particular, under political integration regulation is lower and the economic union converges to the frontier; this will not be the case under political separation, where national monopolists can always induce governments to adopt higher anti-competitive policies. As in the previous case, the lack of coordination of national governments under political separation (and their failure to realize the negative effects of their policy on other member countries) is the reason why lobbying is more effective. However, in this case protection of incumbent firms not only retards growth for a temporary interval of time, but pushes the economic union in a non-convergence trap. This equilibrium describes the most dangerous scenario for an economic union which is unable to coordinate structural reforms.

FIGURE 11

- $\hat{a} < a_{trap} < \tilde{a}^u < \tilde{a}^n$. Political integration is not sufficient for convergence to the frontier. The economic union will start with an investment-based strategy and will fail to switch to the innovation based strategy, as shown in Figure 12. The economy will converge for $a < a_{trap}$, at which point it will stop converging to the technology frontier. Encouraging investments by reducing competition in the intermediate sector is initially optimal, however it will make it politically impossible for the economy to undertake a structural transformation. National monopolists are able to induce the government to adopt an excessively high level of regulation

regardless of the political regime (i.e. independently on what level of government -national or supranational- is in charge of deciding the level of regulation). In this case, avoiding a non-convergence trap requires an improvement in the quality of checks and balances on government activity (i.e. a reduction of the political biases, b^u and b), to induce governments -union or national- to be more responsive to the needs of the general public.

FIGURE 12

- $\tilde{a}^u < \hat{a} < \tilde{a}^n < a_{trap}$ and/or $\tilde{a}^u < \tilde{a}^n < \hat{a} < a_{trap}$. The economic union abandons the investment-based strategy too soon (or too soon under political integration). This equilibrium configuration requires some explanation. Recall that for $\tilde{a}(\delta) < \hat{a}$ the economy can reach a higher growth rate through government intervention, which offsets the underinvestment problem. As discussed in the previous section, government intervention might not stop when $\tilde{a}(\delta) = \hat{a}$. These are the equilibrium sequences discussed in the three cases above. Now the question is the following: is it possible that, by weakening the political power of national monopolists, political integration might induce the economic union to switch to an innovation based strategy too soon (i.e. for $\tilde{a}(\delta) < \hat{a}$)? The reduced form of this model is too simple to address this question. However, if this could be the case, political integration would reduce growth for economic unions far from the frontier for values of $a \in [\tilde{a}^u, \hat{a}]$. In the long run, the economy would converge to the technology frontier independently of its political structure. This suggests that there might be appropriate political (as well as economic) institutions: i.e. optimal political organizations (as, for instance, the allocation of prerogatives between different levels of government in an international union) may differ with the stage of development. An issue clearly well beyond the scope of the present work.

5 Conclusions

In the last few years, the EU has engaged in a debate on the reform of its constitutional framework. While emphasizing the common economic problems of European countries (and in particular of the Euro area members), several economists -as Alesina and Giavazzi (2006)- fail to realize the link between improvements in the institutional architecture of the EU and the need for structural reforms. Others, as Wolf (2007), lament the enormous amount of energies that is lost to debate the reshaping of EU political institutions and are not dedicated to debate Europe's economic problems. They argue that a constitution for Europe should not be a priority at all. To the contrary, this paper shows that the economic and political future of the EU are linked.

The model builds on the work of Acemoglu, Aghion and Zilibotti (2006a), who show that an economy that approaches the technology frontier might fail to switch to a (growth-enhancing) innovation-based strategy because some vested interests induce governments to choose inefficiently high level of anti-competitive regulations in product markets. I show that this problem is more severe -and growth is lower- in an economic union where national governments choose policy independently than in an economic and political union, where policy is chosen by a union government (or a collective body maximizing the welfare of the entire union). The reason is that, in the latter case, policymakers fully internalize the spillover effect of reforms (a reduction of regulation) and, as a result, this makes lobbying less effective for vested interests. I argue that this political economy mechanism is particularly relevant for intermediate-good sectors such as energy, finance and services, where -as documented by the OECD (2007)- the level of anti-competitive regulation in the EU (and especially in the Euro area) is high.

The dynamics of the model has two interesting political economy equilibria. In the first one, the economy is able to sustain higher growth rates under political integration compared to separation, but eventually converges to the world technology frontier under both political regimes. In the second equilibrium configuration, the economic union is only able to reform and switch to an innovation-based strategy under political integration and is stuck in a non-convergence trap under political separation.

This model also highlights the difficulties of the current politico-economic situation in Europe. It is widely agreed that the support for the process of European integration in the 1960s was largely due to the exceptional economic performance of Europe at the time. If economic success is required for further progress in political integration in Europe and -as shown in this paper- economic growth in the EU depends on further political integration, two equilibria are possible. The first is the present trap, with national economic policymaking, nationally segmented intermediate sectors and low growth; the second equilibrium is characterized by political integration, a completed single market with lower anti-competitive regulation and higher economic growth. National special interests prosper in the closed environment created by national economic policies. Re-start the political and institutional integration process in Europe is the way to limit the influence of vested interests and put EU economies back on a reform and higher growth track.

Appendix

This appendix briefly studies a third regime, referred to as “peer pressure”. This regime more closely captures the logic of the institutional structure underlying the Lisbon Agenda, with a slight technical complication. The results, however, do not differ from the analysis of the main text.

A literature in labor economics studies the effects of peer pressure on individual efforts in labor environments where output is jointly produced. I borrow the modeling strategy of this literature -in particular of Kandel and Lazear (1992)- to analyze the effects of peer pressure in an economic union.²⁷ They introduce a peer pressure function $P(\xi_{1t}, \dots, \xi_{mt})$, which assumes that the regulatory decision of country i depends on the policy choice of the other member countries.²⁸ This can be thought of as an additional cost to the government of country i for choosing anti-competitive policy that is determined by social norms, pressure of colleagues or reflecting some learning process.

The game works exactly as under the political separation regime, as the fundamental policy decision remains purely national. Each government takes the policy of the other governments as given and maximizes the following objective function:

$$\max_{\xi_{it}} \{y_{it}(\xi_{1t}, \dots, \xi_{mt}) - P(\xi_{1t}, \dots, \xi_{mt}) + bc_{it}(\xi_{it})\}.$$

The first order condition that implicitly determines the equilibrium level of regulation in country i under peer pressure is:

$$\left[\frac{\partial \pi_{it}(\xi_{it})}{\partial \xi_{it}} \right]_{\xi_{it}=\xi_{it}^{pp}} = -\frac{1}{b} \left[\frac{\partial y_{it}(\xi_{1t}, \dots, \xi_{mt})}{\partial \xi_{it}} - \frac{\partial P(\xi_{1t}, \dots, \xi_{mt})}{\partial \xi_{it}} \right]_{\xi_{it}=\xi_{it}^{pp}}, \quad (\text{A1})$$

In the political equilibrium with peer pressure, the benefit to the national monopolist of a marginal increase in national regulation has to be equal to the cost of reduced output and the increased peer pressure, weighted for the political bias of the government. Quite intuitively, by increasing the perceived cost of anti-competitive regulation, peer pressure induces government i to choose a lower level of regulation compared to political separation (more precisely, the level of ξ_{it} that solves (A1) is lower than the level that solves equation 14). Peer pressure, therefore, creates a simple mechanism that mitigates the free-riding problem. However, there are at least two obvious limitations. First, even if a theoretical possibility, there is no guarantee that national governments will fully internalize the externality. Second, if all governments choose a high level of regulation

²⁷Differently from this literature, however, I abstract from information asymmetries. Information problems, while pervasive in team works, are likely to play a minor role when discussing structural reforms in an economic union, as the actions of national governments are easily observable to others.

²⁸In the simplest case, one can think of this pressure as a simple function of the distance from the average of the union: $P(\xi_{1t}, \dots, \xi_{mt}) = \left[\xi_{it} - \frac{\sum_{i=1}^m \xi_{it}}{m} \right]^2$.

-for instance because of lobbying by national incumbents- then the peer pressure mechanism fails to provide strong incentives.

Ultimately, whether and how the pressure of peers is effective will depend on the specific mechanism that is generating peer pressure. What is more important from our point of view is that the political equilibrium under peer pressure, being the result of an informal mechanism, will generally not induce governments to fully internalize the externality, as this would require ad hoc (and therefore implausible) assumptions on the functional form of $P(\xi_{1t}, \dots, \xi_{mt})$.²⁹ Abstracting from differences in the quality of institutions, this will imply that $\xi^n > \xi^{pp} > \xi^u$, and one can reformulate the discussion of section 4 based on the fact that $\tilde{a}^n \equiv \tilde{a}[\delta(\xi^n)] > \tilde{a}^{pp} \equiv \tilde{a}[\delta(\xi^{pp})] > \tilde{a}^u \equiv \tilde{a}[\delta(\xi^u)]$. The main message of section 4 is unaltered as appropriate economic institutions and higher productivity growth are more likely in an economic union close to the technology frontier which delegates regulatory decisions to a union government.

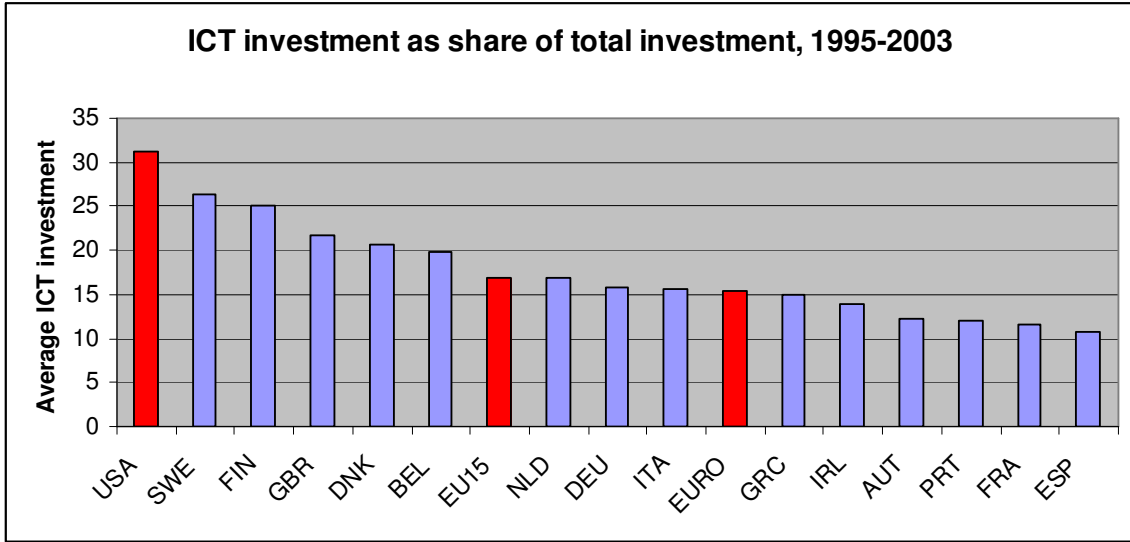
²⁹The efficient solution would require that national governments have the ability to exactly calibrate peer pressure, so that the function $P(\xi_i, \dots, \xi_m)$ takes the following functional form: $P(\xi_i, \dots, \xi_m) = (\frac{1}{m} - 1) \alpha^{\frac{\alpha}{1-\alpha}} \sum_{i=1}^m A_{it} \xi_i^{-\frac{\alpha}{1-\alpha}}$. As one can easily prove, in this case we would have $\tilde{\xi}^{pp} = \tilde{\xi}^u$.

References

- [1] Aghion, P., Acemoglu, D. and F. Zilibotti, 2006a, Distance to Frontier, Selection and Economic Growth, *Journal of the European Economic Association*, 4:1, 37-74.
- [2] Aghion, P., Acemoglu, D. and F. Zilibotti, 2006b, Growth, Development and Appropriate Versus Inappropriate Institutions, mimeo MIT.
- [3] Alesina, A., I. Angeloni and E. Etro, 2005, International Unions, *American Economic Review*, 95, 602-615.
- [4] Alesina, A. and F. Giavazzi, 2006, *The Future of Europe*, MIT Press, Cambridge, MA.
- [5] Alesina, A., E. Spolaore, and R. Wacziarg, 2000, Economic Integration and Political Disintegration, *American Economic Review*, December, 1276-1296.
- [6] Bernheim, D. B. and M. D. Whinston, 1986, Menu Auctions, Resource Allocation, and Economic Influence, *Quarterly Journal of Economics*, 101:1, 1-31.
- [7] Blanchard, O., 2004, The Economic Future of Europe, *Journal of Economic Perspectives*, 18:4, 3-26.
- [8] Brander, J. A. and B. J. Spencer, 1983, International R&D Rivalry and Industrial Strategy, *Review of Economic Studies*, 50, 702-722.
- [9] Brander, J. A. and B. J. Spencer, 1985, Export Subsidies and International Market Share Rivalry, *Journal of International Economics*, 18, 83-100.
- [10] Brander, J. A. and B. J. Spencer, 2007, Strategic Trade Policy, in S. N. Durlauf and L. E. Blume, *The New Palgrave Dictionary of Economics*, forthcoming, Palgrave Macmillan.
- [11] Conway, P., D. De Rosa, G. Nicoletti, and F. Steiner, 2006, Regulation, Competition and Productivity Convergence, OECD Economics Department Working Papers, No. 509.
- [12] Eichengreen, B., 2007, *The European Economy Since 1945*, Princeton University Press, Princeton NJ.
- [13] Einaudi, Luigi, 1943, Per una Federazione Economica Europea, reprinted in *La Guerra e l'Unita' Europea*, 1986, il Mulino, Bologna.
- [14] Einaudi, Luigi, 1944, I Problemi Economici della Federazione Europea, reprinted in *La Guerra e l'Unita' Europea*, 1986, il Mulino, Bologna.
- [15] European Commission, 2005, Working Together for Growth and Jobs. A New Start for the Lisbon Strategy, COM (2005)24.
- [16] Faini, R., J. Haskel, G. Barba Navaretti, C. Scarpa, C. Wey, 2006, Contrasting Europe's Decline: Do Product Market Reforms Help?, in T. Boeri, M. Castanheira, R. Faini and V.

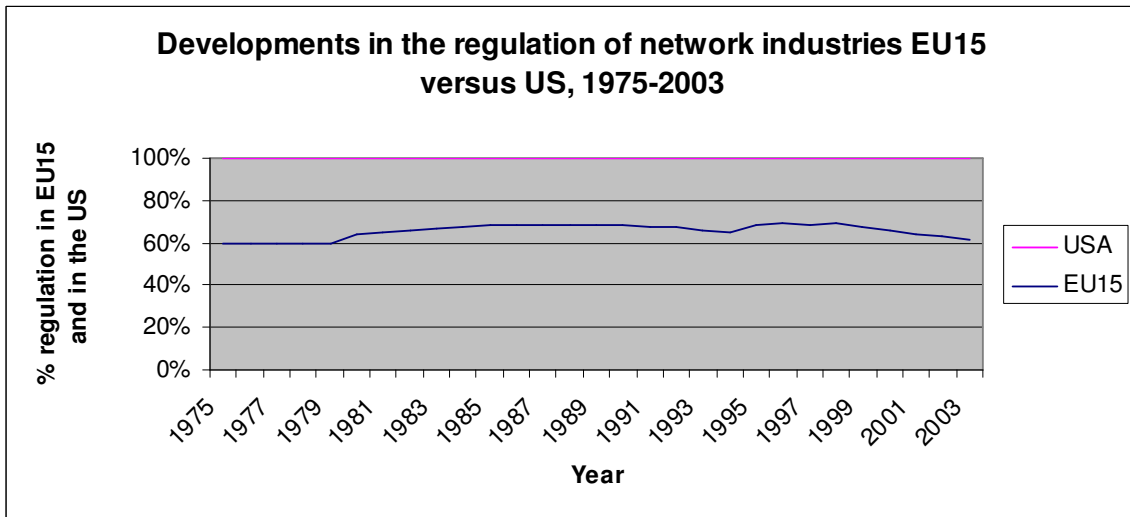
- Galasso (eds.), *Structural Reforms Without Prejudices*, Oxford University Press, Oxford UK.
- [17] Gershenkron, A., 1962, *Economic Backwardness in Historical Perspective*, Harvard University Press, Cambridge, MA.
- [18] Grossman, G. M. and E. Helpman, 1994, Protection for Sale, *American Economic Review*, 84:4, 833-850.
- [19] Grossman, G. M., and E. Helpman, 2001, *Special Interest Politics*, MIT Press, Cambridge, MA.
- [20] Hoy, J., V. Galasso, G. Nicoletti and T. Dang, 2006, The Political Economy of Structural Reform: Empirical Evidence from OECD Countries, OECD Economics Department Working Papers, No. 501.
- [21] Kandel, E., and E. Lazear, 1992, Peer Pressure and Partnerships, *Journal of Political Economy*, 100:4, 801-817.
- [22] Kok, W., 2004, *Facing the Challenge: The Lisbon Strategy for Growth and Employment*, Report from the High Level Group Chaired by Wim Kok, November 2004, available at <http://ec.europa.eu/growthandjobs/pdf/2004-1866-EN-complet.pdf>
- [23] Nickell, S., 1996, Competition and Corporate Performance, *Journal of Political Economy*, 104, 724-746.
- [24] Oates, W., 1972, *Fiscal Federalism*, New York, Harcourt, Brace and Jovanovich.
- [25] Olson, M., 1965, *The Logic of Collective Action*, Harvard University Press, Cambridge, MA.
- [26] Organization for Economic Cooperation and Development, 2002, Product Market Competition and Economic Performance, *OECD Economic Outlook*, 72: 155-162.
- [27] Organization for Economic Cooperation and Development, 2007, *Going for Growth: Economic Policy Reforms*, available at www.oecd.org/economy.
- [28] Pisani-Ferry, J. and A. Sapir, 2006, Last Exit to Lisbon, Bruegel Policy Brief, 2006-02.
- [29] Ruta, M., 2003, The Allocation of Competencies in an International Union: A Positive Analysis, European Central Bank Working Paper Series, No. 220.
- [30] Ruta, M., 2005, Economic Theories of Political (Dis)integration, *Journal of Economic Surveys*, 19:1, 1-21.
- [31] Sapir, A., 2004, *An Agenda for a Growing Europe: The Sapir Report*, Oxford University Press, Oxford, UK.
- [32] Wolf, M., 2007, Why Liberalism Is the Right Future for a Declining Europe, *Financial Times*, March, 13, 2007.

Figure 1



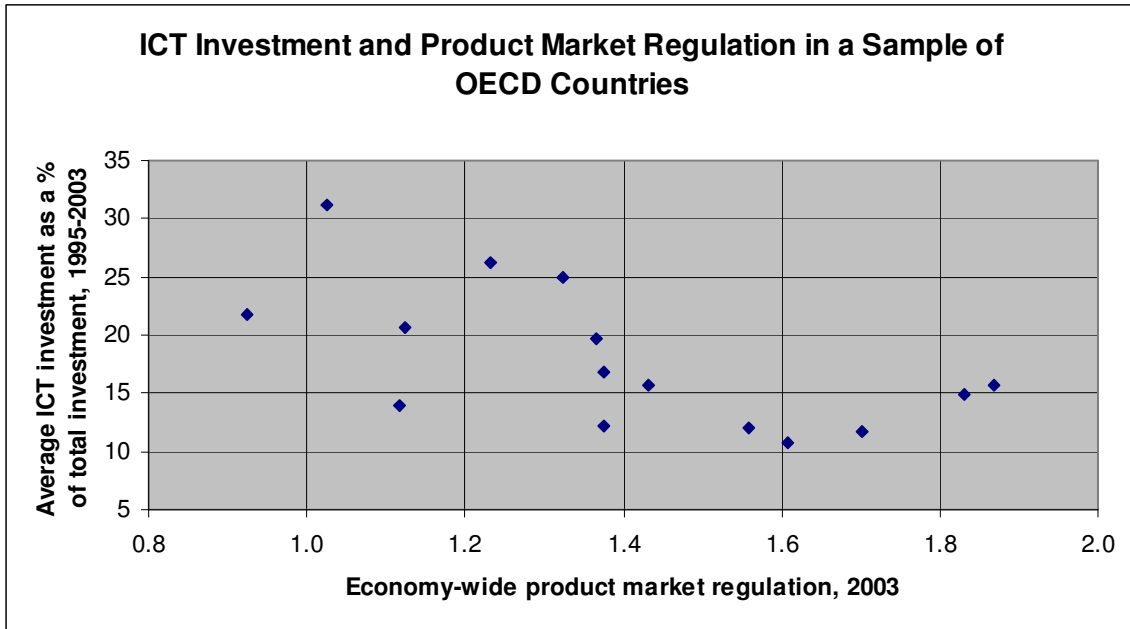
Source: OECD, Productivity Database.

Figure 2



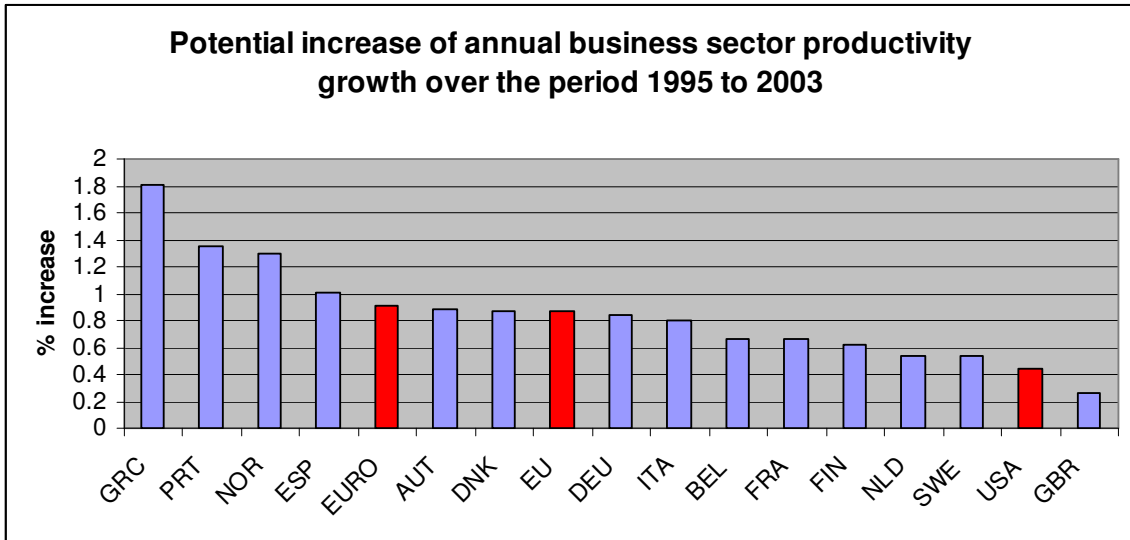
Source: OECD, Product Market Regulation database.

Figure 3



Source: OECD, Product Market Regulation database and productivity database.

Figure 4



Data are the average increase in annual business-sector productivity given an easing in the stance of regulation to the least restrictive of competition in the non-manufacturing sectors in OECD countries in 1995.

Source: Corway et al. (2006)

Figure 5

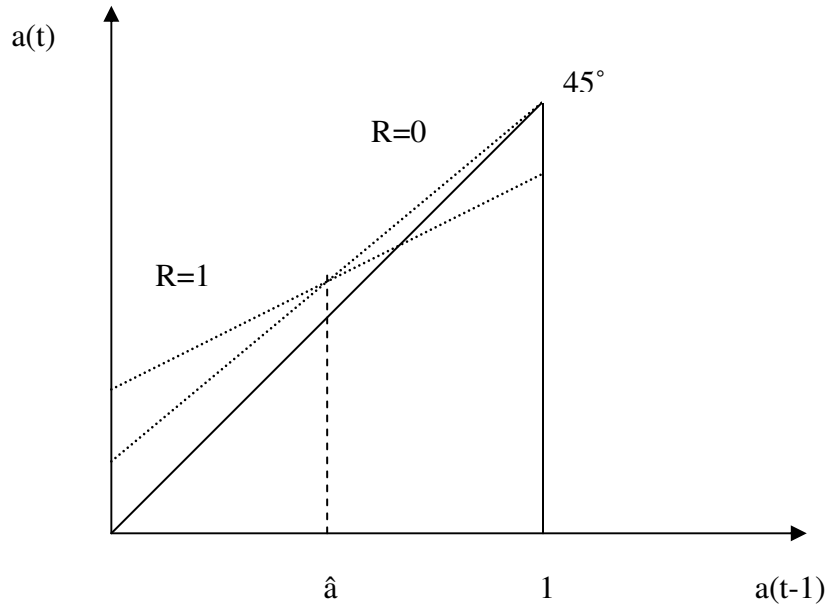


Figure 6

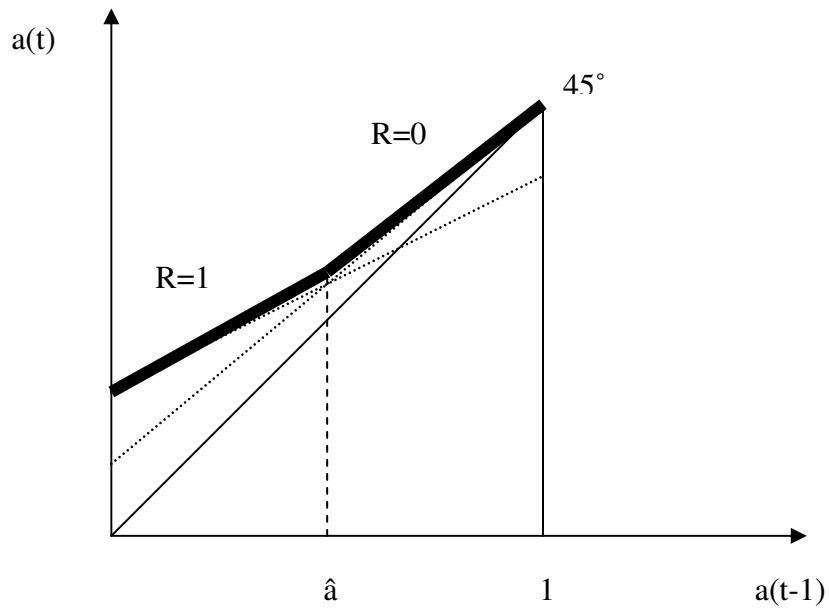


Figure 7

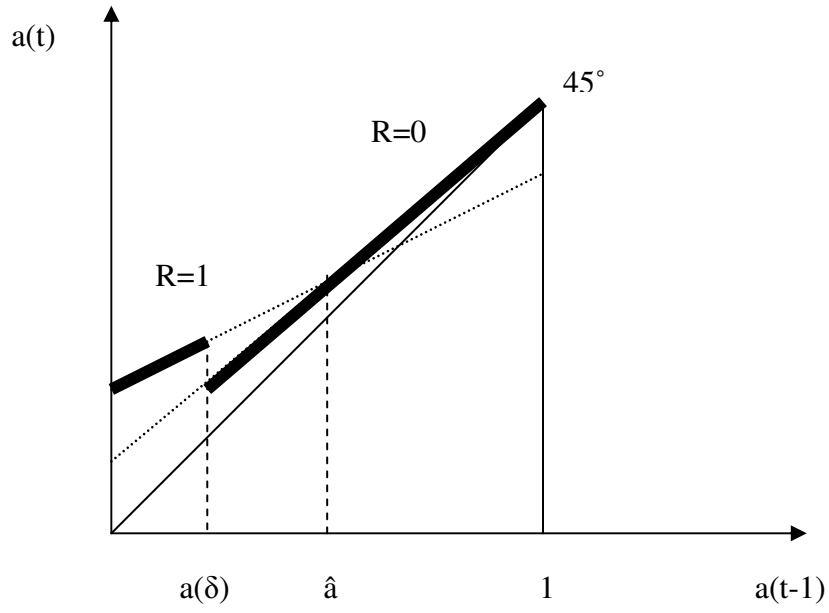


Figure 8

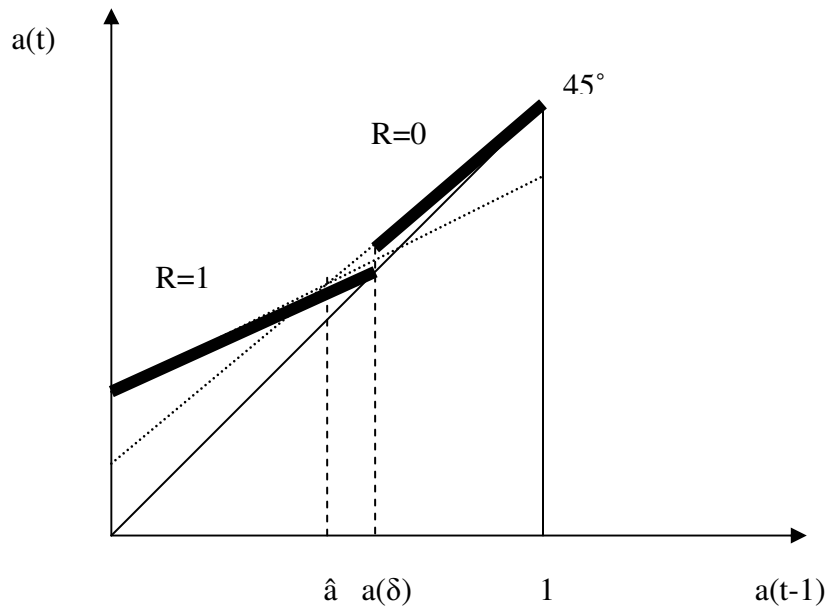


Figure 9

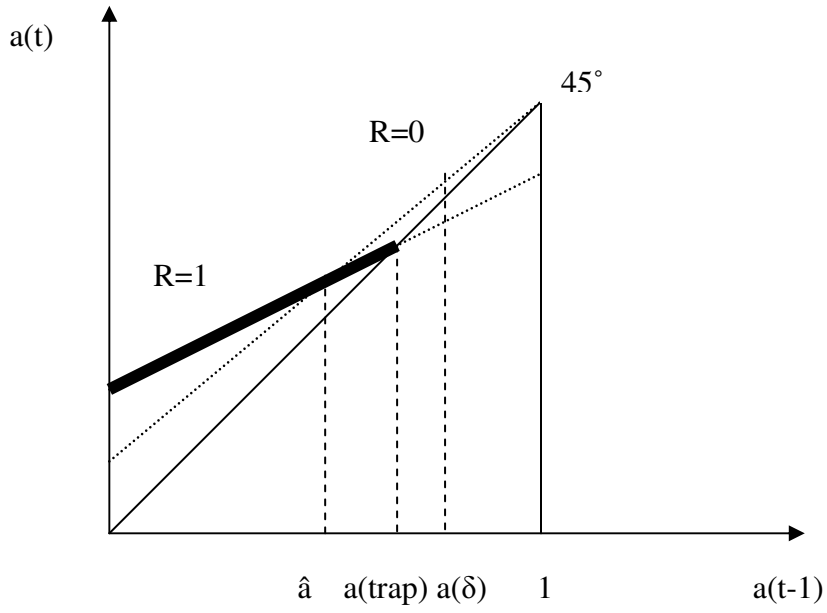


Figure 10

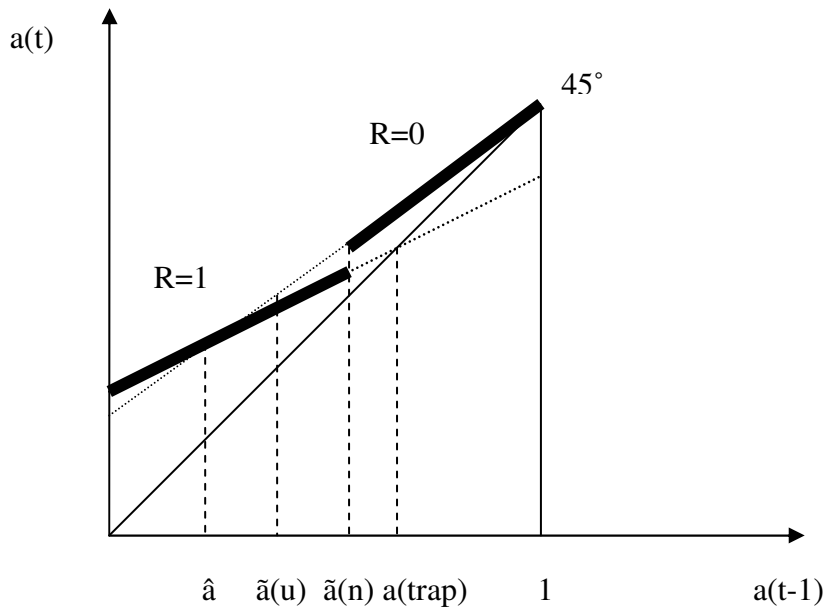


Figure 11

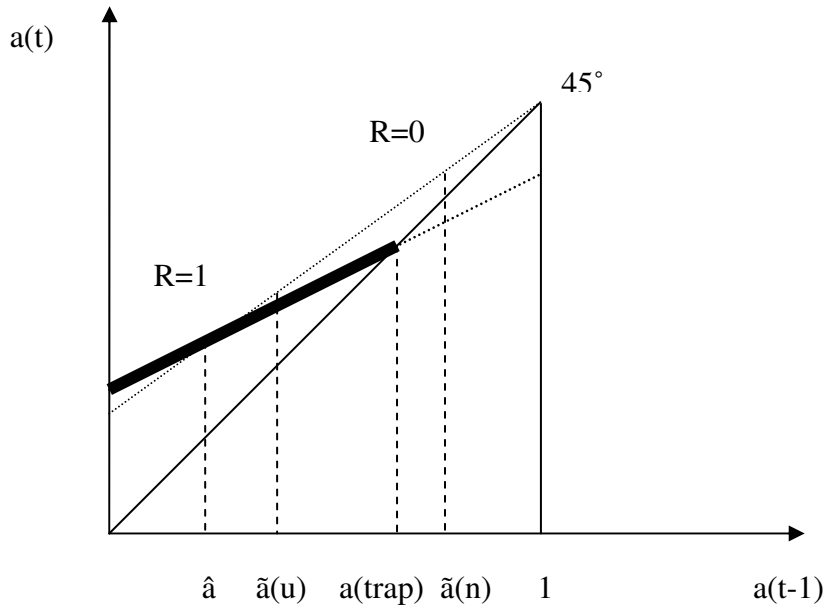


Figure 12

