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# **(Mis)Matches of Institutions: The EU and Varieties of Capitalism**

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## **Abstract**

We study the crisis of the EU by harnessing a supermodular game approach, which sees institutions as a self-sustaining bundle of rules of the game that are subject to manifold complementarities. Systems of institutions evolve over time and feature country-specific characteristics. EU integration alters the effectiveness of a set of complementary national institutions and can reduce welfare in Member States. The negative effects may be temporary if the national system of institutions changes towards a new, superior equilibrium. The strength and direction of the effects are country-specific and depend on: (i) the fit of the national system of institutions to the new environment, and (ii) the strength of complementarities among institutions. Based on our theoretic framework we assess the five scenarios brought forward in the White Paper on the future of Europe ([European Commission, 2017](#)), discuss the conditions under which each scenario works and reflect on them combining our theoretic framework with empirical insights from the Varieties of Capitalism literature.

**Keywords:** EU crisis, endogenous institutions, complementarities, heterogeneous national systems, market integration.

**JEL:** F15, F55, C73

# 1 Introduction

The crisis of the EU is a hotly debated topic in politics and academia. Talking about crisis in singular might disguise that it is a number of interconnected crises, which together threaten the continuity of the EU. One could refer to a financial and euro crisis among the members of the EMU, an economic competitiveness crisis of the Southern European countries, a legitimation crisis of EU regulations, EU bodies and EU representatives, and a solidarity crisis among EU citizens, the later recently became apparent in disagreements on policies regulating migration inflows to Europe. In our analysis, we look at the multidimensional crisis of the EU and its different manifestations in Member States from an institutional perspective.

We argue that the EU integration process has run into trouble, because the underlying national institutional set-ups are too different to work smoothly under common regulations. From the Commission's perspective, the consequence of the single market is a non-discriminatory environment, which requires common regulations in all Member States. Unfortunately, the same regulations do not produce the same outcomes if introduced in Member States with different economic conditions and different institutional set-ups. We understand institutional set-ups as *systems of institutions*, which are characterized by complementarities within and between different domains of societies. If there exists a variety of national systems of institutions within the EU—as suggested by the Varieties of Capitalism literature—then: (i) common regulations cannot be optimal for every Member State, and (ii) structural reforms only succeed if they alter sets of institutions and not just single elements.

We propose a theoretic framework on institution-building and institutional change that captures the evolution of a variety of national systems of institutions within the EU and the diverging consequences of common supranational regulations for Member States with different institutional set-ups. We build on and adapt [Aoki \(2001\)](#)'s game-theoretic approach, which sees institutions endogenously created in strategic interactions of sets of agents. These sets of agents play games that are synchronically and diachronically interlinked. The EU integration process has altered the environmental conditions in which agents make action choices and thereby (re)produce institutions. In some Member States market integration has reinforced while in others it has challenged the functioning of pre-integration systems of institutions. Among those with challenged systems of institutions some have experienced institutional change while others have not.

The [European Commission \(2017\)](#) proposes five different scenarios for the future EU integration process. The single market and the common currency, however, form the basis for all scenarios. Strengthening the single market is expected to increase welfare in all Member States. We are afraid that the hoped-for welfare effects will fail to materialize if the persistent heterogeneity of Member States' institutional set-ups is not taken into account.

To make our point as clear as possible we quickly discuss the literature providing arguments and evidence that institutions are effective in systems in [Section 2](#). In [Section 3](#), we summarize the basics of [Aoki \(2001\)](#)'s game-theoretic approach to understand why institutions are endogenous outcomes of strategic interactions and which mechanisms lead to the evolution of heterogeneous national institutional systems. In [Section 4](#), we show what we can learn from the game-theoretic approach to understand the challenges of the EU integration process. In [Section 5](#), we briefly present the five scenarios proposed by the European Commission, review their suitability on basis of our theoretic framework and give recommendations on what should be considered when moving forward. In [Section 6](#), we conclude.

## 2 Institutions work in systems

[Acemoglu and Johnson \(2005\)](#) have revitalized a debate on the role of institutions for economic development. They initiated an empirical literature, which aims to isolate the effects of different types of institutions and assess their relative importance for economic outcomes. This research has given development economics a push. [McCloskey \(2016\)](#), however, argues that looking at institutions in isolation is insufficient. McCloskey compares Italy and New Zealand to make her point that differences in ranks in institutional indices do not necessarily mirror GDP per capita differences. While there is an average difference of 70 ranks in various World Bank indices that measure institutional quality ([World Bank, 2018](#)), Italy and New Zealand have similar GDP per capita levels (in PPPs). This example is very telling. McCloskey concludes that something is missing in the explanation of development, which must be added to institutions: ethics in her argument, or the *S* factor as she calls *speech, stories, shame, and the Sacred* ([McCloskey, 2016](#): 4).

We do not deny that ethics play an important role and one might argue that ethics are informal institutions. However, we want to put forward a different explanation for the discrepancy between countries' rankings in institutional quality indices and GDP per capita levels. We argue that not single but *sets of institutions* jointly organize

(economic) activities. Political institutions are just one set. It is the combination of different sets (a set of economic institutions, a set of cultural traits ...) that conditions economic outcomes. Each set can differ across countries in its composition and in the relative importance of single elements. Industrial relations in Japan or Italy, e.g., depend much more on long-term relationships than those in the United States. The rank in rule of law should therefore be less important for Japan and Italy (rank 25 and 82 in 2016) and more important for the United States (rank 17 in 2016). Italians may have built an institutional set-up in which legal conflicts are the exception and other means than the legal system create a common basis for transactions between agents.

In different fields of microeconomics is well elaborated that not a single institution but sets of institutions jointly condition economic outcomes. [Milgrom and Roberts \(1990, 1995\)](#) discuss the role of complementarities among firm activities for the optimal set-up of production processes. A successful firm organizes its numerous activities using sets of adjusted institutions that jointly shape business strategy, managerial structure and the production process. [Heinrich \(2000\)](#) shows in a simple principal-agent model that it requires a set of instruments to answer the challenge of finding the right balance between giving the manager enough incentive and sharing enough risks with the owner. [Blau and Scott \(1962\)](#); [Gibbons \(2005\)](#) and [Baker et al. \(2001, 2002\)](#) add that complementarities do not only play a role for formal organizational practices but also in their interplay with informal ones. All these studies suggest that institutions do not merely coexist but are effective in a system.

Moreover, there is not only one possible system. [Holmström and Roberts \(1998\)](#) show in very telling case studies that a firm may choose among a variety of systems of corporate institutions to organize economic activities. Holmström and Roberts exemplify how different two firms' institutional set-ups can be even though the firms undertake similar economic activities, face similar coordination tasks and mitigate the same trade-offs. Firms' choice among alternative systems of corporate institutions depends on national institutions for which complementarities also matter. [Milgrom and Roberts \(1994\)](#) explain the economic success of Japan up to the early 1990s and its problems afterwards with the design of a complex system of complementary national institutions, which is hard to adjust when the environment changes. Japan's institutional framework was well-designed for rapid economic catch-up with the United States and Western European countries, but it did not work as successfully for an economy at the technological frontier. To make their point formally, [Milgrom and Roberts \(1994\)](#) adapt the "theory of supermodularity and

complementarity” developed by [Topkis \(1978\)](#). We also draw back to this theory and harness it in a game-theoretic setting.

### 3 Institutions as endogenous outcomes

From [North \(1991\)](#) we have learned that institutions are the rules of the game that provide incentives and constraints to structure political, economic and social interaction. In [North \(1991\)](#)’s framework, the rules are exogenous. We want to put emphasis on the endogenous nature of institutions and the need for laws, regulations and guidelines to be institutionalized to become effective. To do this, we draw on [Aoki \(2001\)](#), which defines institutions as *common beliefs about the rules of the game* that are “endogenously created through the strategic interactions of agents, held in the minds of agents, and are thus self-sustaining” as equilibrium of a game ([Aoki,2001](#): 10).

#### 3.1 Game-theoretic foundations

Let there be a set  $N = \{1,2,\dots,n\}$  of a finite number of agents and a set of all technologically feasible actions, one for each agent  $i$ , such that  $A_i = \{a_i\}$ . The combination of actions of all agents is called an action profile.  $A = \times_i A_i = \{\mathbf{a}\} = \{a_1, a_2, \dots, a_n\}$  is the set of technologically feasible action profiles. Time is denoted by  $t$  and the realized action profile  $\mathbf{a}$  in  $t$  is the state of the domain. The set of consequences of action profile  $\mathbf{a}$  is denoted by  $\Omega$ . Let a consequence function  $\varphi$  assign for each possible  $\mathbf{a}$  in  $A$  a consequence  $\omega$  in  $\Omega$ , which makes  $\omega = \varphi(\mathbf{a})$ . The shape of the consequence function  $\varphi$  depends on a set of parameters  $E = \{e\}$ , which determine the state of the environment. Environmental parameters relate to, e.g., the state of technology, initial endowments of resources, laws, regulations, policies.

Agents’ action choices are not necessarily observable by others, but their consequences are. In each period agents choose one action according to their action choice rule  $s_i : \Omega \rightarrow A_i$ , which is based on the observable consequence of the action profile realized in the previous period,  $a_i(t + 1) = s_i(\omega(t))$ , meaning that agent  $i$  bases the action choice in  $t+1$  on the observation of consequences in  $t$ . Action choice rules and the consequence function define the transition of the state of the economy over time as  $\mathbf{a}(t+1) = s(\varphi(\mathbf{a}(t))) = F(\mathbf{a}(t))$  for all  $t$ , where  $F : A \rightarrow A$  is the transition function. A steady-state equilibrium is reached if  $\mathbf{a}(t) = \mathbf{a}(t + 1) = \mathbf{a}(t + 2) = \dots = \mathbf{a}^*$ , where all agents make the same action choice in every period. The steady state hinges on

agents' action choice rules, which are guided by the maximization of agents' payoff functions  $u_i$  defined on the consequence space.

In repeatedly played games, agents need to be foresighted and take into account the impact of present action choices on future payoffs. Therefore, agents form expectations of other agents' action choice rules to set up a strategy plan of present and future action choices contingent on the evolving state. Future payoffs are discounted at a positive discount factor  $\delta$ . Assume that  $\Omega = A$  and  $\omega(t) = \mathbf{a}(t)$ , meaning that the consequence of the game in each period is completely described by the action profile in that period. The action choice rules of agents are then given by the functional form  $s_i(\cdot) : A \rightarrow A_i$  and the transition function  $F(\cdot)$  is simply given by the combination of agents' action choice rules  $\mathbf{s}(\cdot) = \{s_1(\cdot), s_2(\cdot), \dots, s_n(\cdot)\}$ , which we call strategy profile. The initial internal state of the game is  $\mathbf{a}(t)$ . The game evolving from that period on is a subgame. The internal state of the subgame at time  $\tau > t$  evolving according to the strategy profile is  $\mathbf{s}(\tau : \mathbf{a}(t))$ .

Denote  $\sigma_{-i}(\cdot) : A \rightarrow A_i$  as  $i$ 's expectation of other agents' action choice rules. If the expectation of each agent about others' action choice rules is consistent with others' actual action choices, and if the action choice of each agent is the best response to the expectation for all subgames starting from any  $t \geq 0$ , irrespective of the state  $\mathbf{a}(t)$  at that point, there exists a strategy profile  $\mathbf{s}^*(\cdot)$  that maximizes  $i$ 's payoff, such that

$$\sigma_{-i}(\tau : \mathbf{a}(t)) = \mathbf{s}^*_{-i}(\tau : \mathbf{a}(t)),$$

$$\mathbf{s}^*_i(\cdot) \in \operatorname{argmax}_{s_i(\cdot)} \sum_{\tau > t} \delta^{\tau-t} u_i(s_i(\tau : \mathbf{a}(t)), \sigma_{-i}(\tau : \mathbf{a}(t)))$$

for all  $\mathbf{a}(t) \in \Omega$ ,  $t \geq 0$  and  $i$ . The strategy profile  $\mathbf{s}^*(\cdot)$  is a *subgame perfect equilibrium*.  $\mathbf{s}^*(\cdot)$  is *self-sustaining*, because no agent  $i \in N$  has an incentive to unilaterally deviate from the specified strategy. The state-constituting action choices are sequentially observed by all agents period after period as the steady-state outcome. Its trajectory is  $\mathbf{a}(t) = \mathbf{a}(t+1) = \dots = \mathbf{a}(t+n) = \mathbf{a}^* = \mathbf{s}^*(\mathbf{a}^*)$ . The trajectory is the path of play and realizes if every agent follows the own equilibrium strategy plan. Agents also form expectations on off-the-path-of-play states, which may be interpreted as the rational beliefs about how the other agents act when unexpected states occur, such as by accident, mistake or experiment.

The expectations constrain the actual observable history to a certain sequence of internal states by eliminating all Nash equilibria that contain an incredible threat. The concept of subgame perfect games can considerably reduce the number of Nash

equilibria in repeated games, but not necessarily to one. There may exist a set of steady-state equilibria  $A^P = \{a^*, a^{**}, \dots\}$  and a set of strategy profiles  $S^P = \{s^*, s^{**}, \dots\}$  that all constitute subgame perfect equilibria.

### 3.2 Institution as summary representation of an equilibrium

Agents cannot and need not form expectations regarding every detail of all other agents' action choice rules. Agents are guided as well as constrained in their action choices by institutions, which convey compressed information on the equilibrium strategy profile. Suppose that for a stationary environment there exists the equilibrium strategy profile  $s^* = \{s_1^*, s_2^*, \dots, s_n^*\} \in S = \times_i S_i$ , where  $S_i$  denotes the set of action choice rules of  $i$ . With equilibrium  $s^*$ , there is associated a function  $\Sigma_i^*(\cdot)$  for each  $i$  that maps  $S$  into a space of the smallest dimensionality such that

$$\text{whenever } \Sigma_i^*(s) = \Sigma_i^*(s^*) \text{ for } s \in \times_i S_i, \\ s_i^*(\phi(s)) = s_i^*(\phi(s^*)).$$

$S_{-i}$  is the set that includes the action choice rules of all other agents. In  $S_{-i}$  there exists a subset  $S_{-i}(s^*)$ , which contains  $s_{-i}^*$ , the equilibrium strategy plans of all other agents, such that if  $s_{-i} \in S_{-i}(s^*)$ , then  $s_i = s_i^*$ . Denote  $S_{-i}(s^*)$  as  $i$ 's information set on the equilibrium strategy profile and  $\Sigma_i^*(s^*)$  as its corresponding summary representation, which provides enough information regarding the equilibrium strategy profile for  $i$  to form expectations about others' equilibrium strategy plans and set up the own optimal strategy plan  $s_i^*$ . All details of the equilibrium that are not included in the summary representation are redundant and irrelevant to  $i$ . This entails that if  $i$  receives  $\Sigma_i^*(s^*)$  in an off-the-equilibrium-path state, then  $i$  continues to follow  $s_i^*$  as if the state was on the path.

$\Sigma_i^*(s^*)$  consists of two parts, a system of common beliefs  $\Sigma^*$  and private residual information about the internal state of the domain  $I_i^*(s^*)$ . The former is the common feature of private summary representations over all agents implied by  $\langle s_i^*, \Sigma_i^*(s^*) \rangle$ .  $\Sigma^*$  captures the *common beliefs about the equilibrium held by all agents*, that is, their shared understandings and cognitions on the rules of the game.  $\Sigma^*$  is characterized by five properties: endogeneity, information compression, durability, universality and multiplicity. Durability entails that  $\Sigma^*$  has to be persistent within a certain bound of states of the environments  $\hat{E}$ . Let  $e$  be the state of environment for which a strategy profile  $s^*(e)$  and respective summary representation  $\Sigma^*(s^*(e))$  exist. If the state of

the environment is only mildly changing such that  $e \in \hat{E}$  holds, the equilibrium strategy profile remains invariant and  $\Sigma^*$  is reproduced.

### 3.3 Institutional complementarities

In complex societies millions of agents play a number of games in different domains of societies. These games are interlinked. We rely on the theory of supermodularity based on [Topkis \(1978\)](#), put into the institutions context by [Milgrom and Roberts \(1990\)](#) and adapted to the endogenous outcome conception of institutions by [Aoki \(2001\)](#), to show how institutions build systems characterized by complementarities.

Consider two games that are interlinked. The two games can take place within the same or in different domains of societies, which does not make any difference for the mechanism we want to show. Assume the games are played by two different sets of agents in two different domains of a society. Denote  $M$  as the set of agents operating in the economic domain and  $P$  as the set of agents operating in the political domain. The two sets of agents are not allowed to interact directly but their action choices are influenced by two institutions. First, and as elaborated in the previous section, the institution that prevails in a domain informs the agents in the respective domain about the equilibrium of the game. Second, the institution that prevails in the other domain enters the game as an environmental parameter that shapes the consequence function. Assume for now that the institution in the other domain is the only relevant parameter determining the state of the environment and restricting the possible equilibrium strategy profiles to two alternatives:  $\{\Sigma^*, \Sigma^{**}\}$  in the economic and  $\{\Lambda^*, \Lambda^{**}\}$  in the political domain. The payoff functions are given by  $u_i = u(i \in M)$  for economic agents and  $v_j = v(j \in P)$  for political agents, respectively. If in both domains no institution dominates the alternative in maximizing agents' payoffs irrespective of what institution prevails in the other domain, then with *institutional complementarities* we have:

$$\begin{aligned} u(\Sigma^*, \Lambda^*) - u(\Sigma^{**}, \Lambda^*) &\geq u(\Sigma^*, \Lambda^{**}) - u(\Sigma^{**}, \Lambda^{**}) \\ v(\Lambda^{**}, \Sigma^{**}) - v(\Lambda^*, \Sigma^{**}) &\geq v(\Lambda^{**}, \Sigma^*) - v(\Lambda^*, \Sigma^*). \end{aligned} \tag{1}$$

The first line of (1) states that the economic agents yield higher payoffs with institution  $\Sigma^*$  ( $\Sigma^{**}$ ) if their environment is  $\Lambda^*$  ( $\Lambda^{**}$ ). Likewise, the second line states that having institution  $\Lambda^{**}$  ( $\Lambda^*$ ), the political agents achieve a higher payoff if their environment is  $\Sigma^{**}$  ( $\Sigma^*$ ). The differences between the left-hand and the right-hand

side of (1) are extra payoffs, e.g., due to efficiency gains, accruable to the agents when complementary institutions are matched. Under the supermodularity conditions in (1) there are two Nash equilibria  $(\Sigma^*, \Lambda^*)$  and  $(\Sigma^{**}, \Lambda^{**})$  among four possible combinations of institutions. We call these combinations *systems of institutions*, as the effectiveness of one institution depends on other institutions.

In a simultaneous game setting coordination is needed to establish a system of institutions that is a Nash equilibrium. In a repeated game setting a Nash equilibrium can settle even without coordination. However, since both institutions are produced and sustained by different sets of agents who independently maximize their payoffs, it may take time until the system of institutions settles to a Nash equilibrium if the two sets of agents are not allowed to interact or if information is asymmetric.

### 3.4 Institutional environments

Let's soften the assumption that the institution prevalent in another game is the only relevant environmental parameter and include a domain-specific parameter that also influences the shape of the consequence function. We apply the momentum theorem proposed by [Milgrom et al. \(1991\)](#) and adapted in [Aoki \(2001\)](#) to show how differences in the environments make different systems of institutions optimal and how exogenous shocks and internal movements can induce environmental and institutional change. Let  $\theta$  be a parameter specific to the economic domain, e.g., the state of technology or physical and human capital endowments. Let  $\eta$  be a parameter specific to the political domain, e.g., the degree of executive constraints. Each payoff function has *increasing differences* in its institution and domain-specific parameter if

$$\begin{aligned} u(\Sigma^* : \Lambda, \theta) - u(\Sigma^{**} : \Lambda, \theta) \text{ is increasing in } \theta \text{ for any fixed value of } \Lambda, \\ v(\Lambda^* : \Sigma, \eta) - v(\Lambda^{**} : \Sigma, \eta) \text{ is increasing in } \eta \text{ for any fixed value of } \Sigma. \end{aligned} \tag{2}$$

The differences in (2) imply that the parameters are ordered in such a way that a higher value of  $\theta$  enhances the fit of  $\Sigma^*$  vis-a-vis  $\Sigma^{**}$  for any fixed value of  $\Lambda$  in the political domain. Likewise, a higher value of  $\eta$  enhances the fit of  $\Lambda^*$  vis-a-vis  $\Lambda^{**}$  for any fixed value of  $\Sigma$  in the economic domain. Shifts in the values of domain-specific parameters may change the optimality of not only single institutions but the whole system. Assume that  $\Lambda^*$  has evolved in one domain and  $\Sigma^{**}$  in the other in spite of unused complementarities, which could occur if the level of  $\theta$  is sufficiently low

while the level of  $\eta$  is sufficiently high. The conditions for the evolution of a system with complementary institutions improve when  $\theta$  increases. Such an increase can happen for external or internal reasons. The former includes a shock specific to  $\theta$ . The later includes co-evolution of institutions and environmental parameters. To capture this, denote institution and parameter values at time  $t$  by postscript (t) and let parameter values change over time according to the dynamic system:

$$\begin{aligned}\theta(t + 1) &= F[\theta(t), \eta(t), \Sigma(t), \Lambda(t)], \\ \eta(t + 1) &= G[\theta(t), \eta(t), \Sigma(t), \Lambda(t)].\end{aligned}\tag{3}$$

$F$  and  $G$  are nondecreasing in all parameters and institutions until unmodeled forces, i.e., shocks, disturb the system. As long as our system moves according to (3), the parameter values do not receive a negative but possibly a positive feedback from the endogenous institutions. This entails that institution-compatible technologies, physical capital and human capital are continually accumulated and no institution-compatible policy is reversed in either domain. Agents choose actions according to equilibrium strategy plans, their expectations are met and common beliefs about the rules of the game reinforced. As institutions are reproduced, further institution-compatible technologies, physical capital and human capital are accumulated. In the absence of shocks, the environmental parameters and institutions coevolve monotonically towards the direction of their best fit.

## 4 Challenges for EU integration

Since the foundation of European cooperation on coal and steel in 1951, European countries have gradually integrated their markets. Over the decades, national governments have agreed in numerous consecutive treaties to abolish barriers of international trade, prevent distortion of competition in national markets and jointly regulate areas of common interests, e.g., agriculture, energy and transport markets. In 1993 the Maastricht Treaty formally established the EU, a political and economic union that now includes 27 Member States. Supranational regulations extended, replaced or required the adaption of national regulations. Together with globalization and technological progress, EU integration has changed institutional environments and challenged national systems of institutions in every Member

State. In this section we apply Aoki (2001)'s game-theoretic approach of institution-building and institutional change to understand the challenges of the EU integration.

#### 4.1 Varieties of capitalism in the EU

Hall and Soskice (2001) provide empirical evidence that national institutions indeed form a system that is to a considerable degree characterized by complementarities within and across different domains of a society. Moreover, they show that national systems of institutions can look very similar among some and very different among other countries. Amable (2003) finds that often geographic distance can approximate the degree of similarity. Neighboring countries tend to share more institutional characteristics than countries further away from each other. Amable identifies four types of systems of institutions in Europe: (i) a Northern block (Denmark, Sweden, Finland, Estonia, Latvia, Lithuania and in some aspects the Netherlands and Ireland), (ii) an Eastern block (Poland, Czech Republic, Slovakia, Hungary), (iii) a Southern block (Portugal, Spain, Italy, Greece), and (iv) a Central European block (Belgium, France, Germany, Austria, Slovenia and in some aspects the Netherlands). These blocks differ significantly in their institutional set-ups as shown in principal components analyses that organize many institutional variables along the five dimensions: product market competition, labor markets, financial markets, social protection, education.

The supermodular game approach can provide some understandings on the underlying mechanisms that lead to the evolution of different systems of institutions among (blocks of) Member States. To exemplify, let agents in Member State 1 establish one among the two alternative political institutions  $\{\Lambda^*, \Lambda^{**}\}$  in period  $t$  and one among two alternative economic institutions  $\{\Sigma^*, \Sigma^{**}\}$  in period  $t+1$ . Moreover, let Member State 1 be characterized by a political environment  $\eta$  with a high-level parameter value. Following differences (2), the set of political agents  $P$  will institutionalize  $\Lambda^*$  in period  $t$ , as their payoff function is  $v(\Lambda^* : \eta) \geq v(\Lambda^{**} : \eta)$ . Having  $\Lambda^*$  as an institutional environment, the set of economic agents  $M$  will institutionalize  $\Sigma^*$  in period  $t+1$ , if their payoff function is  $u(\Sigma^* : \Lambda^*, \theta) \geq u(\Sigma^{**} : \Lambda^*, \theta)$ , which requires a sufficiently high level of the economic environment  $\theta$  and/or sufficiently strong institutional complementarities. If this requirement is met, in Member State 1 the optimal system of institutions  $(\Sigma^*, \Lambda^*)$  will be established. Following the same logic for Member State 2 but assuming a low parameter value of the political environment

$\eta$ , a sufficiently low parameter value of the economic environment  $\theta$  and/or strong institutional complementarities,  $(\Sigma^{**}, \Lambda^{**})$  will be established in Member State 2.

The example shows that the evolution of a system of institutions is path-dependent and hinges on (i) past and present environmental conditions and (ii) the presence and strength of institutional complementarities. Together they can explain why European countries have evolved and still show structurally different national systems of institutions. Having different national systems of institutions within the EU raises the question of superiority and inferiority. However, different systems can not easily be ranked with respect to their optimality. They may, for example, not be mutually Pareto comparable, which is the case if  $u(\Sigma^*, \Lambda^*) > u(\Sigma^{**}, \Lambda^{**})$  and  $v(\Sigma^*, \Lambda^*) < v(\Sigma^{**}, \Lambda^{**})$ , meaning one system has superior outcomes for one set of agents and inferior outcomes for the other. Some systems of institutions are clearly inferior to others for the society as a whole, which is the case if  $u(\Sigma^*, \Lambda^*) > u(\Sigma^{**}, \Lambda^{**})$  and  $v(\Sigma^*, \Lambda^*) > v(\Sigma^{**}, \Lambda^{**})$ .

Even an inferior system of institutions may survive. This occurs if single powerful agents block institutional change as they achieve higher individual payoffs in the inferior system. Also, this occurs in the presence of locked-in effects. Concerning the later, suppose that system  $(\Sigma^*, \Lambda^*)$  is superior to system  $(\Sigma^{**}, \Lambda^{**})$  in terms of joint payoffs, which reflects global welfare. Nevertheless, once established in Member State 2,  $(\Sigma^{**}, \Lambda^{**})$  may be robust to a change to  $(\Sigma^*, \Lambda^*)$ , if extra payoffs caused by strong institutional complementarities block the change. If  $u(\Sigma^{**}, \Lambda^{**}) > u(\Sigma^*, \Lambda^*)$ , then it is not beneficial for the economic agents to change to institution  $\Sigma^*$ . If  $v(\Sigma^{**}, \Lambda^{**}) > v(\Sigma^*, \Lambda^*)$ , then it is not beneficial for the political agents to change to institution  $\Lambda^*$  either. Therefore, as long as agents do not coordinate across the domains, institutional complementarities will prevent institutional change towards the superior system of institutions.

## 4.2 Market integration and institutional environments

The integration of national markets within the EU has promised to be an engine for institutional change, helping to overcome inferior systems of institutions and increasing global welfare in all Member States. The common economic regulations introduced to facilitate the single market have changed national institutional environments, especially in the EMU area. Market integration led to changes in economic agents' payoffs of action choices in all Member States, however, the degree of changes and the implications thereof differed considerably. For some Member

States they turned out to be not in the way expected or hoped for, which entrenched or even widened the gap between (blocks of) Member States and created a great challenge for the EU integration process.

From the underlying approach we can learn something about the effects of integrating national markets on agents' action choices, equilibrium strategy profiles and institutions. Member States' different reactions to common economic regulations can be captured by country-specific consequence functions. Consider that national differences in resource endowments, human capital, states of technology, industrial policies, et cetera cause the state of the environment in the economic domain to be idiosyncratic for every Member State. A country-specific environmental parameter, say  $\theta_c$ , entails a country-specific consequence function, say  $\varphi_c$ , for  $C = 1, 2, \dots, 27$  Member States. Following Section 3.1,  $\varphi_c$  produces cross-country differences in consequences  $\omega$  on action profiles  $\mathbf{a}$ , since  $\omega_c = \varphi_c(\mathbf{a})$ . This makes  $a_i(t + 1) = s_i(\omega_c(t))$  also country-specific and may yield different optimal action choices, strategy profiles and institutions across Member States.

To show the implications of integrating national markets, let's continue with our example in which  $(\Sigma^*, \Lambda^*)$  has established in Member State 1 and  $(\Sigma^{**}, \Lambda^{**})$  in Member State 2 by period  $t+1$  as a result of differences in the values of domain-specific environmental parameters. Introducing a set of common economic regulations to facilitate an integrated market at some period  $S > t + 1$  changes the shape of  $\varphi_c$  in both Member States in two ways: First, the harmonization of a set of economic regulations makes  $\theta_c$  more similar across Member States. Second, as barriers of trade vanish and competition increases, the strategy profile of economic agents operating in one Member State becomes an environmental parameter for economic agents operating in the other Member State.

Denote a set of possible strategy profiles in a Member State  $S_c = \{s_c\}$ . Assume for simplicity that economic agents in  $c$  have a binary choice set of optimal strategy profiles  $S^P = \{\mathbf{s}^*, \mathbf{s}^{**}\}$  for which the respective institutions  $\{\Sigma^*, \Sigma^{**}\}$  are established. In the integrated market, the consequence function  $\varphi_c$  becomes  $u_c(\mathbf{s}_c : \mathbf{s}_{-c}, \theta_c, \Lambda)$ , with  $\mathbf{s}_{-c}$  denoting the strategy profiles prevalent in other Member States. In the presence of institutional complementarities as in (1) and increasing differences as in (2),  $\varphi_c$  is supermodular and assimilative in the limited sense. This means for  $\mathbf{s}_c$  that if any of  $\mathbf{s}_{-c}$ ,  $\theta_c$  or  $\Lambda$  shifts from  $\mathbf{s}^{**}_{-c}$ ,  $\theta_L$  or  $\Lambda^{**}$  to  $\mathbf{s}^*_{-c}$ ,  $\theta_H$  or  $\Lambda^*$ , the payoff differential  $u_c(\mathbf{s}^*_c : \mathbf{s}_{-c}, \theta_c, \Lambda) - u_c(\mathbf{s}^{**}_c : \mathbf{s}_{-c}, \theta_c, \Lambda)$  becomes greater for all economic agents in Member State  $c$ . Therefore, the incremental benefit in switching strategy profile from  $\mathbf{s}^{**}_c$  to  $\mathbf{s}^*_c$  increases if (i) the strategy profile  $\mathbf{s}^*_{-c}$  has established in the other Member States,

(ii) market integration increases the level of the environmental parameter specific to the economic domain in Member State  $c$ , and (iii) the political institution  $\Lambda^*$  has established in Member State  $c$ . The direction and degree to which  $\theta_c$  changes after market integration vary across Member States. This will, however, determine whether individual and joint payoffs achieved from pre-integration strategy profiles and national systems of institutions will increase or decrease in all periods  $t > S$  and whether strategy profiles and national institutions will remain optimal or whether adjustments are needed.

### 4.3 Market integration and institutional change

Recall that robustness is a characteristic of institutions and that changes in the state of the environment within a certain threshold do not alter agents' strategy plans and institutions. In the example of the previous section the environment of the economic domain is before market integration a function of two parameters,  $e = f(\theta_c, \Lambda)$ . Market integration extends the environment with the strategy profiles of economic agents in the other Member States as an additional parameter,  $e = f(\mathbf{s}_{-c}, \theta_c, \Lambda)$ . In Member States in which market integration causes changes in the environment within the threshold  $e \in \hat{E}$ , economic agents do not alter action choices in periods  $t > S$  and pre-integration strategy profiles and national systems of institutions remain robust. In Member States in which market integration induces a change in the environment such that  $e \notin \hat{E}$ , pre-integration strategy profiles and institutions are no longer optimal. Such Member States bear the costs of integration, which includes a malfunctioning of pre-integration national systems of institutions, (temporary) reductions in payoffs and possibly institutional change.

To exemplify, reconsider Member State 2 in which  $(\Sigma^{**}, \Lambda^{**})$  has evolved until  $t = t + 1$ . Market integration at  $S$  caused an increase in the level of  $\theta_2$ , where the subscript identifies Member State 2. Following the dynamic system in (3), we get  $\theta_2(t + 1) \geq \theta_2(t)$  and  $\eta_2(t + 1) \geq \eta_2(t)$  for all  $t > S$ , which, following increasing differences in (2), gradually enhances the relative fit of  $\Sigma^*$  and  $\Lambda^*$  vis-a-vis  $\Sigma^{**}$  and  $\Lambda^{**}$ , irrespective of what strategy profile  $\mathbf{s}_1$  the economic agents in Member State 1 apply. For a sufficiently large  $\theta_2$  achieved by the dynamic process we obtain the stronger version of increasing differences:  $u_2(\Sigma^* : \Lambda^{**}, \mathbf{s}_1, \theta_2(T_1)) - u_c(\Sigma^{**} : \Lambda^{**}, \mathbf{s}_1, \theta_2(T_1)) > 0$  at some period  $T_1 > S$ . In order to maximize their payoffs, economic agents operating in Member State 2 review their action choices, change strategy profiles, form new

common beliefs on the rules of the game and replace the old institution  $\Sigma^{**}$  with the new institution  $\Sigma^*$ .

Suppose that while new common beliefs institutionalize in the economic domain to form  $\Sigma^*$  at  $T_1$ , institution  $\Lambda^{**}$  prevails in the political domain with a payoff function of  $v_2(\Lambda^* : \Sigma^*, \eta_2(T_1)) < v_2(\Lambda^{**} : \Sigma^*, \eta_2(T_1))$ . This occurs if the environmental parameter in the political domain  $\eta_2$  is still sufficiently low at period  $T_1$ . Nevertheless, following the dynamic process,  $\eta_2$  increases gradually from  $t > S$  onwards as a reaction to the increased level of  $\theta_2$ . The change in the economic institution to  $\Sigma^*$  at period  $T_1$  and the prevalence of or a switch to  $\mathbf{s}^*_1$  by economic agents operating in Member State 1 will accelerate the growth of  $\eta_2$  in Member State 2. If the dynamic process is not disrupted, there will be a period  $T_2 > T_1$ , where  $v_2(\Lambda^* : \Sigma^*, \eta_2(T_2)) > v_2(\Lambda^{**} : \Sigma^*, \eta_2(T_2))$ . This makes political agents review action choices, change their equilibrium strategy profile, update common beliefs and replace institution  $\Lambda^{**}$  by  $\Lambda^*$ . At period  $T_2$  a new system of institutions  $(\Sigma^*, \Lambda^*)$  has evolved, which is superior to the old in respect of maximizing national welfare in the new environment. Figure 1 in the appendix places the transition process between equilibria in Member State 2 onto a timeline.

#### 4.4 EU legislation and institutional uncertainties

EU legislation has replaced and harmonized parts of national legislations. This caused drastic changes in the state of environments and the shape of consequence functions in all EU Member States. In those Member States in which the changes decreased the suitability of pre-integration strategy profiles and institutions, individual payoffs and national welfare decreased. In the new environment old institutions are no longer helpful for agents to form expectations about optimal action choices. At the point where the gap between aspiration and achievement of payoffs is large enough, agents lose their faith in the old institutions, no longer stick to old equilibrium strategy plans and begin to experiment with action choices.

Under institutional uncertainties agents draw on private information to choose actions off the old equilibrium path. Reconsider from Section 3.2 that in addition to the common beliefs about the rules of the game summarized in  $\Sigma$ , each agent  $i$  processes and progresses private information  $I_i(\mathbf{s})$  about the state of the domain. Together they constitute individual beliefs about the rules of the game  $\Sigma_i(\mathbf{s})$ . If  $\Sigma$  becomes uninformative,  $i$  forms  $\Sigma'_i(\mathbf{s})$  based on private information  $I'_i(\mathbf{s})$ —including information on the new state of the environment—and chooses strategy  $s'_i$ , which  $i$  expects to maximize own payoffs. If other agents' realized strategies do not

correspond to the expectations of  $i$  and  $s'_i$  consequently fails to be a best response to others' realized strategies  $s'_i$ , then the private new beliefs of  $i$  about the rules of the game  $\Sigma'_i(\mathbf{s})$  are not confirmed and  $i$  continues to experiment, form new beliefs  $\Sigma''_i(\mathbf{s})$  and try new strategies  $s''_i$ . Only if a critical mass of agents succeeds to adjust private beliefs and strategies, the domain settles to a new equilibrium with a new self-sustaining strategy profile and common beliefs on the rules of the game.

The EU and national governments can help agents to adjust private beliefs and strategies by sending signals on the new state of the environment. This can substantially reduce time and efforts needed until a new equilibrium settles. Public authorities may, however, also fail in this task. If in a Member State EU legislation is not enforced and national legislation remains de facto in place, agents are left in uncertainty about the state of the environment and continue to experiment. Successful institutional change in other Member States may be of limited help either. Best practices can even be misleading, if environmental parameters remain sufficiently country-specific. If institutional environments do not converge across Member States such that they lie within the same range covered by  $\hat{E}$ , then in different Member States different strategy profiles and institutions remain optimal.

#### **4.5 Failed change and foiled systems of institutions**

The single market and the common currency introduced in the Economic and Monetary Union area created substantial changes in the institutional environments of 19 Member States. Assume that our example Member States are both EMU Members and with integration their institutional environments converge to a substantial degree such that the consequence functions produce the same optimal strategy profile and institution for economic agents in both Member States. Let  $s^*$  and  $\Sigma^*$  be the optimal strategy profile and institution after market integration, which have prevailed in Member State 1 before market integration and which are successfully established in Member States 2 at period  $t = T_1$ .

Strong institutional complementarities can disrupt the process of institutional change and foil the functioning of the national system of institutions in Member State 2 from  $t = T_1$  on. To show this, allow agents to operate in environments that include multiple institutions as parameters and introduce a social domain. Denote  $\Delta$  as the institution that evolves in the social domain.  $\Delta$  captures common beliefs about behavioral norms and customs and evolves under the domain-specific parameter  $\iota$ .  $\Delta$  regulates social interactions among agents in different domains of the society and

affects the shape of consequences functions of economic and political agents. With strong institutional complementarities similar to (1) but extended with the social institution we get nine possible combinations of institutions among which two are Nash equilibria:  $(\Sigma^*, \Lambda^*, \Delta^*)$  and  $(\Sigma^{**}, \Lambda^{**}, \Delta^{**})$ . Suppose that until  $t = S$  Member State 2 has evolved  $(\Sigma^{**}, \Lambda^{**}, \Delta^{**})$  in the presence of feedback loops between institutions and environmental parameters according to:

$$\begin{aligned}\theta(t+1) &= F(\theta(t), \eta(t), \iota(t), \Sigma(t), \Lambda(t), \Delta(t)), \\ \eta(t+1) &= G(\theta(t), \eta(t), \iota(t), \Sigma(t), \Lambda(t), \Delta(t)), \\ \iota(t+1) &= H(\theta(t), \eta(t), \iota(t), \Sigma(t), \Lambda(t), \Delta(t)).\end{aligned}\tag{4}$$

The more institutions we include in the model as environmental parameters and the stronger institutional complementarities are, the more inert the dynamic system becomes once a Nash equilibrium has settled. Changes in single parameter values may then fail to cause a successful transition to another Nash equilibrium but possibly disrupt the established system. With  $\eta_2(t)$  and  $\iota_2(t)$  at sufficiently low levels, even a major increase in  $\theta_2(t)$  stemming from an exogenous shock such as market integration may fail to initiate a motion of the whole system. If, e.g.,  $v_2(\Lambda^* : \Sigma^*, \Delta^{**}, \eta_t) < v_2(\Lambda^{**} : \Sigma^*, \Delta^{**}, \eta_t)$  holds, then political agents in Member State 2 stick to the pre-integration political institution  $\Lambda^{**}$  and do not adjust to the change in the economic institution. If further it holds for economic agents that  $u_2(\Sigma^* : \Lambda^{**}, \mathbf{s}_1^*, \Delta^{**}, \theta_t) > u_2(\Sigma^{**} : \Lambda^{**}, \mathbf{s}_1^*, \Delta^{**}, \theta_t)$ , then Member State 2 finds itself in  $(\Sigma^*, \Lambda^{**}, \Delta^{**})$  at  $t = T_1$ . In the presence of strong institutional complementarities, the transition system  $(\Sigma^*, \Lambda^{**}, \Delta^{**})$  may be inferior to the pre-integration system  $(\Sigma^{**}, \Lambda^{**}, \Delta^{**})$  with respect to national welfare. By forgoing extra payoffs that can be realized when complementary institutions are matched, national welfare in Member State 2 may reduce during the transition. This occurs if:  $u_2(\Sigma^* : \Lambda^{**}, \mathbf{s}_1^*, \Delta^{**}, \theta_{T_1}) + v_2(\Lambda^{**} : \Sigma^*, \Delta^{**}, \eta_{T_1}) < u_2(\Sigma^{**} : \Lambda^{**}, \Delta^{**}, \theta_{t < S}) + v_2(\Lambda^{**} : \Sigma^{**}, \Delta^{**}, \eta_{t < S})$ . National welfare will increase again after the transition process is completed in  $t = T_2$  and equilibrium  $(\Sigma^*, \Lambda^*, \Delta^*)$  has evolved, which maximizes national welfare in the new environment of integrated markets. However, contradicting forces at work in the dynamic system since market integration for all periods  $t > S$ —first an increase in the value of  $\theta_2$  and later the presence of  $\Sigma^*$  and  $\mathbf{s}_1^*$  work towards change while the presence of  $\Delta^{**}$  and low values of  $\eta_2$  and  $\iota_2$  work against change—may block the coevolution of environmental parameters and institutions towards a new best fit and prevent the completion of the transition process. In this case Member State 2 may never reach  $T_2$  and evolve

the new optimal equilibrium  $(\Sigma^*, \Lambda^*, \Delta^*)$ . Instead, it settles with the transition system  $(\Sigma^*, \Lambda^{**}, \Delta^{**})$ , which is characterized by mismatched institutions and possibly produces a lower national welfare relative to the system of complementary institutions prevalent before market integration.

## 5 Whither the EU?

The White Paper on the future of Europe ([European Commission ,2017](#)) puts five scenarios up to discussion for the future integration of EU Member States. Some scenarios consider changes towards more, some towards less integration in different domains of the societies. Our theoretical framework can give reasons to go in either direction depending on: (i) the heterogeneity of institutional environments and national systems of institutions and (ii) the existence and strength of institutional complementarities. In this section, we first discuss the conditions required for each of the five scenarios to be appropriate. We then give recommendations on what should be considered when moving forward in the EU integration process.

### 5.1 Carrying on

The first scenario considers a strengthening of the single market by investments in digital, transport and energy infrastructures and a strengthening of the common currency by enhancing financial supervision, ensuring sustainable public finances and developing capital markets to finance the real economy. The EU focuses on jobs, growth and investment and puts a special target on financial stability and economic convergence among Member States. This is achieved by setting up new architectures of supranational regulations, including a banking and capital market union. In research, industry, joint procurement, migration, security, foreign policy and defense cooperation is strengthened but responsibilities remain primarily with national authorities. Other policy areas such as employment, education, taxation and the design of welfare systems, product and services markets, public administration and juridical systems remain in the hands of Member States.

This scenario fits the needs of the Member States *if (i) national institutional environments and equilibria in the economic domain are either already similar today or will converge in the near future, (ii) complementarities of economic institutions are strong within the domain and weak or absent with institutions of different domains.*

The influence of strategy profiles of other Member States  $s_{-c}$ , further common economic regulations and signaling and enforcement of EU legislation cause a considerable convergence of institutional environments in the economic domain. This yields  $e_c \in \hat{E}_{EU}$  for all games in the economic domain in all  $C = 1, 2, \dots, 27$  Member States. Consequently, consequence functions produce the same optimal strategy profiles and economic institutions in all Member States. Recent mismatches among economic institutions and reductions in national welfare that some Member States experience, are temporary problems of adjustment and will be overcome by further integration after old institutions have adapted to the new environment. In all other domains, Member States' environmental conditions, optimal strategy plans and institutions remain country-specific.

## 5.2 Nothing but the single market

In the second scenario the single market becomes the core of the EU. More competencies are transferred from the national to the supranational level to secure the free movement of goods and capital. In other domains including migration, security, defense, humanitarian and development aid the EU reduces regulations and withdraws existing pieces of legislation. The EU does not target financial stability and convergence of all Member States with respect to consumer, social and environmental standards, taxation and the use of public subsidies. Cooperation on new issues of common concern not connected with the single market are managed bilaterally.

This scenario fits the needs of the Member States *if (i) apart from the single market, Member States are and remain heterogeneous in their institutional environments and equilibria, (ii) complementarities are strong among the subset of institutions that facilitate the single market and weak or absent to other institutions not facilitating the single market in any domain.* For agents whose action choices are influenced by the subset of institutions facilitating the single market, strategy profiles of other Member States become a relevant environmental parameter, further common economic regulations and EU legislation support the convergence of institutional environments and consequence functions. For agents operating in these subsets common strategy profiles and institutions become feasible in all Member States. Country-specific environmental conditions prevent a convergence of the environments for economic and non-economic activities not covered by the single market. Optimal strategy plans and institutions remain heterogeneous there.

### **5.3 Those who want more do more**

“Carrying on” is the baseline for the third scenario. The EU27 proceeds as today but certain Member States coordinate more in the non-economic domains via legal and budgetary arrangements. That includes harmonization of regulations in specific policy areas such as research and industrial base, procurement, defense, internal security, justice, industrial cooperation, corporate law, taxation and social matters. Member States that decide not to join coordination in other policy areas will be able to preserve their status and retain the possibility to join later on.

This scenario fits the needs of the Member States *if (i) institutional environments and equilibria are already similar or expected to converge within blocks of Member States, (ii) complementarities are strong among institutions within and across different domains of the societies*. This scenario acknowledges the heterogeneity of national institutional environments and equilibria within the EU to a certain degree. However, it requires the feasibility of common optimal strategy profiles and institutions throughout all blocks of Member States in the areas regulated by the single market. In the other areas, Member States with similar environmental conditions will profit from integration where the characteristics of their national systems of institutions allows to. Member States with a need for a transition of their system and Member States in institutional change have the possibility for a step-wise integration that supports the transition process.

### **5.4 Doing less more efficiently**

The fourth scenario is also based on “Carrying on” but focuses EU’s actions and resources on few priorities. In order to deliver more and faster in selected areas, stronger tools are given to the EU to directly implement and enforce collective decisions for policies on innovation, trade, security, migration, the management of borders and defense. The single market is deepened in the key areas research and development, decarbonization and digitalization. Where the EU is perceived as having limited added value or as being unable to deliver on promises it does less or even stops acting. This considers regulations that are not directly related to the functioning of the single market, such as regional development, public health, state aid control or parts of employment and social policy.

This scenario fits the needs of the Member States *if (i) national institutional environments and equilibria are heterogeneous and not expected to converge across Member States in either domain of the societies, (ii) there are only few*

*complementarities among institutions within and across different domains.* The EU centers its competences on regulating limited sets of activities in which efficiency gains are achieved either from complementarities among institutions organizing these activities or from providing public goods with international externalities.<sup>1</sup> Stronger EU enforcement tools in the respective policy areas help agents engaged in these limited sets of activities to overcome institutional uncertainties, adapt action choices and establish optimal strategy profiles and institutions in all Member States.

## 5.5 Doing much more together

The fifth scenario foresees a comprehensive integration of Member States into a federation with joint power, resources and decision-making across all domains of the societies. The single market is deepened through further harmonization of regulations and a stronger enforcement. A comprehensive economic, financial and fiscal union, a common regulation in defense and security matters, migration, the fight against climate change, humanitarian and development aid provision and joint investment in innovation and research are introduced.

This scenario fits the needs of the Member States *if (i) institutional environments are already similar or expected to converge across Member States in all domains, (ii) complementarities are strong among institutions within and across different domains.* Globalization, the diffusion of technology and EU integration have caused national institutional environments and consequence functions to become more and more similar across Member States. Old institutions that do not meet the requirements of the new environment anymore foil the smooth operation of new institutions and vice versa, which requires an adaption of old institutions throughout different domains of the societies. The exposure to strategy profiles of other Member States, further common economic regulations and signaling and enforcement of EU legislation help to replace old with new institutions. This yields  $e_c \in \hat{E}_{EU}$  for all games in all  $C = 1, 2, \dots, 27$  Member States and makes common optimal strategy profiles and institutions throughout the societies feasible. As a result, national systems of institutions converge towards a common system.

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<sup>1</sup> See [Klodt et al. \(1992\)](#) on potential policy areas in which efficiency gains other than those created by institutional complementarities can be achieved via centralization to the EU level.

## 5.6 Reflections on the scenarios, status quo and way ahead

Different scenarios are appropriate under different conditions. Empirical evidence of the Varieties of Capitalism literature suggests that national institutional set-ups are characterized by strong institutional complementarities within and across different domains of a society. Moreover, in the EU four varieties of national systems of institutions exist. None of the scenarios put forward in the White Paper sufficiently considers the challenges of integrating Member States with heterogeneous national systems of institutions. The starting point for the five scenarios is “that the 27 Member States move forward together as a Union” (European Commission, 2017: 15). The core of the Union is economic: the single market and the common currency. These two are sacrosanct. Whether this starting point is a good one is debatable.<sup>2</sup> Member States have been differently affected by the single market and the common currency, which points to country-specific consequence functions.

We see this in different developments of Southern European countries as compared to Central European countries. The “Leveling the playing field” regulations increased the level of competition in all Member States, which worked in favor of large firms with established and untouched advantages. In such an environment small differences in firm productivity or market size can lead to impressive concentration, much more than in a bumpy playing field.<sup>3</sup> The changing regional pattern of production brought a strong increase in economic activities in Central European countries and a decrease in Southern European countries. Before market integration, the latter were characterized by national systems of institutions that were built on, facilitated or produced a low degree of competition, which served as a means of employment protection. This worked quite well during the second half of the 20th century in a national framework.<sup>4</sup> The introduction of the single market in 1993 completely foiled Southern Europe’s historically grown product market institutions. Consequently, complementary labor market institutions also no longer worked optimal anymore. The common currency worked into the same direction. It ruled out competitive depreciations, which were a feature of the European exchange

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<sup>2</sup> Höpner and Schäfer (2010) argue that the EU is already too much of an economic union, which causes most of its problems.

<sup>3</sup> See Krugman (1993) or the new economic geography literature (Fujita et al., 2001) on the emergence of concentration of economic activities out of an almost symmetric equilibrium. Concentration of economic activities yields migration and/or diverging real wages.

<sup>4</sup> See Amable (2003) for an analysis on Mediterranean countries’ features of institutional set-ups.

rate mechanism. Before 2003 Southern European countries devaluated their currencies every three to five years. This was impossible after the introduction of the Euro. The common beliefs about the rules of the game changed only slowly and the real appreciation pressure remained. Consequently, within the first 10 years of the EMU a huge competitiveness problem arose for Southern European economies.

So far it seems that adjustments to diverging outcomes in the single market are left to migration, because state aid for regions and national stabilization policies are restricted and institutions in the South can not meet the requirements of the new environment (yet). Free mobility of people is expected to level the differences across Member States by moving to places with higher rewards. How much this is more a theoretical than a practical channel to solve the problems of uneven development is shown in discussions about the different perspectives of the *somewheres* and *anywheres*, which led to the divide of Brexit (see [Goodhart \(2017\)](#)). According to Goodhart, people voting “leave”, the *somewheres*, are more rooted and therefore miss chances at other locations. People voting “stay”, the *anywheres*, are more mobile and can take these chances. Since the remaining 27 Member States also do not only host *anywheres*, the potential of migration to solve the adjustment problem is probably very limited.

National systems of institutions that have evolved in country-specific environments under complementarity conditions may be the reason why the EU cannot live up to its promise that every Member State is better off with an integrated market. Whether the leveled playing field is “good” or “bad” for Southern European countries in the long run depends on whether the new environment delivers an impetus to change the whole system of institutions to a new, superior equilibrium. For the next steps of EU integration, however, the presence of a variety of national systems of institutions in the EU must be taken into account. A convergence in the upcoming future can not be expected, given that pre-integration national systems of institutions remained robust in large parts.

## 6 Conclusion

We see the reason for the multidimensional EU crisis in heterogeneous national systems of institutions that are subject to manifold complementarities and react differently to integration. To provide a theoretic framework for our argument, we build up on [North \(1991\)](#)'s notion that “*institutions are effective as a bundle*” and follow [Aoki \(2001\)](#) in harnessing a supermodular game in which institutions in

different domains of the society evolve endogenously through strategic interactions of different sets of agents. This theoretic framework allows us to capture the empirical insights of the Varieties of Capitalism literature and reflect on the five different scenarios of a possible future EU integration process put forward in the White Paper on the future of Europe ([European Commission, 2017](#)).

Our analysis implies that common regulations yield different consequences across Member States. Where common regulations cause changes in the environment that are compatible with national institutions, systems of institutions remain robust and the Member State benefits from integration. Where common regulations reduce the fit of national institutions to their environments, the well-functioning of sets of institutions is foiled and national welfare reduced. This can explain the struggles of Southern European countries after the introduction of the single market and the common currency. The new regulations disturbed the smooth workings of a set of old product and labor market institutions.

Member States that are struggling with environmental changes caused by technological change, globalization and EU integration are not doomed to remain stuck in suboptimal equilibria or foiled systems of institutions. Over the decades, the EU has served as an initiator and stabilizer of institutional change. The White Paper on the future of Europe is a necessary starting point of a desperately needed discussion on common aims and the future role of the EU. A successful integration process will fail, if heterogeneity among national systems of institutions is ignored. Institutional change will be large and hard for some Member States and produce uneven development. This needs to be taken care of. Usually, the EU has reacted to challenges with more integration. We doubt that this is the solution at this point. Rather, the EU should intervene where institutional complementarities allow Member States to integrate more and where integration can trigger changes of national institutions towards a superior equilibrium. For some Member States this could mean a reduction of the present level of integration. For this, however, no procedure exists so far.

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## Appendix

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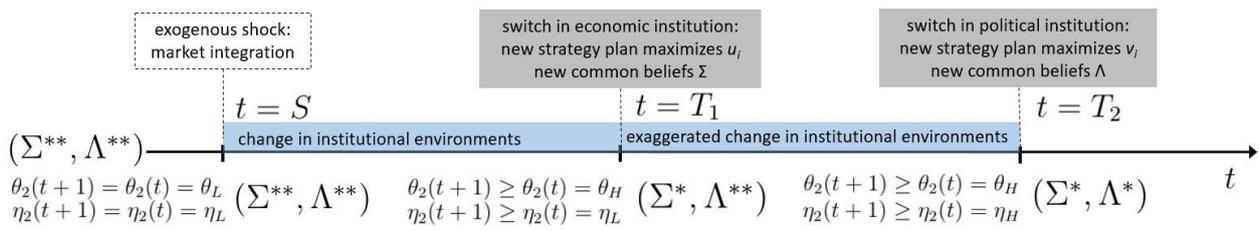


Figure 1: Steps of environmental and institutional change in Member State 2

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