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Abstract

We examine the contribution of economic and institutional transitions as two potential sources of subnational economic growth in Spain. To this end, we exploit the economic reforms of the 1959 Stabilization Plan (as an example of technocratic, economy-oriented reform) and the democratic transition in 1979 in Spain as the sources of variation for a sample of 50 Spanish provinces in the period 1950-2016. Our approach is to examine the impacts by estimating the missing counterfactual scenarios using the synthetic control method. Our results unveil a positive effect for both economic and institutional transitions on subnational economic growth. A direct comparison of both transitions suggests that the effect of economic liberalization is four-fold higher than the effect of political liberalization. The average growth effect of the economic liberalization is around 40% higher relative to the counterfactual scenario and it appears to be permanent. The estimated effects are robust to the variety of placebo tests and additional robustness checks. This article also deepens the analysis of the effects of the 1959 plan and finds that the policies that generated the most positive impact were those of an “internal” nature, compared to the external ones, dependent on access to the IMF (also positive, but of lesser impact).

JEL classification: economic growth, political economy, Spain.

Keywords: C23, D73, N24, O43.

Resumen

Este artículo investiga qué tipo de cambios institucionales tienen un mayor impacto en el crecimiento económico de largo plazo: las reformas de carácter tecnocrático orientadas a la economía o la democratización. Con este objetivo, para el caso de España, examinamos el Plan de Estabilización de 1959 y la Transición a la democracia (en torno a 1979) como fuentes de variación para las 50 provincias españolas en el período 1950-2016. Nuestro enfoque consiste en estudiar los impactos mediante la estimación de los escenarios contrafactuales utilizando el método de control sintético. Nuestros resultados muestran que las dos estrategias tienen un impacto positivo sobre el crecimiento económico subnacional. Una comparación directa entre ambas apunta a que el efecto del Plan de Estabilización pudo ser cuatro veces mayor que el de la Transición. El efecto medio del Plan sobre el crecimiento es aproximadamente un 40 % mayor que en el escenario contrafactual y parece ser permanente. Los efectos estimados se mantienen frente a diferentes pruebas de placebo y otros contrastes adicionales de robustez. En cuanto al análisis de las medidas específicas del Plan de 1959, parece que las políticas de carácter interno generaron un impacto más positivo y de mayor alcance que las externas, dependientes del acceso al FMI.

Palabras clave: desarrollo económico, economía política, España.

Códigos JEL: C23, D73, N24, O43.

1 Introduction

The notion that democracy matters for economic growth has gained widespread scholarly attention (Helliwell 1994, Barro 1996, Minier 1998, Tavares and Wacziarg 2001, Plümper and Martin 2003, Gerring et. al. 2004, Doucouliagos and Ulubasoglu 2008, Acemoglu et. al. 2019). The original idea behind democracy is the generalization of property rights (Locke 1689) that provides the set of institutions with a flat distribution of political power which allows citizens to express their political preferences only partially constrained by limited restrictions on the part of authorities. (Mukand and Rodrik 2020). The persistent rise in the number of liberal democracies and decline of autocracies commencing with the third wave of democratization in 1974 has increased interest in the effects of democracy on economic efficiency, specifically raising a simple question, namely, does democracy help or hurt economic growth?

Some scholars argue that democracy is beneficial for economic growth in the long run. The positive effect of democracy has been widely acclaimed (Acemoglu et al. 2001, Roll and Talbott 2003, Rodrik and Wacziarg 2005, Persson and Tabellini 2006 and Papaioannou and Siourounis 2008). More recently, Acemoglu et. al. (2019) examine the contribution of democracy to economic growth in a large sample of countries using dynamic panel strategies controlling for unobserved country effects and rich dynamics of GDP. They show that democracy raises per capita income by around 20 percent, an effect that appears to be similar across different levels of development. The authors also argue that democracy helps economic growth through higher investment rate, improvement in access to health and education, higher rates of human capital investment and lower social unrest¹. Democracies also invest more in broad-based public goods and implement economic reforms that would otherwise be resisted by politically powerful actors (Acemoglu 2008), so reducing both political and economic inequality and thus further fostering economic growth (Sirowy and Inkeles 1990, Saint-Paul and Verdier 1993, Bourguignon and Verdier 2000, Timmons 2008).

However, not everyone agrees that democracy helps economic growth.² Democratization may encourage socially inefficient redistribution of income and wealth to the non-elites (Acemoglu and Robinson 2001), rapid expansion of civil liberties (Mukand and Rodrik 2020), greater demands for populist overspending and redistribution (Boix 2003, Knutsen and Wegmann 2016), higher tax rates alongside higher government spending (Tavares and Wacziarg 2001), and greater state interference in

¹ It is worth mentioning however that, in the literature on social security spending, there does not seem to be a general consensus on which political system is more favourable (Mulligan et al. 2010, Espuelas 2017) and, therefore, its impact on development would be ambiguous. However, for the Spanish case specifically, democracy seems to be related to higher social spending and its long-term trend (Espuelas 2017).

²For instance, Barro (1996) argues that “*more political rights do not have an effect on growth.*” Furthermore, Gerring et. al. (2005) claim that “*the net effect of democracy on growth performance cross-nationally over the last five decades is negative or null,*” while Weede (1983) contends that “*while a fairly strong and negative impact of democracy on growth can be demonstrated for nations where government revenue exceeds 20 percent of the GDP, elsewhere there is no effect at all. It is not democracy itself that hurts growth prospects of nations, but the combination of democracy and strong state interference with the economy.*”

the economy (Weede 1983), which may lead to more corruption (Aidt 2009). In the particular case of Spain, democratization has also been related to an increase in the complexity and volume of regulation which could have had negative impacts on business demographics (Mora-Sanguinetti and Pérez-Valls 2021). In a recent work, Di Vita (2018) documents a negative impact of regulatory complexity on Italian regional GDP per capita. Democratization can also breed rent-seeking coalitions among powerful interest groups that directly undermine growth and may lead to institutional sclerosis (Olson 1983). Some scholars also argue that democracy can also foster distortionary and redistributive policies in agriculture, trade and labor markets which lead to subsidized losses, protectionism and costly labor market institutions (Henisz 2004, Yang 2011a, Fátas and Mihov 2013). Another strand of literature argues that democracy is a constraint on economic growth at low levels of development (Aghion et. al. 2008, Posner 2010, Brooks 2013).³ According to this view, democratization might be unsustainable if it is introduced in the context of widespread poverty, low levels of education, and in the presence of a thin middle class, and may dampen rather than foster the modernization efforts (Lipset 1959, Hadenius and Teorel 2005, Evans and Rose 2007, Glaeser et. al. 2007).

A critical light on the idea that democracy helps economic growth has been shed by Glaeser et. al. (2004). They argue that human capital is a more basic source of growth than political institutions (Barro 1991, Mankiw et. al. 1992, Galor and Tsiddon 1997, Temple 1999, De la Fuente and Doménech 2006, Cohen and Soto 2007, Días and Tebaldi 2012, Lucas 2015, Murphy and O'Reilly 2019), and find that countries escape poverty traps through growth-friendly policies often pursued by dictators, rather than through democratic institutions.

To bridge the gap in the literature, Giavazzi and Tabellini (2005) examine the effects of political and economic liberalization on economic growth. Using difference-in-differences strategies that account for before vs. after-liberalization output per capita variation, they find that countries that liberalize their economies first, and subsequently become democracies have consistently better economic performance, more stable and better macroeconomic outcomes and more growth-friendly policies compared to the countries that democratize first and liberalize afterwards.

In this paper, we examine the effect of economic and political liberalization strategies on economic growth by estimating their counterfactual scenarios using synthetic control techniques (Abadie et. al. 2010, 2015, Billmeier and Nannicini 2013, Grier and Maynard 2016, Campos et. al. 2019, Absher et. al. 2020). Whilst earlier studies focus on cross-country comparisons, we examine the contribution of political and economic liberalization to economic growth at the subnational level. To this end, we exploit two waves of liberalization in Spain. More specifically, we estimate the growth effect of a large-

³ The general thrust of these arguments emphasizes that “*dictatorship will often be optimal for very poor countries. Such countries tend not only to have simple economies but also lack the cultural and institutional preconditions to democracy.*” (Posner 2010).

scale economic liberalization designed by a group of technocrats under the Franco regime in 1959 known as the Macroeconomic Stabilization Plan (i.e. *Plan de Estabilización*), and the effect of the political liberalization in 1978 when Spain adopted the new democratic Constitution following Franco's death.

Employing a novel balanced matching strategy where we match Spanish provinces with other countries where these treatments are not perceivable, we are able to isolate the impact of political and economic liberalizations from other possible confounding channels.⁴ By estimating the missing counterfactual scenario, we compare Spanish provinces to countries that down to the present day have not yet implemented large-scale economic liberalization measures comparable with the 1959 Stabilization Plan, as well as to countries that did not undergo democratic transition in 1979, and remained either non-democracies or weak democracies down to the present day. This approach allows us to parse out the treatment effects of political and economic liberalization given that Spanish provinces are assessed against external sources of variation where these treatments somehow did not materialize. We find that both economic and political liberalization are associated with economic growth albeit to a different degree. More specifically, we find that economic liberalization in 1959 is associated with 44 percent higher province-level per capita GDP, which appears to be robust to a variety of placebo analyses, sample restrictions and specification checks. On the other hand, democratization in 1978 raised per capita GDP by about 10 percent relative to the plausible counterfactual scenario. This would imply that the macroeconomic stabilization and liberalization effect outperforms the growth effect of democratization by a wide margin, consistently with evidence from previous works (Giavazzi and Tabellini 2005, Bhattacharyya 2009, Jong-A-Pin and De Haan 2011, Yang 2011b, Flachaire et. al. 2014). Our findings are also consistent with prior evidence found by Prados de la Escosura et. al. (2010) for Spain, who highlight significant reduction in macroeconomic distortions after the 1959 Stabilization Plan and show that by 1975, Spain's per capita GDP without the Plan would have been between 15% and 33% lower. Our findings are also consistent with Monteforte (2020) counterfactual simulations showing large-scale productivity improvements calibrated to the data for post-war Spain and highlights the importance of labour reallocation premium in the structural transformation and TPF growth.

We also contribute to the ongoing debate on unbundling the role of institutions initiated by Acemoglu and Johnson (2005). They show that in the long run political institutions matter for economic growth while economic institutions do not because of time-inconsistent preferences. On the contrary, our evidence shows that in a setup with GDP per capita heterogeneity where several common sources of growth can be held fixed, economic institutions matter for economic growth, and have a permanent growth impact akin to the structural growth breakup (Garoupa and Spruk 2020) whilst political

⁴ The study of how the institutional framework can generate divergences between Spanish provinces or even cities (beyond global changes for Spain as a whole) is common in the literature, with different approaches (see, for example, Rodríguez-Pose and Hardy 2021, Dejuán and Mora-Sanguinetti 2021). More generally, there is an extensive literature on the subject in economic geography (among many others, Gertler 2010).

institutions have a considerably lower impact on economic growth that is consistent with the notion of a temporary impact which may become insignificant in the long run.

The rest of the paper is organized as follows. Section 2 elaborates on the historical background. Section 3 presents the identification strategy. Section 4 presents the data and samples. Section 5 discusses the results and robustness checks. Section 6 concludes.

2 Historical background

In 1939, Spain became a political dictatorship after Francisco Franco's forces defeated Republicans, marking the end of the civil war which started in 1936. After the end of the civil war, Franco's dictatorship had at least three stages: firstly, a period of autarchy (1939-1950). Later, a period (1950-1960) of reforms and gradual opening which culminated in the adoption of the *1959 Stabilisation Plan* (i.e. *Plan de Estabilización*). Finally, another period began in which the Spanish economy was integrated into the international economic system (1960-1974) and enjoyed higher growth than in the previous stages (Harrison 1978, García-Delgado 1995). Franco died in 1975 and the process of transition and democratization began, culminating in the adoption of the 1978 Constitution.

From an economic policy perspective, the period of autarchy (1939-1950) was characterized by the partially self-imposed exclusion of Spain from international forums. Spain embarked on a policy of developing import substitutes. In addition, Spain did not take advantage of the Marshall Plan, which did benefit other western European countries and was equally excluded from the United Nations. It should be recalled that the Marshall Plan, although known for its economic aid aspect, was the transmission belt of other reforms influenced by the US in European economies, such as changes in public spending or specific industrial policies (support for certain industries and areas as opposed to others) (Hogan, 1987). In that period, Spain's foreign relationships were reduced to Portugal (governed by Salazar) and Argentina (in its Peronist period). For Spain, it was a period of economic downturn (García Delgado 1995), at least in relative terms. According to the results of Prados de la Escosura (2016), the pre-war per capita GDP peak level (1929) was not reached until 1950 in absolute terms (Tamames 1989).

In the second period (1950-1960) Spain began a process of reforms that culminated in the 1959 Stabilisation Plan (i.e. *Plan de Estabilización*), which opened the Spanish economy to foreign competition. It should not be forgotten that the Stabilization Plan was preceded by a series of smaller measures that undoubtedly contributed to the success of the Plan (Tamames and Rueda 2000, Prados

de la Escosura, 2016) such as the establishment of a single exchange rate of the peseta and a tax reform.⁵ In addition, economic analysis tends to forget that in this same context, the administration adopted a set of far-reaching legal reforms that considerably increased legal certainty in Spain, such as the law on administrative procedure (1958). Those reforms received unquestionable praise from the academic side.⁶ It cannot be ruled out that one of the catalysts of those internal reforms was precisely the absence of foreign aid through the Marshall Plan and its drive to implement economic reforms as occurred in other countries.

The 1959 plan increased central bank reserves and the *Banco de España's* discount rate to reduce inflationary pressures. On the public finances front, the Plan increased the control over public spending and limited the issuance of public debt. The Plan was also characterized by a liberalization of international trade, the integration of the national currency (*peseta*) into the Bretton Woods system and reduced the peseta-dollar exchange rate to a more realistic 60-to-1 ratio.

The shift from autarchy policies to liberalizing reforms in the economic sphere is identified by Harrison (1978) and Tamames and Rueda (2000) with the transition in power from the *Falange*, a “quasi-fascist” political party at the time of national-syndicalist ideology, to a group of technocrats partly composed of members of *Opus Dei*, a young organization at the time, with a Catholic -partially lay- profile. Alberto Ullastres Calvo (Doctor of Law and Professor of Political Economy and Public Finance) and Mariano Navarro Rubio (lawyer), joined the government in 1957 respectively as Ministers of Trade and Finances. In addition, legal reforms were promoted from the technical secretariat of the Ministry of the Presidency by Laureano López Rodó (appointed in 1956). A tenured professor of law, in 1962, he was appointed commissioner of the Development Plan. In fact, Bassols Coma (2010) relates both the economic and legal turnaround of the Franco regime to this General Technical Secretariat.⁷ The period

⁵ As for the smaller measures that greased the arrival of the 1959 Plan, the following are worth mentioning: in 1953, the Spanish economy began to open up with a mutual defence agreement with the United States that provided it together with a significant amount of resources in the form of loans, grants and military aid. In 1957 the multiple exchange system for foreign trade conceived during the autarkic period was abolished, and a single exchange rate of the peseta with the dollar was established. That year there were also changes in public finances: a tax reform and a freeze on civil servants' salaries (Tamames and Rueda 2000). In 1958 Spain joined the OEEC (later the OECD), the IMF and the IBRD (International Bank for Reconstruction and Development) and a reorganization of the credit market took place.

⁶ In terms of legal reforms, during the 1950-1960 period, several laws were passed to strengthen the rule of law and provide the necessary legal architecture of post-war Spain. Among others, the laws on contentious-administrative jurisdiction (1956), on the legal regime of the State administration (1957), on the legal regime of autonomous State entities (1958) or the law on administrative procedure (1958) were all adopted. These laws subjected public administrations to pre-determined procedures, rationalized their actions and judicially controlled their activity through independent judges within the judicial system. The recognition of the significance of these rules is unquestionable. Already in its time, the Law of 1956 was considered “spectacular” (García de Enterría 1959). In more recent times, Cañellas Mas (2010) points out that the administrative changes were designed to be a lever for economic development and Nieto (2017) contends that they were aimed at increasing the efficiency of the State. Arroyo et al. (2020) discuss the refounding of administrative law and the creation of a state of administrative law.

⁷ Other prominent members of the group were Jesús González Pérez and Manuel Ballbé Prunés.

of influence of this group ends, in Harrison's opinion, in 1974, after the assassination of Prime Minister Carrero Blanco. Existing empirical evidence corroborates the notion of sustained total factor productivity increases as a response to the 1959 Plan (Prados de la Escosura et. al. 2011). The overall transition from autarky to an institutional setup which allowed for free-market resources allocation fostered a rapid growth path and a consequent catch-up with other European economies and a significant reduction in macroeconomic distortions.⁸

With the death of Franco in 1975, Spain began the transition to democracy. In 1977 the first democratic elections since the time of the Second Republic took place. In December 1978, a referendum was held to adopt the new democratic Constitution, which came into force on December 29. The new Constitution, similar to that of other European countries in terms of fundamental rights and obligations, established a decentralized territorial regime similar in many respects to that of a federal state (López Guerra et al., 2018; Mora-Sanguinetti and Spruk, 2021).

3 Identification Strategy

3.1 The Setup

Our aim is to estimate the effect of economic and political liberalization to subnational economic growth consistently. To this end, we estimate the missing counterfactual growth trajectories of Spanish provinces in response to the political and economic liberalization. By facilitating a comparison of growth trajectories with and without the institutional reforms (Billmeier and Nannicini 2013), the growth gap is indicative of the rough long-term growth impact of the liberalization (Abadie et. al. 2015, Abadie 2021).

Our setup consists of $J + 1$ units where $j = 1, 2, \dots, J + 1$ spanning across the time period $t = 1, 2, \dots, T$. In general terms, only the first “province” ($j = 1$) is affected by the economic and political liberalization. The donor pool comprises the possible comparisons where $j \neq 1$ and $j = 2, \dots, J + 1$ represents the sample of countries not affected by the same kind of economic and political liberalizations. Leveraging province-level variation against country-level variation in the donor pool yields a set of feasible comparisons where the policy reforms of interest are not present and allows us to isolate the effect of our institutional changes of interest on province-level GDP growth rates. The transition takes places at time T_0 which implies that $1 < T_0 + 1 < T$. For each province or country j , we observe per capita GDP

⁸ In parallel to these developments, it is worth noting that economic growth helped reducing the public debt/GDP ratio, contributing to the fact that during Franco's dictatorship there was no public debt crisis (Esteve and Tamarit 2018).

at time t , $Y_{j,t}$, and $k \times 1$ vector of auxiliary covariates $\mathbf{X}_1, \dots, \mathbf{X}_{J+1}$. Notice that $\mathbf{X}_0 = [\mathbf{X}_2 \dots \mathbf{X}_{J+1}]$ provides the values of auxiliary covariates and pre-reform per capita GDP in the unaffected countries. Let $Y_{j,t}^N$ define the potential per capita GDP without the economic or political liberalization and let $Y_{j,t}^I$ be the potential per capita GDP in response to the underlying treatment. Our strategy is to separately estimate the contribution of economic and political liberalization to subnational economic growth rates. This implies that we are estimating a vector of post-treatment effects $\alpha = (\alpha_1, \alpha_{T_0+1}, \dots, \alpha_{1,T})$ where the underlying outcome for period $t > T_0$ is:

$$\alpha_1 = Y_{1,t}^I - Y_{1,t}^N = Y_{1,t} - Y_{1,t}^N$$

Which implies that the effect of liberalization is proportional to the difference between the outcome with and without the institutional transition. The principal challenge for the econometrician is to estimate the level of per capita GDP in the hypothetical absence of the institutional transition, $Y_{1,t}^N$. The outcome in the absence of the treatment serves as a proxy for the counterfactual scenario and is informative of the level of per capita GDP in the absence of liberalization. Given that the missing counterfactual scenario is not observed by the econometrician, we reproduce $Y_{1,t}^N$ by estimating a latent factor model of the following form:

$$Y_{1,t}^N = \delta_t + \theta_t \mathbf{X}'_{j,t} + \lambda_t \mu_i + \varepsilon_{j,t}$$

Where δ is the set of unobserved technology shocks common to all countries and provinces, \mathbf{X} is a vector of pre-liberalization per capita GDP and auxiliary covariates, θ_t is a vector of parameters, λ_t is the vector of common unobserved factors, and μ_i is a vector of unknown factor loadings. Notice that transitory shocks are i.i.d. distributed and are captured by the stochastic disturbance term, $\varepsilon_{j,t}$. The latent factor model conveys several advantages in estimating the missing counterfactual growth trajectories. First, the model allows for heterogeneous response to unobserved factors and, by embedding time trends into the outcome model, a reasonably smooth per capita GDP trajectory can be recovered. In this respect, we assume that the factor count is fixed over time and therefore exhibits no structural breaks. Thanks to the latent factor model, we are able to uncover the counterfactual scenarios associated with the political and economic liberalization by estimating the combination of countries in the donor pool which may approximate the true characteristics of each affected province. This particular combination of countries is akin to an artificial (*i.e.* synthetic) control group which has growth and

development characteristics similar to each Spanish province considered, except that it was unaffected by the institutional change deriving from the economic and political liberalizations.

Let $\mathbf{W} = (w_2, \dots, w_{J+1})$ be a vector of weights such that $w_j > 0 \forall j$ where each value of W presents a potential synthetic control for each Spanish province. For any such combination, the counterfactual growth trajectory can be constructed by reweighing the control group so that each synthetic Spanish province is set to match country-level $\mathbf{X}_{j,t}$ and some of its pre- T_0 per capita GDP. For given \mathbf{W} , the per capita GDP for j -th synthetic control group is:

$$Y_{W,t} = \sum_{j=2}^{J+1} w_j Y_{j,t} = \delta_t + \theta_t \left(\sum_{j=2}^{J+1} w_j X_j \right) + \lambda \left(\sum_{j=2}^{J+1} w_j \mu_j \right) + \left(\sum_{j=2}^{J+1} w_j \varepsilon_{j,t} \right)$$

Where the synthetic control is represented by a $J \times 1$ vector of weights $\mathbf{W} = (w_2, \dots, w_{J+1})$ which are restricted to be additive and non-negative so that the growth and development characteristics of the control group fall inside the convex hull of the Spanish provinces and reproduce their actual trajectories in the pre-treatment period so that $\sum_{j=2}^{J+1} w_j^* Y_{j,t} = Y_{1,t}$ where $\forall t \in \{1, \dots, T_0\}$. To ensure that weights are not chosen arbitrarily, we follow Abadie and Gardeazabal (2003) and Abadie et. al. (2010) and seek the synthetic control group that best captures the pre-liberalization per capita GDP levels. For the set of positive constraints $V = (v_1, v_2, \dots, v_k)$, \mathbf{W} is chosen to minimize the discrepancy between the provinces and their control groups:

$$\|\mathbf{X}_{province} - \mathbf{X}_{control} \mathbf{W}\| = \sqrt{\left(\sum_{h=1}^k v_h (X_{h1} - w_2 X_{h2} - \dots - w_{J+1} X_{hJ+1})^2 \right)}$$

Which is subject to $\sum_{j=1}^{J+1} w_j = 1$. The set of non-negative constraints $V = (v_1, v_2, \dots, v_k)$ reflects the importance of the k -th auxiliary covariate in reproducing the values of per capita GDP for each treated province. Equation (3) can be minimized by relying on constrained quadratic optimization and we chose V such that $\mathbf{W}(V)$ minimizes the root mean squared prediction error (RMSE) relative to $Y_{1,t}^N$ which yields $\sum_{t \in \tau_0} (Y_{1,t} - w_2(V) Y_{2,t} - \dots - w_{J+1}(V) Y_{J+1,t})^2$ for some pre-liberalization period $\tau_0 \subseteq \{1, 2, \dots, T_0\}$.

Compared to the more traditional difference-in-differences approach, the synthetic control method imposes a less restrictive functional assumption on the estimation process by letting \mathbf{W} force the data to exhibit similar trends as the treated provinces in the pre-liberalization period. By comparing the

growth trajectories of actual Spanish provinces after the liberalization with their synthetic peers that did not undergo such treatment, we are able to approximate the growth effect of economic and political liberalization through $\hat{\alpha}_{1,t} = Y_{1,t} - \sum_{j=2}^{J+1} w_j^* Y_{j,t} = Y_{1,t}^I - Y_{j,t}^{W^*}$. Provided that the prediction error is minimized along with the similarity of trajectories in pre-intervention period, the post-treatment effect of liberalizations can be feasibly recovered.

3.2 Reliability of the Donor Pool

One of the most important questions behind the ability of our empirical strategy to isolate the impact of the 1959 Stabilization Plan and the 1979 democratic transition on economic growth trajectory, concerns the composition of the donor pool. By default, a reliable donor pool that permits the isolation of the underlying effects should be tainted neither by the presence of full-scale economic liberalization nor by an all-encompassing institutional transition towards mature democracy. An obvious way to parse out the treatment effects of interest would be to compare the growth trajectories of Spanish provinces to the provinces in other countries. This particular approach is constrained by two inherent limitations. First, the regional data on economic growth prior to 1959 is scarce and includes countries which, by and large, have undergone either deep or large-scale economic liberalization prior to our treatment year such as Australia, United States, Canada, Denmark and Sweden among several others. This implies that any comparison of Spanish provinces with the regions, states or provinces of these countries is unlikely to provide a meaningful interpretation of the 1959 Stabilization Plan. And second, the availability of regional GDP data in countries that have not undergone some elements of the economic liberalization significantly longer than Spain and have similar levels of per capita income such as Greece, Portugal and Slovenia is equally scarce or missing for the period prior to the Stabilization Plan. Even though data starting in 1950 is available at the regional level for some countries such as India, Brazil and Argentina (Genniaoli et. al. 2014), the per capita income difference between Spanish provinces and these regions looms large over time and is unlikely to provide a meaningful interpretation of the estimates.

Under these conditions, the comparison of Spanish provinces and other countries becomes plausible. To isolate the treatment effects of interest, we impose two criteria on the selection of the donor pool. First, to isolate the growth effect of the 1959 Stabilization Plan, we only consider those countries which down to the present day have not yet implemented a full-scale economic liberalization. By relying on Miller et. al. (2020) index of economic freedom, we consider only those countries with the level of economic freedom below the world median. This allows us to partially (*i.e.* albeit imperfectly) remove

the presence of large-scale economic liberalization reminiscent of the 1959 Stabilization Plan from the donor pool and isolate the treatment effect by estimating the counterfactual growth trajectory of provinces that have similar pre-1959 growth process characteristics but have, at the same time, not undergone a large-scale economic liberalization. And second, to isolate the economic growth effect of democratic transition, we compare the growth trajectories of Spanish provinces with the sample of countries that have not yet achieved the status of full democracy down to the present day. The most plausible approach would be to compare the provinces with a sample of countries that did not undergo democratization down to the present day. However, it should be taken into account that the gradual spread of democracy after the Third Wave in 1980s, implies that the potential donor pool of non-democracies has been shrinking over time and would now include countries such as Côte d'Ivoire, Russia, Venezuela and Iran which, given the per capita income difference, might not fall within the convex hull of the growth and development characteristics of Spanish provinces. We partially address this particular limitation by considering only those countries in the donor pool that have an average value of Polity IV democracy index for the period of our investigation (i.e. 1950-2016) below the median cut-off. This effectively safeguards our donor pool from containing any source of large-scale democratization leading to the development of full and mature democracies such as Australia, New Zealand, Sweden, Denmark and Switzerland to cite a few examples.

4 Data

Our treatment sample comprises 50 Spanish provinces⁹ for the period 1950-2016. The dependent variable is per capita GDP adjusted for PPP at 2005 constant prices (Gennaioli et. al. 2014) which serves to capture the patterns of growth trajectories across provinces. To isolate the impact of political and economic liberalizations, we match the growth trajectory of each province with a donor pool of 102 countries¹⁰ (Bolt et. al. 2018) for the same respective period using the synthetic control analysis. Since the full treatment effect of economic and political liberalization is contingent on the degree of liberalization in the donor pool, we adopt two non-lenient criteria to isolate the treatment effects of interest. First, to parse the treatment effect of the economic liberalization from the 1959 Stabilization Plan, we match the growth trajectories of provinces with a restricted donor pool of countries where the

⁹ A Coruña, Álava, Albacete, Alicante, Almería, Asturias, Ávila, Badajoz, Illes Balears, Barcelona, Bizkaia, Burgos, Cáceres, Cádiz, Cantabria, Castellón, Ciudad Real, Córdoba, Cuenca, Girona, Granada, Guadalajara, Guipúzcoa, Huelva, Huesca, Jaén, La Rioja, Las Palmas, León, Lleida, Lugo, Madrid, Málaga, Murcia, Navarra, Ourense, Palencia, Pontevedra, Salamanca, Santa Cruz de Tenerife, Segovia, Sevilla, Soria, Tarragona, Teruel, Toledo, Valencia, Valladolid, Zamora and Zaragoza.

¹⁰ Albania, Argentina, Australia, Austria, Bangladesh, Belgium, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cameroon, Canada, Cape Verde, Chile, China, Colombia, Costa Rica, Côte d'Ivoire, Croatia, Cyprus, Czechia, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Finland, France, Germany, Ghana, Greece, Guatemala, Honduras, Hong Kong, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kosovo, Lebanon, Luxembourg, Macedonia, Madagascar, Malaysia, Malta, Mauritius, Mexico, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nepal, New Zealand, Nicaragua, Nigeria, Norway, Oman, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Serbia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Sweden, Switzerland, Syria, Thailand, The Netherlands, Trinidad and Tobago, Tunisia, Turkey, Ukraine, United Kingdom, United States, Uruguay, Venezuela, Vietnam, Zambia and Zimbabwe.

same degree of economic liberalization has not been perceptible for a long period of time after the 1959 Stabilization Plan was adopted. Our approach is to consider only the restricted donor pool of countries with a low degree of economic liberalization and thus we rely on the Miller et al. (2020) index of economic institutions to construct the cut-off. By considering countries with a relatively low degree of economic liberalization, we are able to partially parse out the treatment effect of the 1959 Stabilization Plan since this provides us with the variation in the donor pool where the countries with a high degree of economic liberalization are appropriately excluded. More specifically, from our donor pool we exclude those countries with above-median level of index of economic freedom which provides us restricted and, yet, substantial variation in growth performance where large-scale economic liberalization is more or less absent. For each province-level specification, this yields a strongly balanced panel of 3,484 province/country-matched observations with a donor pool of 51 countries¹¹ with below-median degree of economic liberalization. The total size of the sample for the full sample of provinces provides us 167,232 observations in the data grid used to estimate the counterfactual scenario.

Second, to estimate the full treatment effect of political liberalization (*i.e.*, democratization), we match the growth trajectories of provinces with a donor pool where the degree of political liberalization in our investigation period (1950-2016) is reasonably low. Countries that have been mature democracies like Australia or United States cannot serve as meaningful control sample for the Spanish provinces because a full political liberalization has been present throughout the overall period. We adopt a more stringent cut-off and consider countries with a Marshall and Gurr (2020) Polity2 score below the median of the distribution. This ensures that the possible control samples are less likely tainted by the presence of political liberalization to parse out a plausible effect of democratization on subnational economic growth. Considering the countries with Polity2 score below the median of the 102 countries from the baseline donor pool restricts our donor pool to 59 countries¹² with a low overall degree of political liberalization for the period 1950-2016 which provides a strongly balanced panel of 4,623 province/country-paired observations and totals 221,904 observations in the data grid used to estimate the counterfactual growth scenario associated with the democratization.

¹¹ Albania, Argentina, Bangladesh, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Cameroon, Cape Verde, China, Côte d'Ivoire, Croatia, Dominican Republic, Ecuador, Egypt, France, Ghana, Greece, Honduras, India, Indonesia, Iran, Iraq, Kosovo, Lebanon, Macedonia, Madagascar, Madrid, Mongolia, Montenegro, Morocco, Mozambique, Nepal, Nicaragua, Nigeria, Paraguay, Philippines, Poland, Romania, Russia, Rwanda, Senegal, Serbia, Slovenia, Syria, Tunisia, Turkey, Ukraine, Venezuela, Vietnam, Zambia and Zimbabwe.

¹² Albania, Argentina, Bangladesh, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cameroon, Cape Verde, Chile, China, Côte d'Ivoire, Croatia, Czech Republic, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Ghana, Guatemala, Honduras, Hong Kong, Hungary, Indonesia, Iran, Iraq, Jordan, Kosovo, Lebanon, Macedonia, Madagascar, Malaysia, Mauritius, Mexico, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Nepal, Nicaragua, Nigeria, Oman, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russia, Rwanda, Saudi Arabia, Senegal, Serbia, Singapore, Slovakia, Slovenia, South Korea, Syria, Thailand, Tunisia, Ukraine, Vietnam, Zambia, Zimbabwe.

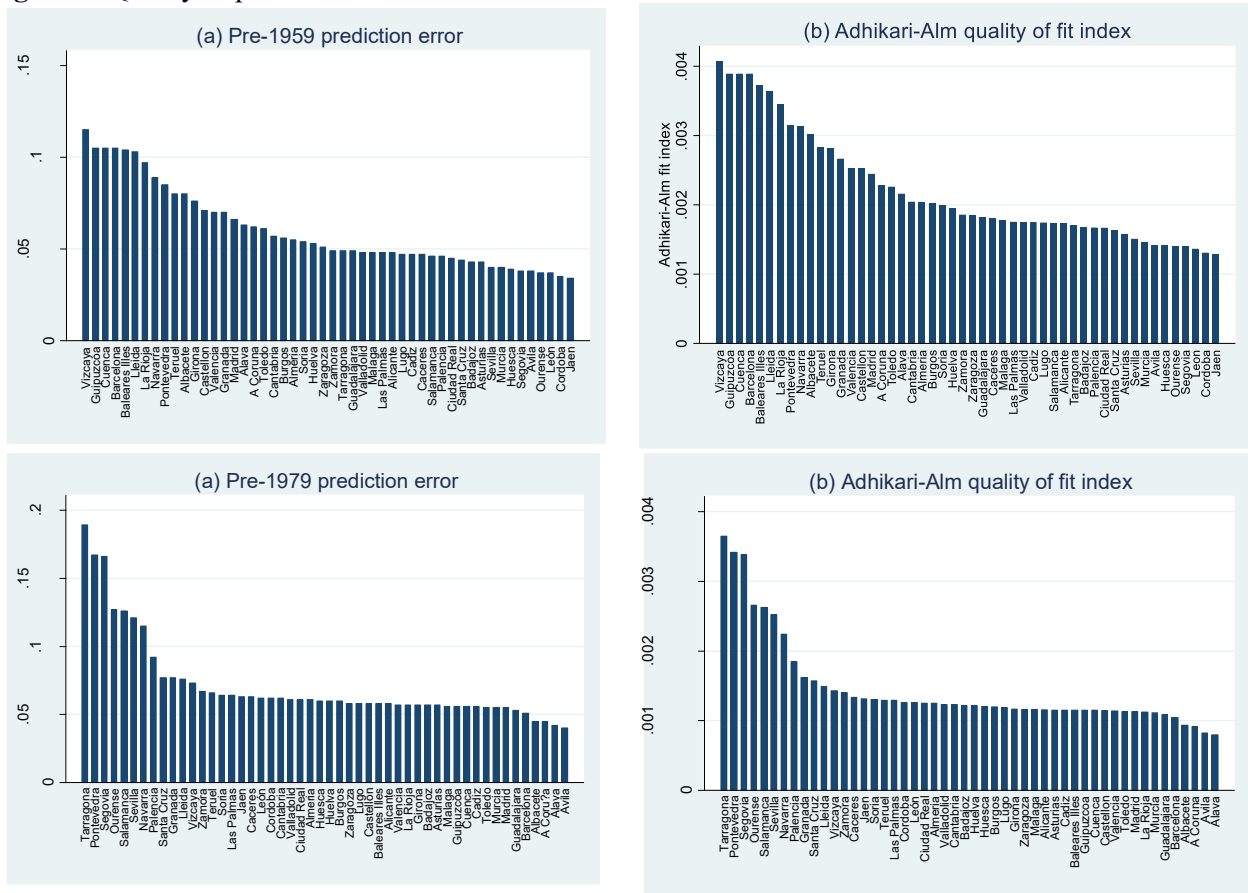
Aside from the pre-liberalization per capita GDP dynamics, we also consider several auxiliary covariates to further grasp the similarities between Spanish provinces and the donor pool, based on the covariates which are unaffected by the economic and political liberalization. These covariates include time invariant geographical characteristics (Nunn and Puga 2012) such as size of the land area, latitude and longitude coordinates, island and a landlocked dummy variables to capture the geographic and climatic similarity between provinces and country-level control samples. We also consider legal history (La Porta et. al. 1998) as an auxiliary covariate to ensure that Spanish provinces can be matched with the countries sharing similar civil law tradition, as well as demographic variables such as population size and density to grasp demographic similarities. The data on population size of Spanish provinces comes from *Instituto Nacional de Estadística* province-level population series. Lastly, we also match Spanish provinces with the donor pool based on the level of political development to ensure that provinces are compared to the jurisdictions with a somewhat similar level of political development. To this end, we consider the variables such as constraints on the executive and the level of democracy, both of which come from Marshall and Gurr (2020).

Table 1 presents the actual and matched pre-stabilization per capita GDP and auxiliary covariate balanced between few selected provinces and their synthetic control groups.¹³ The comparison reveals reasonably high degree of similarity between the actual growth trajectories of provinces and their synthetic counterparts. For instance, the economic growth trajectory of Madrid appears to be sufficiently well matched with its country-level synthetic control group. More specifically, the growth trajectory of the synthetic Madrid has almost identical level of per capita GDP, similar demographic patterns and comparable physical geographic characteristics as the actual Madrid with the RMSE at around 6 percent of the pre-stabilization margin. Low degree of covariate imbalance is equally perceivable in other provinces. In a similar vein, Table 2 lays out the pre-democratization covariate balance comparisons. Likewise, the growth trajectories of provinces in pre-democratization period seem to be well matched with their synthetic counterparts. Given the length of the pre-democratization training and validation period, the lagged term of per capita GDP is added to the battery of covariates to smooth the trajectories and used to match them with low imbalance in pre-treatment period. The table strikes out substantial similarity of the actual and matched growth trajectories not only in terms of pre-democratization per capita GDP dynamics but also in terms of auxiliary covariates. For instance, the physical geographic characteristics of the synthetic control groups appear to be aligned with the actual characteristics of the treated provinces. For example, the synthetic control group for Madrid has similar latitude and longitude coordinates, a characteristic of being non-island and partially landlocked whilst having a similar population size, comparable executive constraints, and coming almost exclusively from a civil law legal tradition. The size of RMSE appears to be low and within the conventional criteria of reasonably good fit. For the 1959 stabilization plan, the RMSE varies between 0.03 (for Jaén) and 0.12

¹³ For the sake of brevity and space limitations, covariate balance comparisons are not exhibited for the full sample of provinces. Instead we present the comparisons for several provinces whilst the full list is available upon request.

(for Bizkaia) and is within Adhikari and Alm (2016) quality of fit bounds. Figure 1 depicts province-level RMSEs for both treatments along with respective bounds.

Figure 1: Quality of pre-treatment fit and covariate imbalance



5 Results

5.1. Baseline

5.1.1. Effect of 1959 Stabilization Plan

Our synthetic control estimates indicate large-scale permanent growth improvement in response to the 1959 Stabilization Plan as opposed to modest improved growth performance associated with the 1979 democratization. On average, our estimates uncover 44 percent higher per capita GDP in response to the Stabilization Plan along with 10 percent higher per capita GDP after democratization. Therefore, our evidence seems to suggest that, in the case of Spanish provinces, economic transition seems to have had a relatively larger effect on economic growth than democratization. Figure 2 presents the growth effect of the Stabilization Plan and democratization over time. That is, the gap in per capita GDP triggered by each shock is broken down by year and accompanied by the 95% confidence bounds to better grasp the intertemporal statistical significance of the growth effects. Evidence unveils a positive per capita GDP gap that widens substantially over time. It indicates a series of permanent improvement in per capita GDP after the Stabilization Plan which is consistent with the notion of structural growth

Table 1: Pre-Stabilization Plan Covariate Balance for Selected Provinces

	Madrid		Barcelona		Sevilla		Valencia		Guipúzcoa		A Coruña	
Pre-1959 Prediction Error	0.066		0.105		0.040		0.070		0.105		0.062	
	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic
Log GDP per capita in 1950	8.34	8.33	8.34	8.34	8.18	8.18	8.54	8.55	8.34	8.33	8.39	8.38
Log GDP per capita in 1959	8.62	8.62	8.62	8.62	8.48	8.49	8.84	8.85	8.62	8.62	8.69	8.68
Latitude	40.5	41.03	41.38	34.36	37.5	35.98	39.46	32.52	43.16	34.54	43.22	34.40
Longitude	-3.66	23.60	2.17	16.21	-5.5	13.83	-0,37	17.80	-2.16	21.60	-8.4	14.64
Landlocked	1	0.43	0	0.10	0	0	0	0.05	0	0.19	0	0.08
Island	0	0.17	0	0.27	0	0.12	0	0.28	0	0.28	0	0.26
Log population size	7.60	8.84	7.76	8.11	7.02	8.48	7.21	8.38	5.97	7.81	6.87	8.14
Log population density	1.38	2.26	1.19	2.35	2.52	2.52	2.06	2.62	1.61	2.38	2.10	2.55
Log land area	8.99	11.20	8.95	10.47	9.54	11.00	9.28	11.01	7.59	10.20	8.98	10.69
British common law	0	0	0	0.01	0	0	0	0	0	0	0	0
Civil law	1	1	1	0.99	1	1	1	1	1	0.99	1	0.99
Polity2 democracy score	-7	-3.86	-7	-3.25	-7	-4.38	-7	-3.67	-7	-3.16	-7	-4.22

Notes: the table presents covariate values of the actual provinces and their synthetic peers in the pre-stabilization period.

Table 2: Pre-Democratization Covariate Balance for Selected Provinces

	Madrid		Barcelona		Sevilla		Valencia		Guipúzcoa		A Coruña	
	0.055		0.051		0.121		0.057		0.056		0.045	
Pre-1959 Prediction Error	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic	Actual	Synthetic
Log gdp per capita in 1950	8.34	8.32	8.34	8.32	8.18	8.18	8.54	8.52	8.34	8.31	8.39	8.37
Log GDP per capita (t-1)	8.87	8.86	8.87	8.86	9.52	9.28	9.09	9.08	8.87	8.86	8.94	8.93
Log GDP per capita in 1978	9.44	9.43	9.44	9.43	9.32	9.32	9.68	9.67	9.44	9.43	9.53	9.52
Latitude	40.5	43.67	41.38	40.24	37.5	38.87	39.46	41.28	43.16	42.38	43.22	42.72
Longitude	-3.66	12.16	2.17	10.30	-5.5	17.71	-0.37	13.59	-2.16	20.10	-8.4	11.84
Landlocked	1	0.18	0	0.01	1	0.15	0	0	0	0	0	0
Island	0	0	0	0.01	0	0	0	0	0	0.03	0	0.04
Log population size	7.93	8.47	6.91	8.19	7.12	7.67	7.34	8.55	6.22	7.89	6.91	8.19
Log population density	1.05	2.17	0.91	2.06	2.42	2.17	1.93	2.26	1.36	2.26	2.06	2.28
Log land area	8.99	10.64	8.95	10.36	9.54	9.85	9.28	10.81	7.59	10.15	8.98	10.47
British common law	0	0.04	0	0.06	0	0.04	0	0.04	0	0.09	0	0.04
Civil law	1	0.96	1	0.94	1	0.96	1	0.96	1	0.91	1	0.96
Executive constraints	1.20	2.27	1.20	1.46	1.20	2.16	1.20	2.62	1.20	2.40	1.20	2.08

Notes: the table presents covariate values of the actual provinces and their synthetic peers in the pre-democratization period.

breakup. A similar results suggests that the plan laid out the set of fiscal, monetary and administrative reforms which provided the growth impetus allowing the Spanish provinces to achieve and sustain more rapid economic growth that they would likely have experienced in the hypothetical absence of said reform. Down to the present day, the growth effect's sizes and their respective confidence bounds are clearly above the zero threshold, suggesting a statistically significant impact of the Stabilization Plan. Panel (b) lays out year-by-year growth effect of democratization. Compared to Panel (a), the notion of the structural breakup associated with the democratic transition is not present. Our estimates show that the positive growth effects mimic the characteristics of a temporary shock with positive growth impact that does not seem to be permanent but, on the contrary, appears to fizzle out down to the present day. On a substantive note, our estimates do not uncover evidence of a negative or null impact of democracy as claimed earlier by a handful of studies. On the contrary our results suggest that the temporary institutional shock emanating from democratization does not appear to have permanent growth effect unlike the 1959 Stabilization Plan.

Figure 2: Intertemporal growth effect of 1959 stabilization plan and democratization

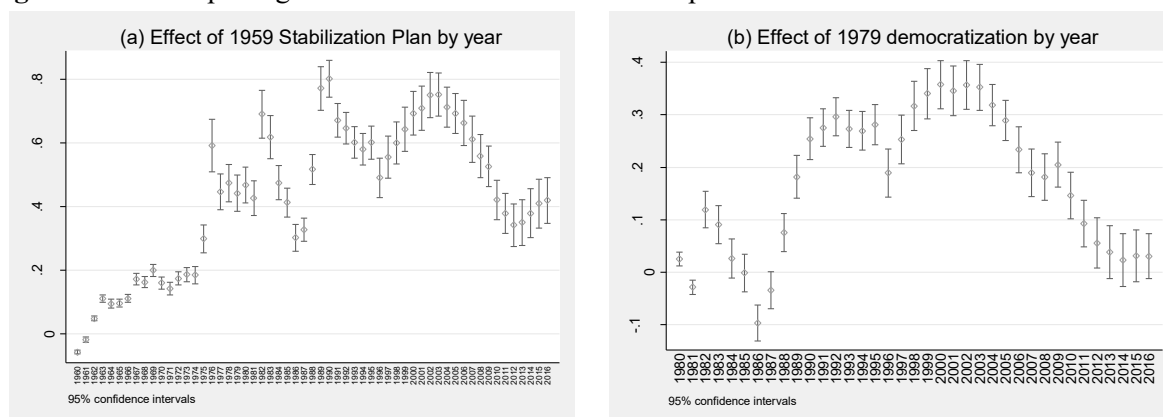


Figure 3 decomposes the overall effect of 1959 Stabilization Plan and democratization by provinces focusing on province-specific average effect associated with each treatment. The evidence suggests marked provincial heterogeneity and several noteworthy disparities in the size of growth differentials. Panel (a) presents the province-specific effect of the stabilization plan, which is both positive and statistically significant for all provinces, ranging from low magnitude in provinces such as Huelva and Tarragona to very high in provinces such as Guipuzcoa and Cuenca. Panel (b) presents the corresponding distribution of the growth effect associated with democratization. Compared to the high average effect of the stabilization plan, accompanied by narrow confidence bounds, the effect of democratization across provinces is more homogeneous although characterized by wider confidence bounds. Although some provinces, especially Guadalajara and Tarragona, have a disproportionately high effect of democratization, most provinces are confronted with an effect that is close to null or even negative in some cases such as Alicante, Alava, Granada and Cádiz. Province-specific comparisons reiterate our theoretical notions and confirm large and permanent growth effect of 1959 Stabilization Plan as opposed to a modest growth effect of democratization.

Figure 3: Province-specific effect of stabilization and democratization

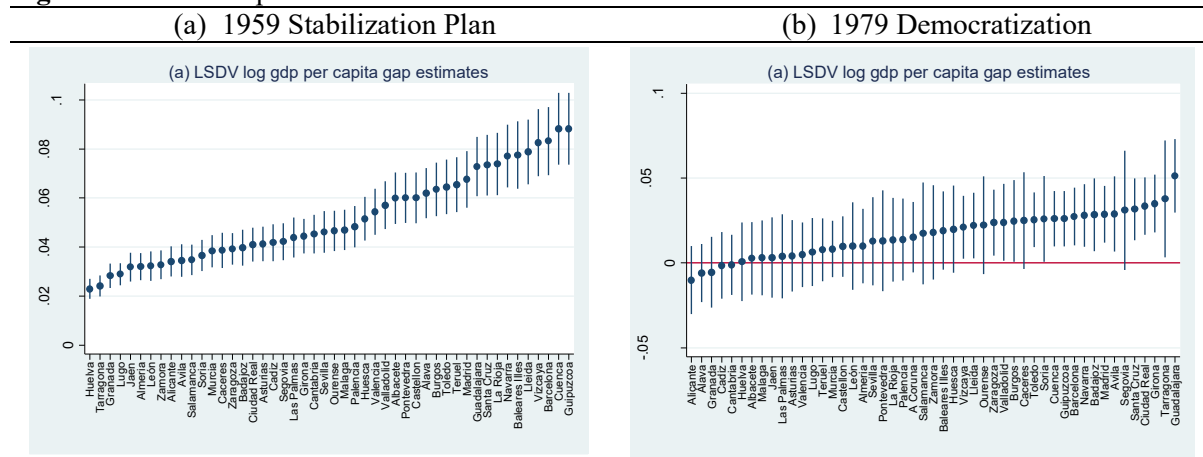


Figure 4 presents the estimated per capita GDP gaps in response to the 1959 Stabilization Plan for selected provinces. The evidence readily indicates large gains associated with the macroeconomic liberalization. Growth gains seem to be immediate, permanent and tend to increase considerably over time. For instance, our estimates imply that the per capita GDP of Madrid is 83 percent higher than the per capita GDP of its synthetic control group. In the similar vein, the estimated per capita GDP gap of Barcelona is 134 percent whilst the corresponding gap for Guipuzcoa is 149 percent, respectively. The evidence largely suggests that Catalan (Barcelona, Tarragona, Lleida and Girona) and Basque provinces (Álava, Guipúzcoa and Vizcaya) tend to have the largest and most robust growth premium from the 1959 Stabilization Plan. The estimated gains tend to be closer to the baseline effect (*i.e.*, 44 percent) in other provinces. For instance, the estimated per capita GDP gap in Sevilla, A Coruña and Valencia is substantially smaller compared to Basque and Catalan provinces, yet still sizeable and indicates the permanency of the structural break posited by the 1959 Stabilization Plan, that is positively perceivable across all provinces, even those that benefitted the least from the reforms (*i.e.*, Huelva, Tarragona and Lugo).

Figure 4: Growth Effect of 1959 Stabilization Plan for Selected Provinces

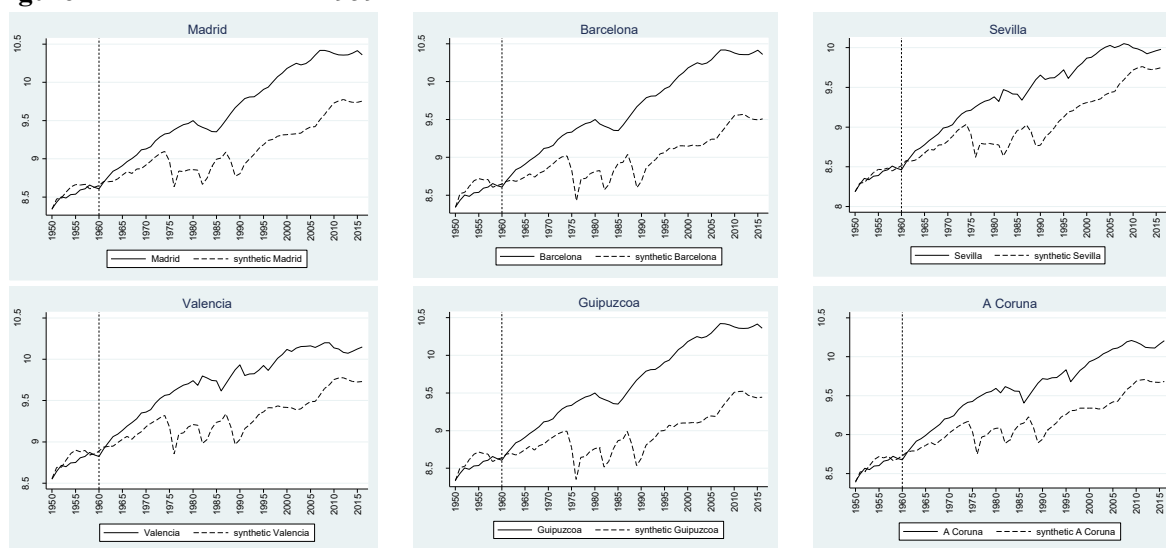


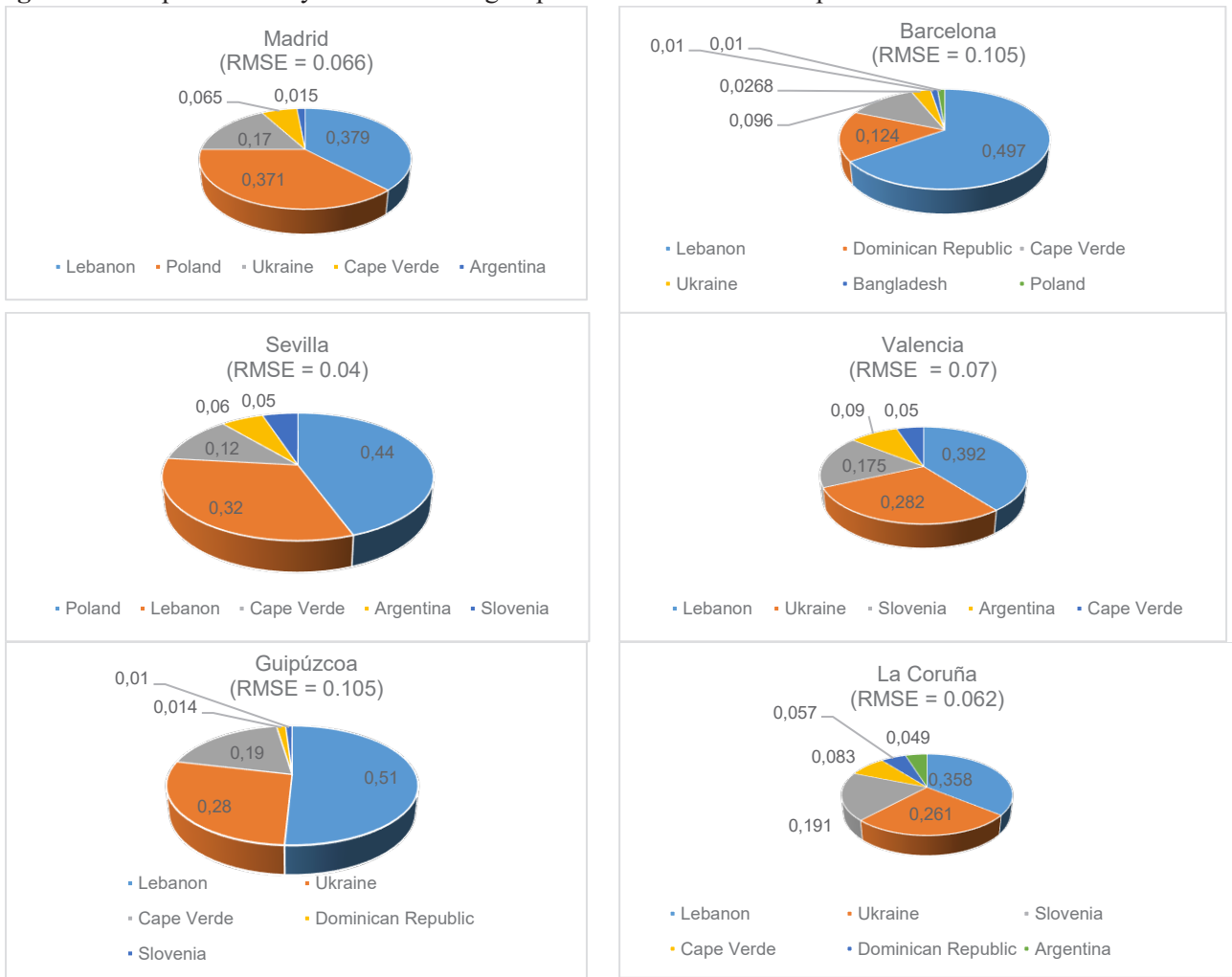
Figure 5 presents the composition of the synthetic control groups for the selected provinces in Figure 4. The synthetic control groups present the convex combination of growth and characteristics of the set of countries from the donor pool that can best reproduce the growth trajectories of Spanish provinces but that were not affected by the 1959 Stabilization Plan or an equivalent institutional change. Notice that the countries considered for the composition of the synthetic control group are those that have an index of economic freedom below the full-sample median of our baseline panel to ensure that countries undergoing large-scale economic liberalization at some point in time in our investigation period are appropriately excluded from the donor pool. The evidence posits both contrasts and similarities in the composition of the synthetic control groups. The growth trajectory of Madrid prior to 1959 is best synthesized by a convex combination of pre-1959 per capita GDP and auxiliary covariates of Lebanon (38 percent), Poland (37 percent), Ukraine (17 percent), Cape Verde (7 percent), and Argentina (2 percent). These convex characteristics yield a RMSE of about 6 percent which, given the scale of the effect, appears to be low and does not invoke the lack of fit as the underlying driver of the post-1959 per capita GDP gap between Madrid and its synthetic control group. The respective synthetic control group for Barcelona is similar and consists of Lebanon (50 percent), Dominican Republic (11 percent), Cape Verde (9 percent), Ukraine (3 percent), Poland (1 percent), and Bangladesh (1 percent). The synthetic control group of Guipuzcoa, the province with the largest estimated growth gain from the 1959 plan, comprises Lebanon (51 percent), Ukraine (28 percent), Cape Verde (19 percent), Dominican Republic (1 percent), and Slovenia (1 percent). The general thrust of the comparisons is that the most dominant country in the control group sharing similar implied level of per capita GDP prior to 1959 is Lebanon¹⁴ followed by others. The synthetic control groups do not seem to differ radically although they tend to have similar sets of countries present in the group that varying in the weight proportions that yield the resulting differences in the gaps across provinces.

5.1.2 *In-Space Placebo Analysis*

The evidence so far indicates a positive per capita GDP gap associated with the 1959 Stabilization Plan that is perceivable across all provinces. Given the size of the gap, the question that remains is whether these gaps are statistically significant or not. To evaluate the significance of the estimated gaps, we ask whether the effects are driven by chance and rely on in-space placebo analysis to address these concerns. The approach consists in the iterative application of the synthetic control estimator to all unaffected countries in the donor pool that did not implement the 1959 Stabilization Plan. The general intuition behind such approach is simple. If the placebo analysis yields gaps of magnitude and size similar to the ones estimated for Spanish provinces, then it is unlikely that the synthetic control analysis would serve as a source of significance for the positive growth effect of the 1959 Stabilization Plan. By contrast, if

¹⁴ It should again be noted that the selection of countries is based on econometric methods based on objective information. Although the comparison of Madrid and Barcelona with Lebanon may be surprising with the levels of development observed today, these are not abnormal comparisons if we take into account the level of development of Lebanon and Spain before 1975 (when the Lebanese civil war began).

Figure 5: Composition of synthetic control groups for 1959 stabilization plan



placebo analysis unveils the estimated gap for Spanish provinces as unusually large to the placebo gaps, then the notion of the statistically significant growth effect becomes more credible. Notice that in the iterative application of the synthetic control estimator, the dataset is reassigned and shifts Spanish provinces from the treated set to the donor pool. This implies that countries from the donor pool are treated as if they were implementing the 1959 Stabilization Plan instead of the Spanish provinces. By computing the estimated effect in each placebo iteration, we construct the distribution of the gaps for the countries where no 1959 Stabilization Plan was implemented.

The generated distribution of the internal placebo effects (Galiani and Quistdorff 2017) poses a straightforward underlying notion. If the distribution of placebo effects yields effects being as large as the ones estimated for Spanish provinces, then it is likely that the estimated growth effects are entirely driven by chance, or by factors distinctive from the 1959 plan. If the effects contain random chance, the probability of a chance-driven effect should be reasonably high. Assuming that the effect of institutional shock for the full post-treatment period is $\hat{\lambda}_{it}$, the distribution of in-place placebo effects is

$\hat{\lambda}_{1t}^{Placebo} = \{\hat{\lambda}_{jt} : j \neq 1\}$. We compute the two-tailed p-value for the effect of institutional shock as follows:

$$p\text{-value} = \Pr\left(\left|\hat{\lambda}_{1t}^{Placebo}\right| \geq \left|\hat{\lambda}_{1t}\right|\right) = \frac{\sum_{j \neq 1} 1 \cdot \mathbb{1}\left\{\left|\hat{\lambda}_{jt}\right| \geq \left|\hat{\lambda}_{1t}\right|\right\}}{J}$$

whereas the one-tailed p-values (for strictly positive effects) are $p\text{-value} = \Pr\left(\hat{\lambda}_{1t}^{Placebo} \geq \hat{\lambda}_{1t}\right)$. Yet, since the 1959 Stabilization Plan is not randomly distributed across the treatment sample, the placebo distributions may not serve as a classical randomization inference. Given that the strict exogeneity assumption is unlikely to be defended in these circumstances, the obtained probabilities indicate the proportion of countries that have the estimated growth effect of the 1959 Stabilization Plan at least as large as the baseline effects for Spanish provinces. If the treatment and control samples are marked by substantial and persistent differences in outcomes and auxiliary covariates, we adjust the set of placebo coefficients for the quality of match in pre-1959 period by excluding the five-fold RMSE multiples of placebo effects as suggested earlier by Abadie et. al. (2010) to generate a valid distribution of pseudo t -statistics, and compute the relevant p-values, permitting statistical inference on the growth effect of 1959 Stabilization Plan.

Figure 6 presents the in-space placebo analyses of the growth effect of 1959 Stabilization Plan for the selected provinces. As it becomes apparent, the synthetic control estimator provides a good fit of the actual growth trajectories of Spanish provinces with their synthetic control groups. The general notion of the placebo effects is that post-1959 gaps appear to be unusual for the Spanish provinces with a clear departure from the zero-gap threshold in the first post-treatment year of the 1959 Stabilization Plan. The gaps are particularly large for the wealthier provinces, namely, Madrid, Barcelona and Guipúzcoa whilst being sizeable but markedly smaller for less affluent provinces such as A Coruña or Sevilla. The placebo analysis also conveys several important implications that hinge on the significance of the estimated gaps. First, per capita GDP trajectories cannot be well reproduced for some countries in pre-1959 period by a convex combination of growth and development characteristics. For the countries where pre-1959 growth trajectories can be reasonably well reproduced, post-1959 gaps do not seem to be comparable with the gaps for Spanish provinces. If the synthetic control groups failed to provide a good fit for the provinces in the years preceding the Stabilization Plan, our interpretation would be that the gap is possibly driven by the lack of fit rather than by the Stabilization Plan itself.

Figure 6: In-space placebo analysis of the 1959 Stabilization Plan

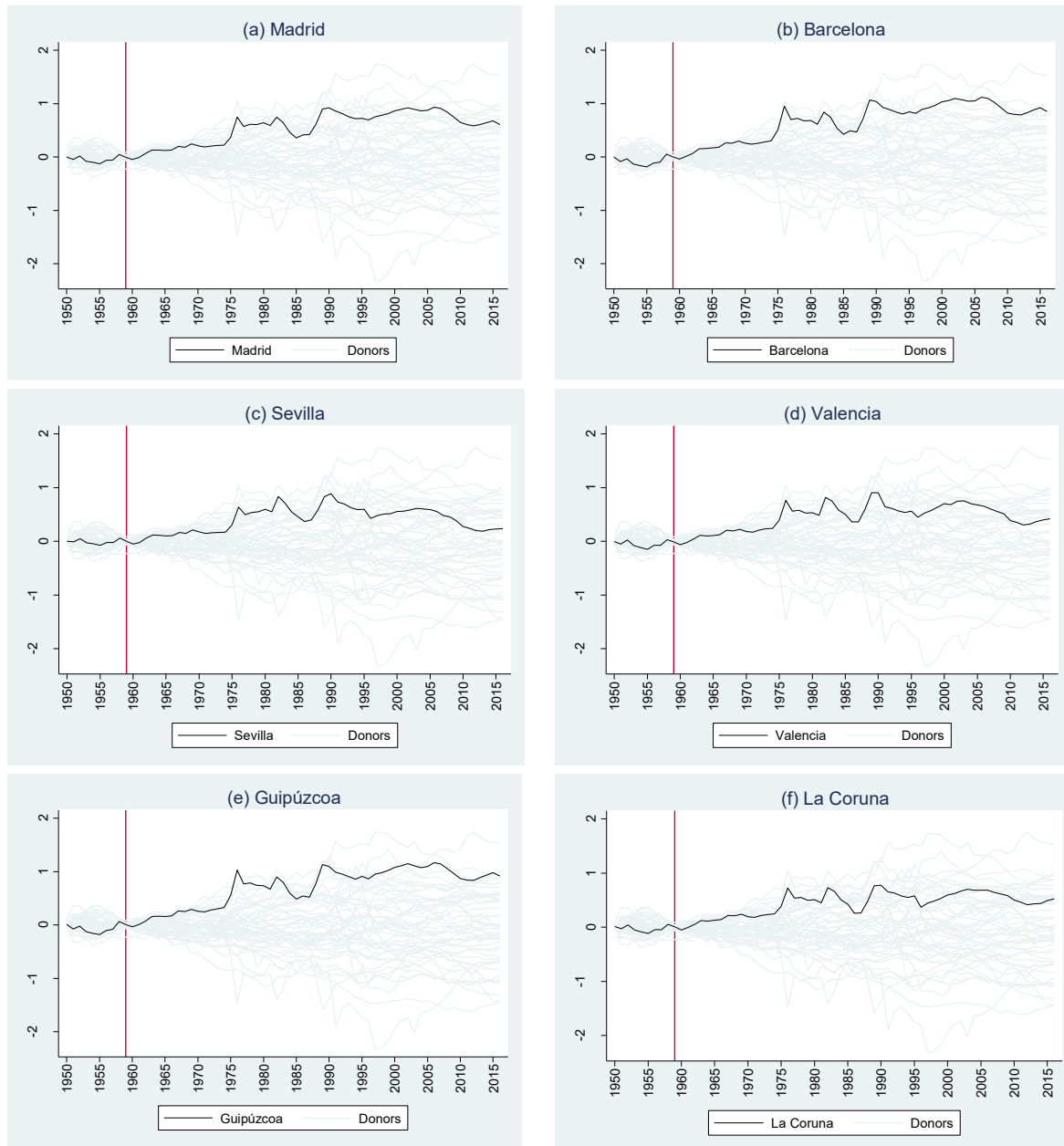
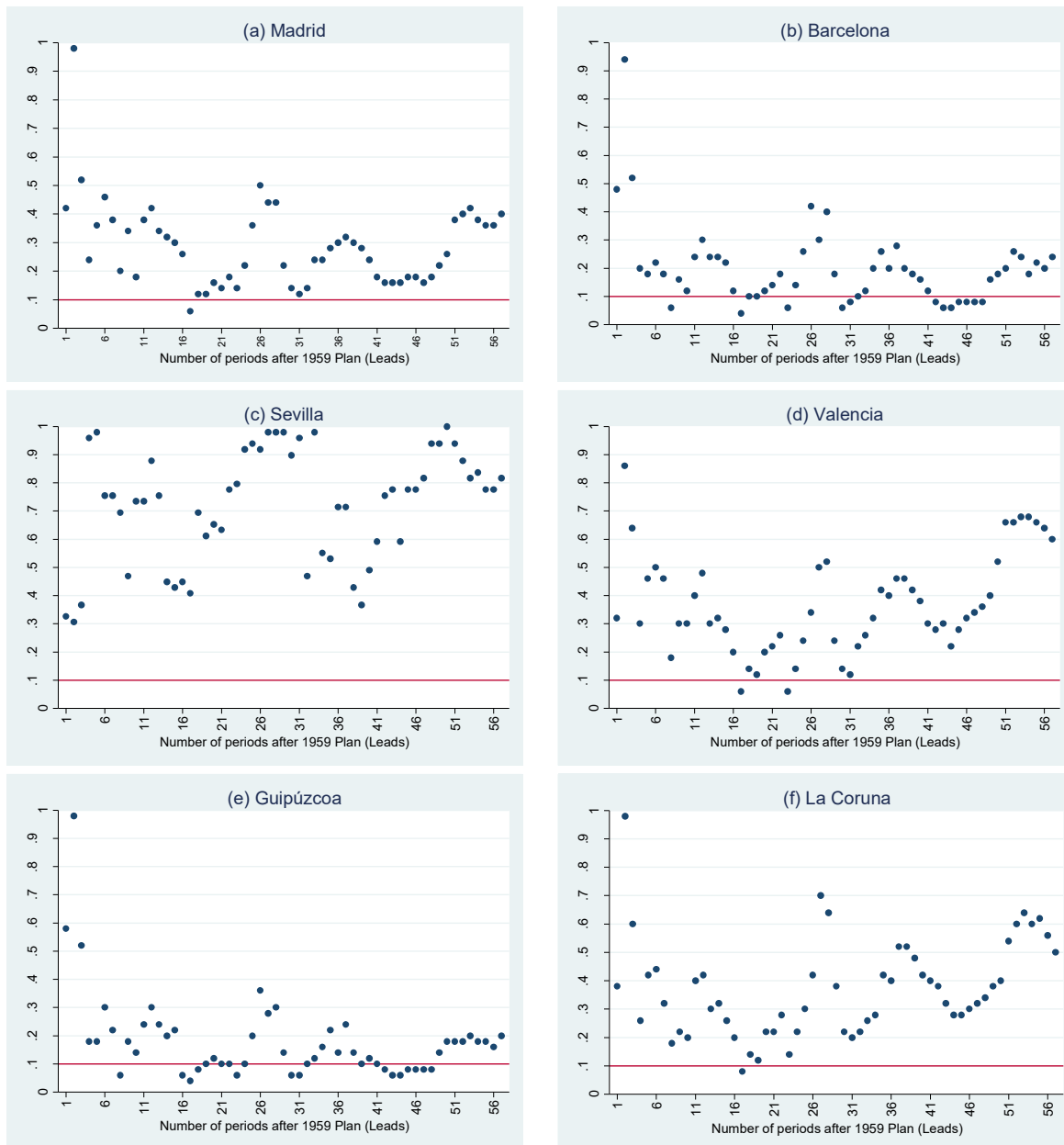


Figure 7 presents the distribution of p-values associated with the growth effect of the 1959 Stabilization Plan over time for the full post-treatment period that correspond to the selected provinces in Figure 6. The comparison of p-values also helps us to gauge whether the growth effect of the Stabilization Plan is either temporary or permanent and if such differences are perceptible across provinces. Evidence suggests that the growth effect appears to be particularly strong in wealthier provinces, especially Barcelona and Guipúzcoa whilst appearing to be somewhat weaker elsewhere. In richer provinces, the p-values appear to be around or below the 10% significance threshold, which reiterates the empirical support for the notion that the 1959 Stabilization Plan had a particularly favourable growth impact on richer provinces. The placebo analyses confirm the uniqueness of the estimated gaps that do not seem to be perceptible once the policy treatment is permuted to the other countries in the donor pool.

Figure 7: Inference on the growth effect of 1959 Stabilization Plan



5.1.3 Effect of Democratization

Figure 8 presents the province-level effects of democratization on economic growth's trajectories. The effect captures the overall impact of the transition to democracy after the end of Franco's regime in 1979. Given that the donor pool only comprises those countries having remained either non-democracies or weak democracies after the onset of democratic transition in Spain, the notion that the underlying per capita GDP gaps reflect the effect of democratization becomes more plausible and less susceptible to the presence of distinctive shocks. Evidence suggests that wealthier provinces, especially Madrid, Catalan and Basque provinces, seem to have a modest growth gain associated with the democratization relative to the respective counterfactual scenario. For instance, per capita GDP of Madrid down to the present day is about 23 percent higher than the level implied by the hypothetical absence of democratic transition. The corresponding gaps for Barcelona and Guipúzcoa are 21 percent, and 18 percent, respectively. For these provinces, the impact of democratization can be best described as negative in the short term whilst being positive and permanent in the long-term perspective. Given that pre-1979 discrepancy between the actual growth trajectories and their synthetic peers seems to be low, we may interpret this as evidence that the post-1979 growth effect is driven by democratization itself rather than by the lack of fit. Other provinces tend to have considerably smaller growth gains in response to democratization. For instance, the actual growth trajectories of A Coruña, Sevilla and Valencia posit a short-lived upward departure from the trajectories of their respective synthetic control group.

In summary, in the short term the effect of democratization appears to be positive and uncovers some of that growth premium associated with the transition to democracy that has been previously recognized in scholarly literature. Nonetheless, such premium appears to be temporary and tends to fizzle out down to the present day. The positive growth gain seems to come to halt around the period of the 2008 financial crisis. Unlike the more affluent provinces, the growth improvement triggered by the democratization does not seem to persist, leading to a nearly complete convergence of the observed growth trajectories with their synthetic counterparts. In some cases, such as Valencia, the counterfactual growth trajectory by the end of our post-treatment period appears to be higher than the actual growth trajectory. Yet, the resulting difference seems to be small and does not seem to indicate a discernible effect that could invoke the notion of high statistical significance.

Figure 8: Growth Effect of the 1979 Democratization in Selected Provinces

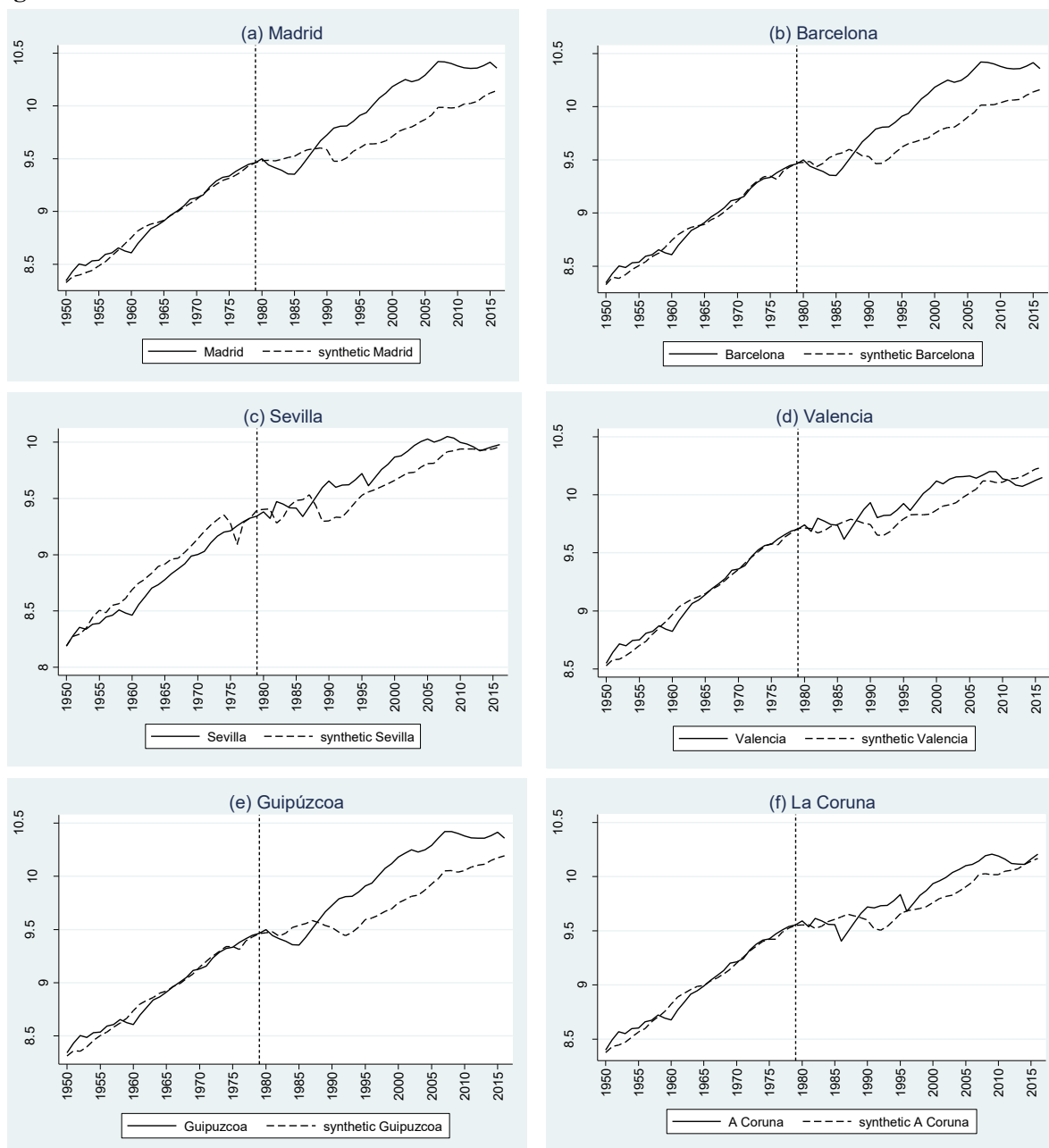


Figure 9 presents the synthetic control groups used to approximate the counterfactual growth trajectories associated with democratization. Notice that the donor pool consists of countries that were either weak democracies or non-democracies up to the present day.¹⁵ As it becomes clear, the

¹⁵ In the ideal setup, the donor pool should comprise non-democracies only. However, the number of non-democracies gradually becomes very small, coinciding with the third wave of democratization (Mukand and Rodrik 2020), and typically only includes countries with the per capita income significantly below the level of Spain and its provinces. Using the updated dichotomous indicator of democracy (Boix and Stokes 2003), our donor pool of non-democracies would include: Bangladesh, Cameroon, China, Cote d'Ivoire, Egypt, Hong Kong, Iran, Iraq, Jordan, Lebanon, Madagascar, Malaysia, Morocco, Mozambique, Namibia, Oman, Russia, Rwanda, Saudi Arabia, Singapore, Syria, Thailand, Venezuela, Vietnam, Zambia and Zimbabwe. Synthetic control analyses indicate that the synthetic control groups of most provinces load heavily on Singapore with the weight share that is consistently above 70 percent with a significantly lower quality of fit which is why we rely on a more lenient criteria and consider those countries in the donor pool that have Polity2 score average score below the median.

composition of the synthetic control groups is dominated by Central European countries, East Asian countries, and a few others. For instance, the growth trajectory of Madrid prior to 1979 can be best synthesized by a convex combination of growth and development characteristics of Czech Republic (55 percent), Slovenia (18 percent), Hungary (11 percent), Cape Verde (7 percent), Dominican Republic (5 percent), Hong Kong (4 percent), and Lebanon (1 percent). Compared to the synthetic control group for 1959 Stabilization Plan, the gravity of the group is concentrated among Central European countries that did not embark on the path of democratic transition in 1979 along with a diminishing weight share of Lebanon. Similarly, the synthetic control group for Barcelona is dominated by the presence of Czech Republic (45 percent) and Slovenia (26 percent), respectively. In both cases, the synthetic control groups fail to yield the lack of pre-1979 fit with a RMSE around 0.05, which ensures that shocks other than democratization do not seem to be the dominant force behind the counterfactual scenario. For the Basque provinces, the composition of synthetic control group features similar countries although in different proportions that probably correspond to the small size of the area. For instance, the growth trajectory of Guipúzcoa prior to 1979 is best reproduced by the convex combination of growth and development characteristics of Slovenia (31 percent), Czech Republic (29 percent), Estonia (18 percent), Lebanon (8 percent), Dominican Republic (6 percent), Singapore (6 percent), and Mauritius (3 percent). A similar structure of the synthetic control group is apparent for Valencia and A Coruña. By contrast, the only province with a markedly distinctive composition of the synthetic control group in our analysis is Sevilla, which also coincides with substantially a lower overall growth gain associated with democratization. Prior to the onset of the democratic transition, the growth trajectory of Sevilla without the presence of democracy in 1979 is best synthesized as a convex combination of implied growth and development characteristics of Slovenia (48 percent), Lebanon (25 percent), Hungary (11 percent), Dominican Republic (7 percent), Hong Kong (5 percent), Cape Verde (3 percent), and Argentina (<1 percent). Compared to the wealthier provinces (*i.e.*, Madrid, Basque and Catalan provinces), the share of Lebanon in Sevilla's synthetic control group is considerably larger which possibly owes to the climatic, geographic, and per capita GDP-wise similarities between the two regions. Still the most dominant country in Sevilla's synthetic control group appears to be Slovenia at a markedly higher proportion than in the other provinces, which implies that the counterfactual growth trend in response to the democratization derives itself from a European country of similar size and similar temperate climate, which unlike Sevilla, did not undergo the transition to democracy by the end of 1970s.

Figure 9: Composition of synthetic control groups for 1979 democratization.

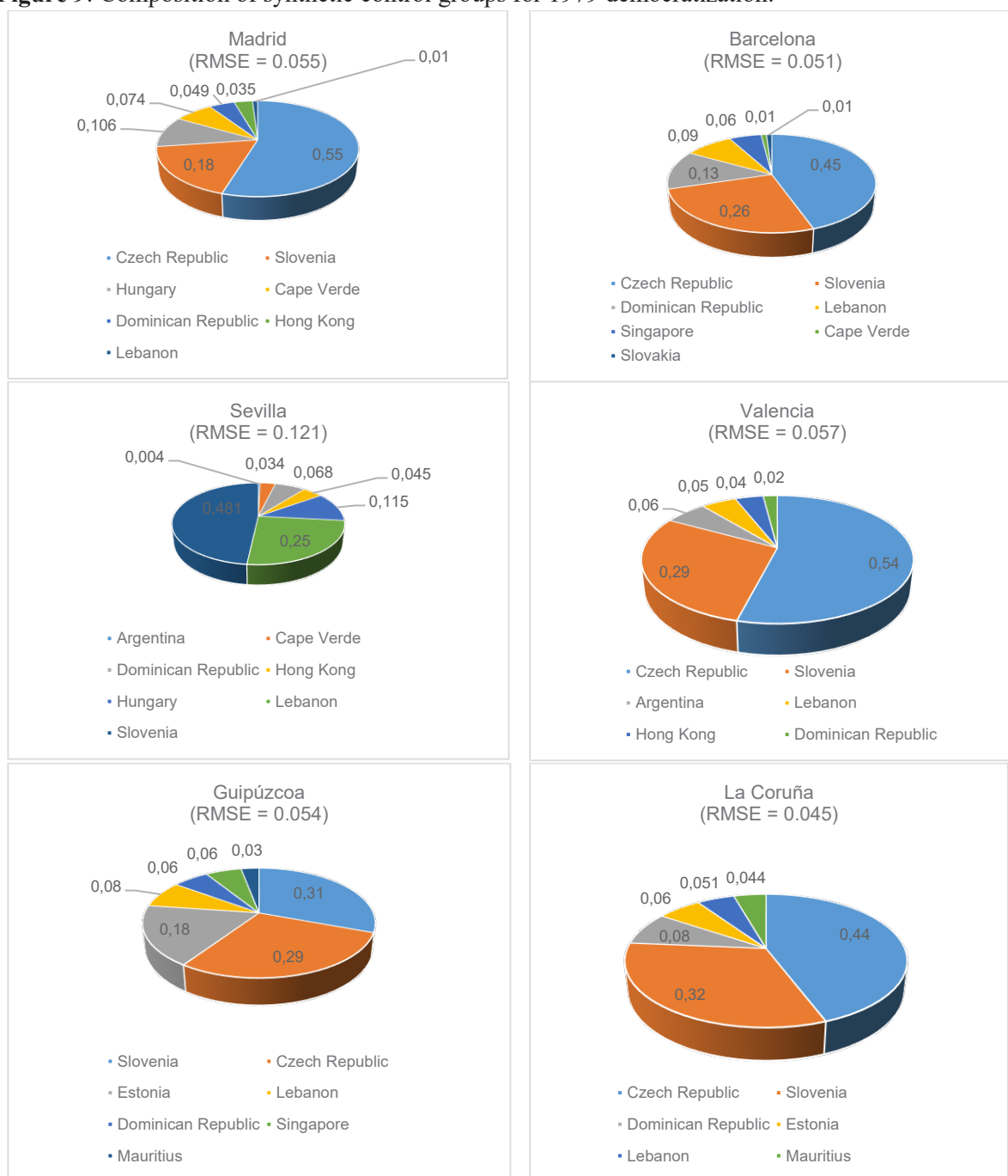


Figure 10 presents the in-space placebo analyses of the growth effect of 1979 democratization akin to the placebo analysis of the Stabilization Plan in Figure 6. Both the visual inspection and a more rigorous analysis jointly suggest that the synthetic control estimator provides a reasonably good fit of the actual growth trajectories of Spanish provinces with their synthetic counterparts. The general thrust of the placebo effects is that the per capita GDP gaps after 1979 appear to be unusually large for the richer Spanish provinces (*i.e.*, Madrid, Barcelona and Guipúzcoa) with a clear upward take-off from the zero-gap threshold in the immediate post-treatment years after the democratic transition. Whereas the gaps

are particularly large for the wealthier provinces, they seem to be short-lived and temporary for less affluent provinces, namely, A Coruña, Valencia and Sevilla. The placebo analysis also uncovers several important implications that shape the conclusions on the significance of the estimated gaps. First, per capita GDP trajectories cannot be well reproduced for some countries in pre-democratization period by a convex combination of growth and development characteristics. For the countries where pre-1979 growth trajectories can be reasonably well reproduced by the implied growth trajectories in the donor pool, post-1979 gaps clearly do not seem to be comparable with the gaps for Spanish provinces. If the synthetic control groups failed to provide a good fit for the provinces in the years before the democratization, our interpretation would be that the gap is possibly driven by the lack of fit rather than by the democratic transition itself, which clearly does not seem to hold.

Figure 10: In-space placebo analysis of the 1979 democratization

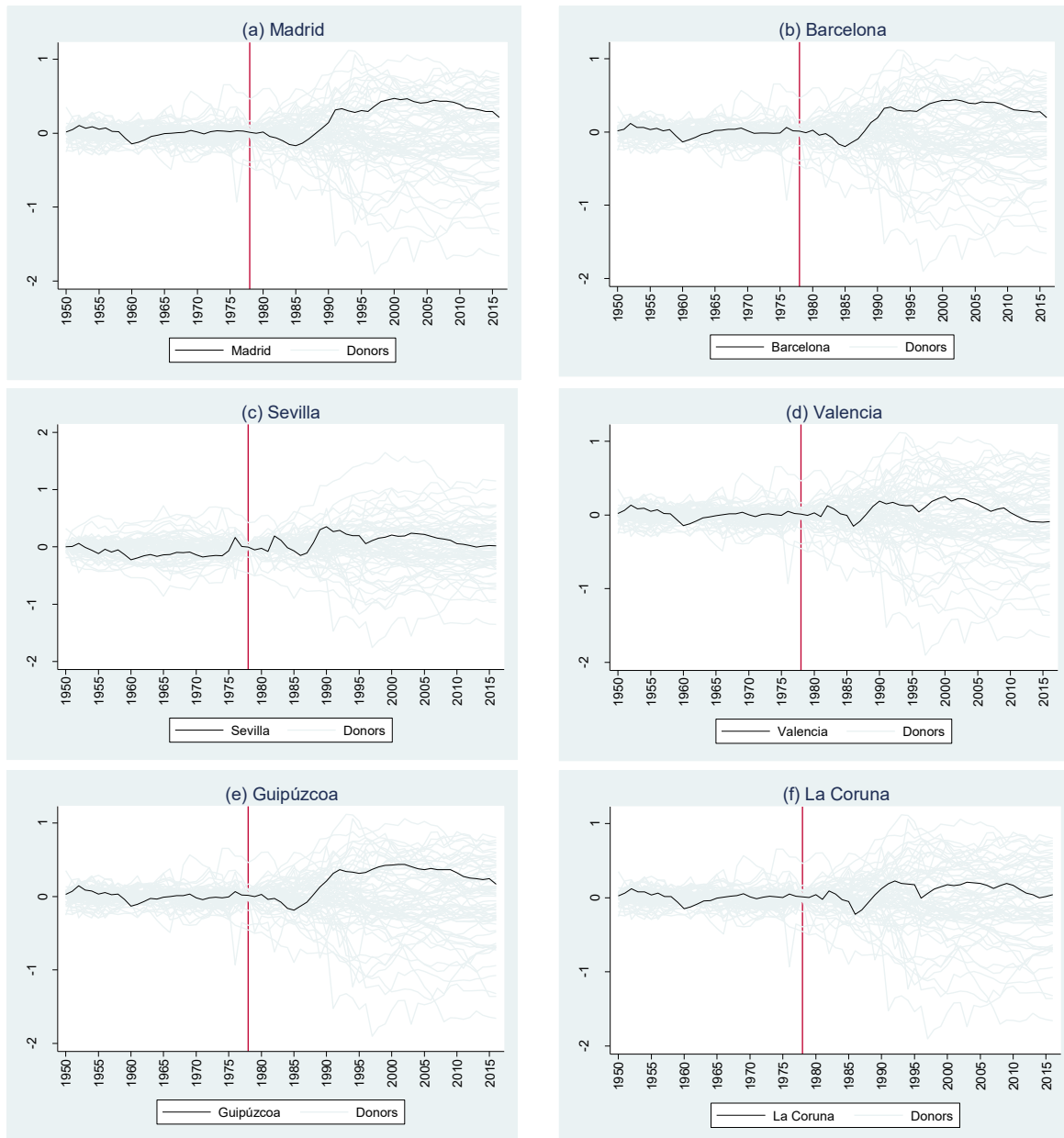
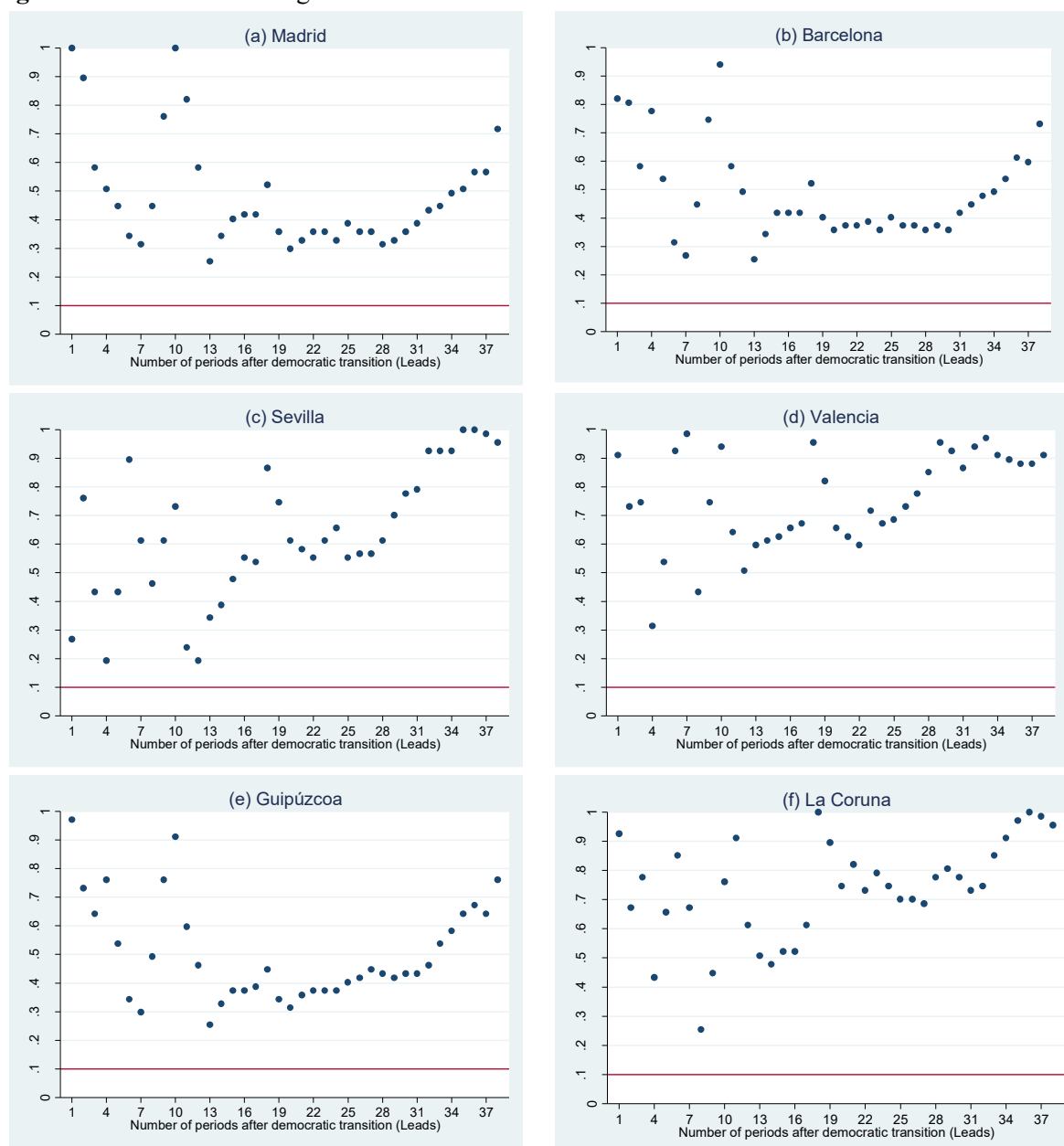


Figure 11 presents the distribution of p-values linked to the economic growth effect of democratization exhibited for the six respective provinces over time for the full post-treatment period. The comparison of p-values also allows us to ponder on the growth effect of democratization and determine whether it is either temporary or permanent and if such differences are obvious across provinces. The evidence suggests that the growth effect appears to be particularly strong in wealthier provinces, especially Barcelona and Guipúzcoa, but less than those associated to the Stabilization Plan. Elsewhere the growth effect of democratization appears to be temporary with the gap relative to the placebo distributions previous evidence (Acemoglu et al. 2019). Over time, the effect of democratization appears to be temporary and tends to disappear down to the present, with the exception of a handful of provinces that are either larger, richer, and more urbanized than the rest of Spain. The placebo analyses confirm the uniqueness of the estimated gaps for these provinces that do not seem to be perceptible once the policy

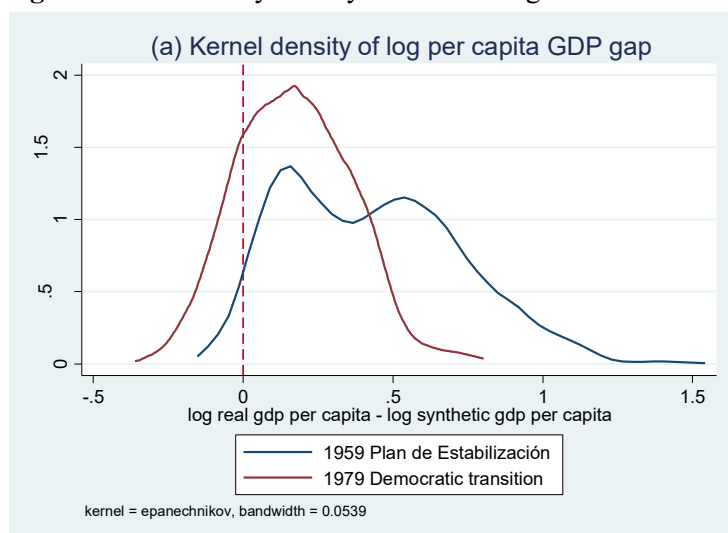
Figure 11: Inference on the growth effect of 1979 democratization



treatment is permuted to the other countries in the donor pool, couple with a weak and temporary effect of democratization on economic growth elsewhere.

To reconcile the relative strengths of both types of growth effects considered in our analysis, we compare the magnitudes of the 1959 Stabilization Plan and 1979 democratization across all provinces and in the full set of post-treatment periods. This approach allows us to determine the effectiveness of the political and economic liberalization in improving the economic growth relative to the plausible counterfactual scenarios. In figure 12, we build the probability density curves for the per capita GDP gaps in response to the democratization and Stabilization Plan. That is, we build the density curves for the differences between the per capita GDP of real provinces and the per capita GDP of their corresponding synthetic control groups for both the 1959 economic liberalization and 1979 political liberalization. The comparative assessment of the relative efficacy of both reforms revolves around three insights that become apparent. First, the large and positive growth effect of the 1959 Stabilization Plan prevails. More specifically, the distribution of the 1959 growth effect is left-skewed with a relatively low kurtosis. This implies that a broad distribution of the reasonably strong growth effect of the Stabilization Plan that is clearly above the zero threshold is perceivable. Second, the distribution of the growth effect of democratic transition appears to be leptokurtic without left-tailed skewness. This pattern de-emphasizes a broad-based strong and positive growth gain and, instead, emphasizes a reasonably narrow distribution of low-to-moderate growth effect of democratization, given that at least a fraction of the overall effect is negative, differently from the Stabilization Plan. On balance, the positive effect of democratization is prevalent, but it seems to be considerably smaller than the positive effect of the 1959 Stabilization Plan.

Figure 12: Probability density curve for the growth effect of economic and political liberalization



5.2 Internal vs. external effect of 1959 Stabilization Plan

One of the remaining caveats regarding the estimated economic growth effects concerns the distinction between the external and internal effect of the economic liberalization created by the 1959 Stabilization Plan. This particular distinction is crucial for establishing plausible counterfactual growth scenarios in response to the institutional changes taken into consideration. The evidence so far roughly indicates large-scale growth gains arising from the Stabilization Plan, and hinge on the comparison of Spanish provinces to the sample of countries having a low degree of economic liberalization up to the present day. Yet, some of these countries had access to the international monetary institutions and the Bretton-Woods system before Spain implemented its economic liberalization whilst others had no such access. Using the former set of countries as a control group, a plausible counterfactual scenario can be estimated by comparing Spanish provinces with a reference group of low-liberalization countries with access to the IMF. This type of scenario can possibly illustrate the growth effects of economic liberalization under the access to the institutional arrangements provided by the International Monetary Fund and other associated institutions. Using the latter set of countries as control group, the estimated counterfactual scenario can be estimated by leveraging the growth trajectories of Spanish provinces against the reference group having similar level of economic development, low level of economic liberalization up to the present day, and no access to the IMF in the years around the implementation of the Stabilization Plan, which can illustrate whether the latter posited an external shock for the economic growth at the subnational level.

To capture the internal versus external effects of economic liberalization, we compare the growth trajectories of Spanish provinces with two blocks of the donor pool. The first block consists of 22 countries¹⁶ which have maintained a low degree of economic liberalization until the present day but had access to the IMF before 1959. By matching the growth trajectories of provinces with this particular sample, we are able to parse out the “internal” effect of the Stabilization Plan. In contrast, the second block comprises 29 countries¹⁷ which also maintained a low degree of economic liberalization until the present day with no access to the IMF before 1959. Matching the respective growth trajectories allows us to determine whether the Stabilization Plan can be associated with an “external” growth effect.

Figure 13 presents the estimated internal and external growth effect of the 1959 Stabilization Plan for the selected provinces also reported in the baseline analysis. The evidence unequivocally suggests large-scale “internal” growth gains emanating from the economic liberalization. In particular, the growth trajectories of Spanish provinces prior to 1959 tend to move in tandem with their synthetic control

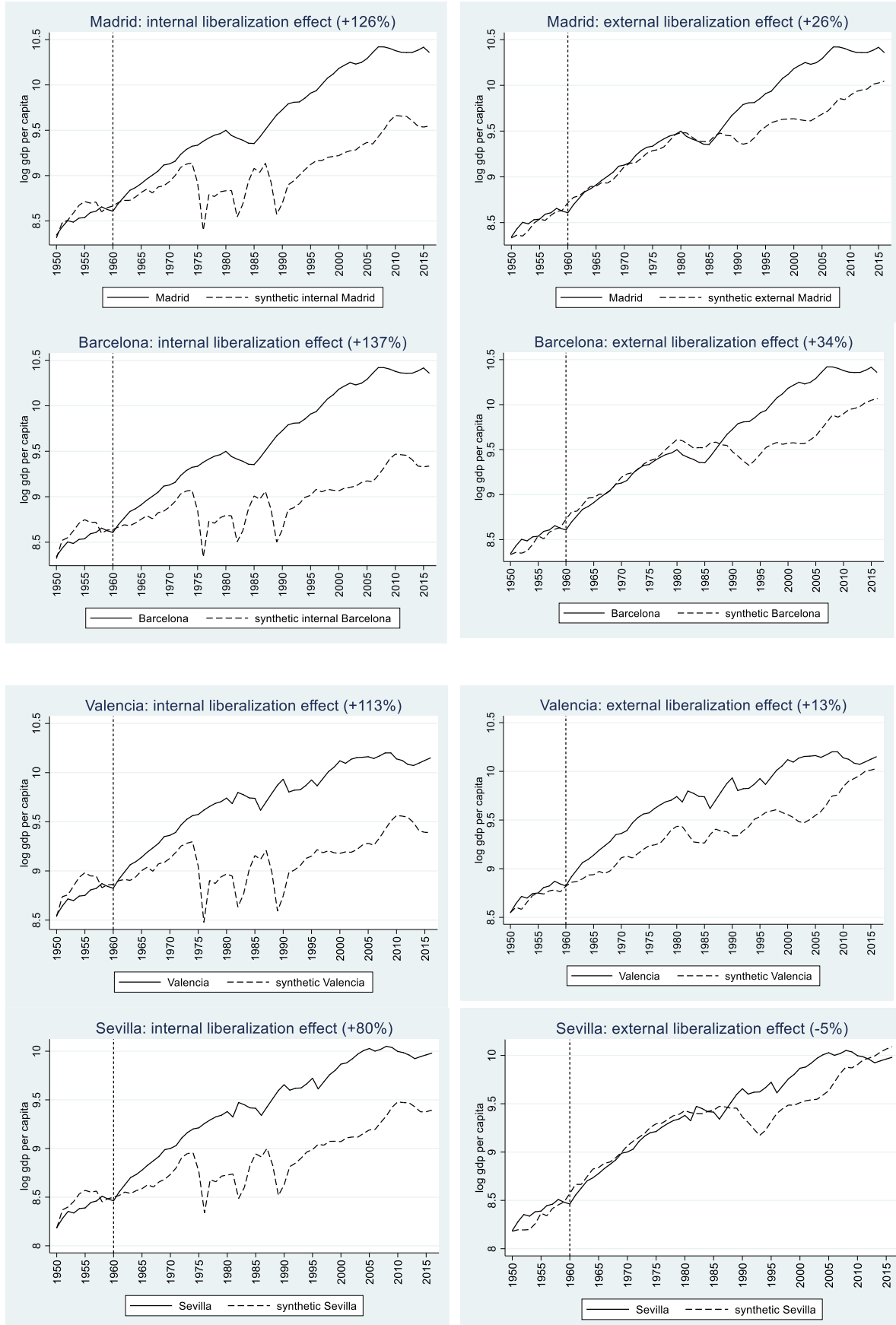
¹⁶ Argentina, Bolivia, China, Dominican Republic, Ecuador, Egypt, France, Greece, India, Indonesia, Iran, Iraq, Italy, Lebanon, Morocco, Nicaragua, Paraguay, Philippines, Syria, Tunisia, Turkey, Venezuela and Vietnam.

¹⁷ Albania, Bangladesh, Bosnia and Herzegovina, Bulgaria, Cameroon, Cape Verde, Cote d'Ivoire, Croatia, Ghana, Kosovo, Madagascar, Mongolia, Montenegro, Morocco, Mozambique, Nepal, Nigeria, Romania, Russia, Rwanda, Senegal, Serbia, Slovenia, Tunisia, Ukraine, Vietnam, Zambia and Zimbabwe.

groups whilst producing a clear upward departure in the years after the Stabilization Plan. For all respective provinces, the gains are particularly large and indicate widespread improvements in the economic growth in response to the economic liberalization. These improvements appear to be both immediate and permanent, pointing out a reasonably strong structural break. Pointwise, the estimated per capita GDP gap in the last year of our post-treatment period ranges from +80% in Sevilla to +177% in Guipúzcoa. From a general perspective, the estimated gaps are closely related to the contrasts in the baseline effect and show that the Basque and Catalan provinces tend to have the largest growth effect whereas southern provinces have the lowest estimated per capita GDP gap. The resulting gaps indicate large-scale growth gains plausibly emanating from economic liberalization in the context of having access to the international monetary system. The counterfactual scenario allows us to reasonably suggest that access to the international monetary institutions *per se* does not guarantee economic growth improvements in response to soft liberalization policies, whereas deep reforms such as the 1959 Stabilization Plan can guarantee large-scale growth gains. Figure 14 reports the composition of synthetic control groups, suggesting that the growth trajectories of Spanish provinces are best reproduced by a combination of low-liberalization countries with IMF access such as Lebanon, Morocco, Dominican Republic, Argentina, Egypt, and Poland.

By contrast, the external effect of economic liberalization does not seem to be immediate. Compared to the group of low-liberalization countries outside the IMF, the growth trajectories of Spanish provinces after the 1960s seem to follow the same trend with similar levels of per capita GDP as their respective synthetic control groups. The only exception is Valencia where we find evidence of improved growth in response to the Stabilization Plan. The growth trajectories of provinces using a donor pool of countries with no access to IMF and low level of economic liberalization can be best synthesized by the convex combination of growth characteristics of Slovenia, Ukraine, Montenegro and Cape Verde although in varying proportions across different provinces. This suggests that the growth effect of the Stabilization Plan is both endogenous to the growth process and does not seem to act as an external institutional shock but rather as an endogenous one.

Figure 13: External and Internal Economic Growth Effect of the 1959 Stabilization Plan



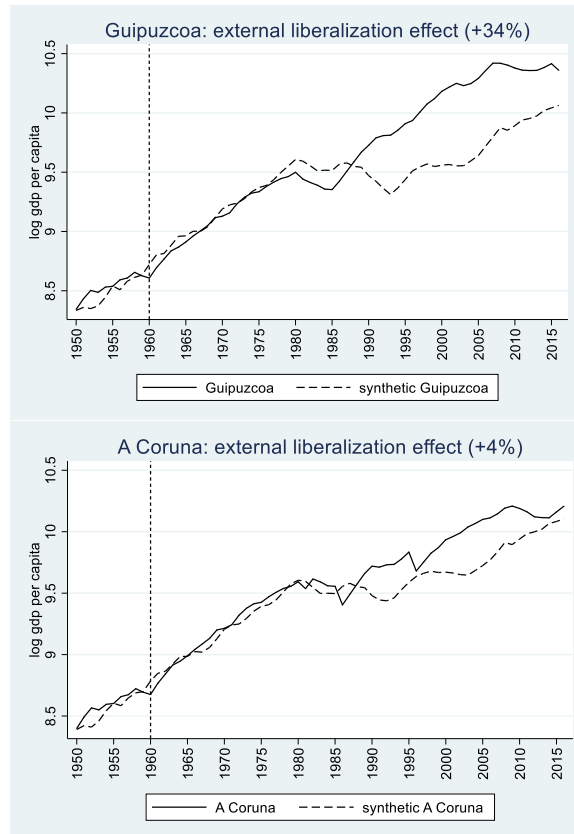
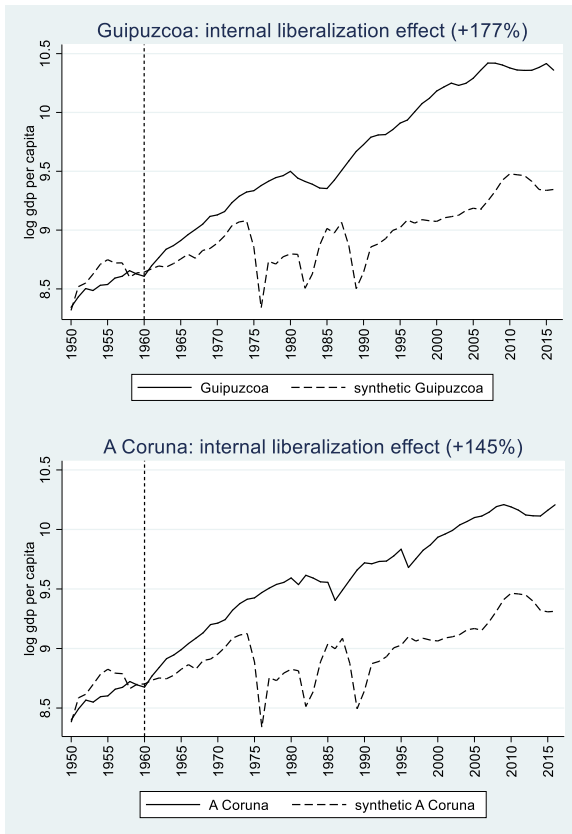
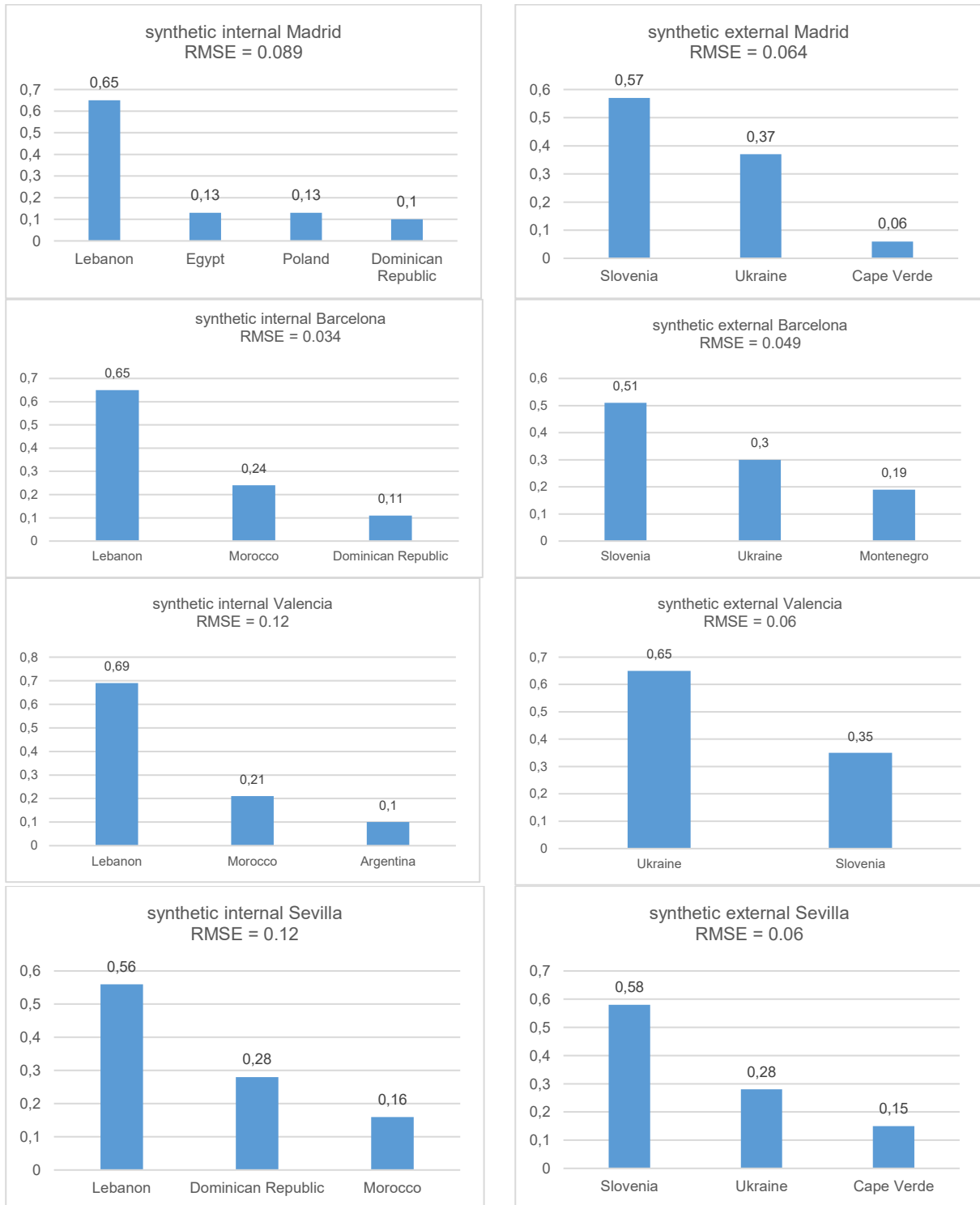
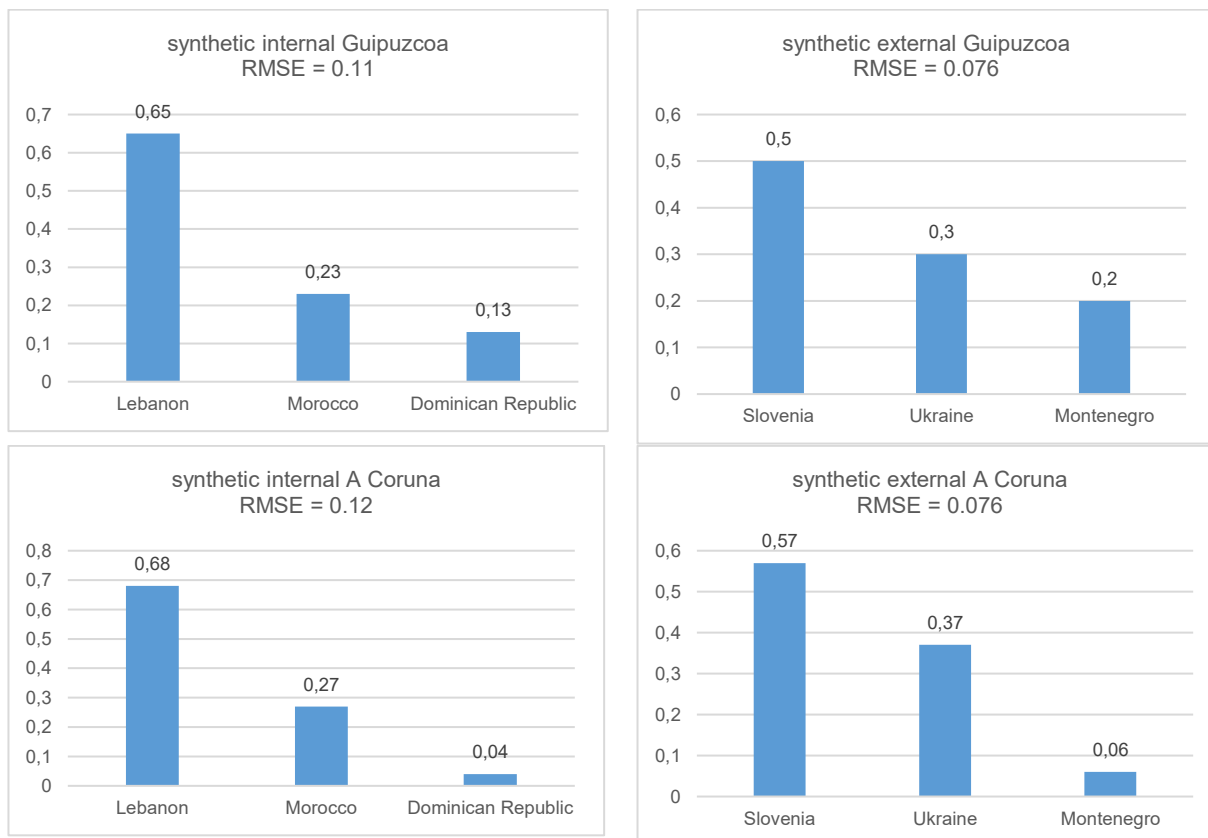


Figure 14: Composition of synthetic control groups in measuring the internal and external effect of 1959 Stabilization Plan





6 Conclusion

In this paper, we examine the contribution of economic and political liberalizations to subnational economic growth drawing on a sample of 50 Spanish provinces in the period 1950-2016. To this end, we exploit the 1959 Stabilization Plan and the democratization process of 1979 as key juncture points in the economic and political institutional transitions and estimate their respective impacts on the subnational economic growth rates. To isolate the effect of economic and political liberalizations, we compare the growth trajectories of Spanish provinces against the trajectories of countries without similar large-scale institutional transitions until the present day and use the synthetic control method to estimate the missing counterfactual scenarios.

The results of our subnational analysis reveal an average growth effect of democratization on per capita GDP of about 10 percent. Leveraging the estimate against the existing scholarly literature, the estimated effect is not consistent with the notion of negative or null effect of democracy as claimed by some authors. However, the magnitude of our estimated effect of democratization is about one half of the size of the effect (estimated at the cross-country level) reported by Acemoglu et al. (2019), which implies that the long-term growth effect of democracy may be somewhat more modest compared to the existing literature. Since several factors can be held fixed at the subnational level, it is unlikely that the estimated effect of democratization is tainted by the omitted variable bias or by the unobserved heterogeneity.

By contrast, we find a large growth effect of the economic liberalization. More specifically, our estimates suggest that the economic liberalization of 1959 based on technocratic economic policies is associated with 40 percent higher per capita GDP. On balance, this suggests that, in the case of Spanish provinces, the effect of economic liberalization appears to be four times greater than the effect of political liberalization, a result consistent with the prior cross-country findings by Giavazzi and Tabellini (2005).

In spite of the presence of a marked heterogeneity in the size of the effect and although a positive effect can be perceived across all provinces, our evidence unveils broad-based and large growth gains associated with the 1959 Stabilization Plan, which appears to have been somewhat more favourable for the Basque and Catalan provinces, areas already richer than the rest of Spain prior to the implementation of the Stabilization Plan. The positive growth effect of the 1959 Stabilization Plan appears to be permanent and mimics the characteristics of the long-term structural break triggered by the liberal technocratic economic reforms and stabilization carried out in the autocratic political environment. By contrast, the positive growth effect of the democratization appears to be temporary. In the short term, democratization seems to have improved the growth trajectories of provinces above the plausible counterfactual characterization. However, up to the present day, the growth advantage stemming from democratization has fizzled out as the growth trajectories of a majority of provinces have retreated back to the counterfactual scenario.

This article deepens the analysis of the effects of the 1959 plan to unveil which set of policies (included in the Plan) had a more important impact: those of an “internal” nature or those “external”, dependent on access to the IMF. Evidence suggests large-scale “internal” growth gains emanating from the economic liberalization.

Several questions remain unresolved. Where do the subnational differences in the growth effects of liberalization come from? Do the local spill over or more general historical differences (Oto-Peralías and Romero-Ávila 2017) matter in the determination of the growth gains? These questions pose a suitable starting point and avenues for future research.

References

Abadie, A. (2021). “Using Synthetic Controls: Feasibility, Data Requirements, and Methodological Aspects”, Forthcoming, *Journal of Economic Literature*.

Abadie, A., A. Diamond, and J. Hainmueller (2015). “Comparative politics and the synthetic control method”, *American Journal of Political Science*, 59(2), 495-510.

Abadie, A., A. Diamond and J. Hainmueller (2010). “Synthetic control methods for comparative case studies: Estimating the effect of California’s tobacco control program”, *Journal of the American Statistical Association*, 105(490), 493-505.

Abadie, A., and J. Gardeazabal (2003). “The economic costs of conflict, A case study of the Basque Country”, *American Economic Review*, 93(1), 113-132.

Absher, S., K. Grier and R. Grier (2020). “The economic consequences of durable left-populist regimes in Latin America”, *Journal of Economic Behavior & Organization*, 177 (September), 787-817.

Acemoglu, D. (2008). “Oligarchic versus democratic societies”, *Journal of the European Economic Association*, 6(1), 1-44.

Acemoglu, D., and S. Johnson (2005). “Unbundling institutions”, *Journal of Political Economy*, 113(5), 949-995.

Acemoglu, D., S. Naidu, P. Restrepo and J. A. Robinson (2019). “Democracy does cause growth”, *Journal of Political Economy*, 127(1), 47-100.

Acemoglu, D., and J. A. Robinson (2001). “A theory of political transitions”, *American Economic Review*, 91(4), 938-963.

Adhikari, B., and J. Alm (2016). “Evaluating the economic effects of flat tax reforms using synthetic control methods”, *Southern Economic Journal*, 83(2), 437-463.

Aghion, P., A. Alesina and F. Trebbi (2007). *Democracy, technology and growth*, Working Paper No. 13180, National Bureau of Economic Research.

Aidt, T. S. (2009). “Corruption, institutions, and economic development”, *Oxford Review of Economic Policy*, 25(2), 271-291.

Arroyo, L., G. Doménech, and J. M. Rodríguez (eds.) (2020). *Tratado de Derecho Administrativo*, vol. I, Madrid, Marcial Pons, In press.

Barro, R. J. (1991). “Economic growth in a cross section of countries”, *The Quarterly Journal of Economics*, 106(2), 407-443.

Barro, R. J. (1996). “Democracy and growth”, *Journal of Economic Growth*, 1(1), 1-27.

Bassols Coma, M. (2017). “La tramitación parlamentaria de la Ley de la Jurisdicción Contencioso-administrativa de 1956: modificaciones e innovaciones incorporadas”, *Revista de Administración Pública*, 203, 309-341.

Bhattacharyya, S. (2009). “Unbundled institutions, human capital and growth”, *Journal of Comparative Economics*, 37(1), 106-120.

Billmeier, A., and T. Nannicini (2013). “Assessing economic liberalization episodes: A synthetic control approach”, *Review of Economics and Statistics*, 95(3), 983-1001.

- Boix, C. (2003). *Democracy and Redistribution*, Cambridge University Press.
- Boix, C., and S. C. Stokes (2003). “Endogenous democratization”, *World Politics*, 55(4), 517-549.
- Bourguignon, F., and T. Verdier (2000). “Oligarchy, democracy, inequality and growth”, *Journal of Development Economics*, 62(2), 285-313.
- Brooks, D. (2013). “Defending the Coup”, *The New York Times*, June 4.
- Campos, N. F., F. Coricelli, and L. Moretti (2019). “Institutional integration and economic growth in Europe”, *Journal of Monetary Economics*, 103 (May), 88-104.
- Cañellas Mas, A. (2010). “La reforma administrativa en España (1956-1958)”, *Revista de Estudios Políticos (nueva época)*, 148, abril-junio.
- Cohen, D., and M. Soto (2007). “Growth and human capital: good data, good results”, *Journal of Economic Growth*, 12(1), 51-76.
- De la Fuente, A., and R. Doménech (2006). “Human capital in growth regressions: how much difference does data quality make?”, *Journal of the European Economic Association*, 4(1), 1-36.
- Dejuán, D., and J. S. Mora-Sanguinetti (2021). “Which legal procedure affects business investment most, and which companies are most sensitive? Evidence from microdata”, *Economic Modelling*, 94, 201-220.
- Dias, J., and E. Tebaldi (2012). “Institutions, human capital, and growth: The institutional mechanism”, *Structural Change and Economic Dynamics*, 23(3), 300-312.
- Di Vita, G. (2018). “Institutional quality and the growth rates of the Italian regions: The costs of regulatory complexity”, *Papers in Regional Science*, 97(4), 1057–1081.
- Doucouliağos, H., and M. A. Ulubaşoğlu (2008). “Democracy and economic growth: a meta-analysis”, *American Journal of Political Science*, 52(1), 61-83.
- Espuelas, S. (2017). “Political Regime and Public Social Spending in Spain: A time Series Analysis (1850-2000)”, *Revista de Historia Económica - Journal of Iberian and Latin American Economic History*, 35(3), 355-386.
- Esteve, V., and C. Tamarit (2018). “Public debt and economic growth in Spain, 1851-2013”, *Cliometrica*, 12(2), 219-249.
- Evans, G., and P. Rose (2007). “Support for democracy in Malawi: Does schooling matter?”, *World Development*, 35(5), 904-919.
- Fatás, A., and I. Mihov (2013). “Policy volatility, institutions, and economic growth”, *Review of Economics and Statistics*, 95(2), 362-376.
- Flachaire, E., C. García-Peñalosa, and M. Konte (2014). “Political versus economic institutions in the growth process”, *Journal of Comparative Economics*, 42(1), 212-229.
- Galiani, S., and B. Quistorff (2017). “The synth_runner package: Utilities to automate synthetic control estimation using synth”, *The Stata Journal*, 17(4), 834-849.
- Galor, O., and D. Tsiddon (1997). “Technological progress, mobility, and economic growth”, *The American Economic Review*, 87(3), 363-382.

- García de Enterría, E. (1959). “La interdicción de la arbitrariedad en la potestad reglamentaria”, *Revista de Administración Pública*, 30.
- García Delgado, J. L. (1995). “La economía española durante el franquismo”, *Temas para el debate*, November.
- Garoupa, N., and R. Spruk (2020). “Using Large-Sample Synthetic Control Method to Estimate Long-Run Effects of Institutional Change”, presented at *Third Conference on Law and Macroeconomics*, Yale Law School, October 15.
- Gennaioli, N., R. La Porta, F. L., De Silanes and A. Shleifer (2014). “Growth in regions”, *Journal of Economic Growth*, 19(3), 259-309.
- Gerring, J., P. Bond, W. T. Barndt, and C. Moreno (2005). “Democracy and economic growth: A historical perspective”, *World Politics*, 57(3), 323-364.
- Gertler, M. S. (2010). “Rules of the Game: The Place of Institutions in Regional Economic Change”, *Regional Studies*, 44:1, 1-15.
- Giavazzi, F., and G. Tabellini (2005). “Economic and political liberalizations”, *Journal of Monetary Economics*, 52(7), 1297-1330.
- Glaeser, E. L., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2004). “Do institutions cause growth?”, *Journal of Economic Growth*, 9(3), 271-303.
- Glaeser, E. L., G. A. Ponzetto, and A. Shleifer (2007). “Why does democracy need education?” *Journal of Economic Growth*, 12(2), 77-99.
- Grier, K., and N. Maynard (2016). “The economic consequences of Hugo Chavez: A synthetic control analysis”, *Journal of Economic Behavior & Organization*, 125 (May), 1-21.
- Hadenius, A., and J. Teorell (2005). “Cultural and economic prerequisites of democracy: Reassessing recent evidence”, *Studies in Comparative International Development*, 39(4), 87-106.
- Harrison, J. (1978). *An economic history of modern Spain*, New York, Holmes & Meier Publishers, Inc.
- Helliwell, J. F. (1994). “Empirical linkages between democracy and economic growth”, *British Journal of Political Science*, 24(2), 225-248.
- Henisz, W. J. (2004). “Political institutions and policy volatility” *Economics & Politics*, 16(1), 1-27.
- Hogan, M. J. (1987). *The Marshall Plan: America, Britain and the Reconstruction of Western Europe, 1947-1952*, Cambridge University Press.
- Jong-A-Pin, R., and J. De Haan (2011). “Political regime change, economic liberalization and growth accelerations”, *Public Choice*, 146(1-2), 93-115.
- Knutsen, C. H., and S. Wegmann (2016). “Is democracy about redistribution?” *Democratization*, 23(1), 164-192.
- Porta, R. L., F. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny (1998). “Law and finance”, *Journal of Political Economy*, 106(6), 1113-1155.
- Lipset, S. M. (1959). “Some social requisites of democracy: Economic development and political legitimacy”, *The American Political Science Review*, 53(1), 69-105.

- Locke, J. (1689). *Two Treatises on Government*, London, Awnsham Churchill.
- López Guerra, L., E. Espín, J., García Morillo, P. Pérez Tremps, and M. Satrustegui (2018). *Derecho Constitucional*, Vol. II, 11ª Ed., Valencia, Tirant Lo Blanch.
- Lucas, R. E. (2015). “Human capital and growth”, *American Economic Review*, 105(5), 85-88.
- Mankiw, N. G., D. Romer, and D. N. Weil (1992). “A contribution to the empirics of economic growth”, *The Quarterly Journal of Economics*, 107(2), 407-437.
- Marshall, M. G., and T.R. Gurr (2020). *Political Regime Characteristics and Transitions, 1800-2018*, Vienna, VA, Center for Systemic Peace.
- Miller, T., A.B. Kim, J.M. Roberts, and P. Tyrrel (2020). *2020 Index of Economic Freedom*, Washington DC, Heritage Foundation.
- Minier, J. A. (1998). “Democracy and growth: Alternative approaches”, *Journal of Economic Growth*, 3(3), 241-266.
- Monteforte, F. (2020). “Structural change, the push-pull hypothesis and the Spanish labour market”, *Economic Modelling*, 86 (March), 148-169.
- Mora-Sanguinetti, J. S. and R. Pérez-Valls (2021). “How does regulatory complexity affect business demography? Evidence from Spain”, *European Journal of Law & Economics*, 51, 203–242.
- Mora-Sanguinetti, J. S. and R. Spruk (2021). *Economic Effects of Recent Experiences of Federalism: Analysis of the Regionalization Process in Spain* (January 13). Available at SSRN: <https://ssrn.com/abstract=3765423> or <http://dx.doi.org/10.2139/ssrn.3765423>.
- Mukand, S. W., and D. Rodrik (2020). “The political economy of liberal democracy”, *The Economic Journal*, 130(627), 765-792.
- Mulligan, C. B., R. Gil, and X. X. Sala-i-Martin (2010). “Social Security and Democracy”, *The B.E. Journal of Economic Analysis & Policy*, 10 (1), Article 18.
- Murphy, R. H., and C. O’Reilly (2019). “Applying panel vector autoregression to institutions, human capital, and output”, *Empirical Economics*, 57(5), 1633-1652.
- Nieto, A. (2017). *Testimonios de un jurista (1930-2017)*, Global Law Press S.L.
- Nunn, N., and D. Puga (2012). “Ruggedness: The blessing of bad geography in Africa”, *Review of Economics and Statistics*, 94(1), 20-36.
- Olson, M. (1983). *The Rise and Decline of Nations: Economic Growth, Stagflation and Social Rigidities*, New Haven, CT, Yale University Press.
- Oto-Peralías, D. and D. Romero-Ávila (2017). “Historical Frontiers and the Rise of Inequality: The Case of the Frontier of Granada”, *Journal of the European Economic Association*, 15 (1), 54-98.
- Papaioannou, E., and G. Siourounis (2008). “Democratisation and growth”, *The Economic Journal*, 118(532), 1520-1551.
- Persson, T., and G. Tabellini (2006). “Democracy and development: The devil in the details”, *American Economic Review*, 96(2), 319-324.

- Plümper, T., and C. W. Martin (2003). “Democracy, government spending, and economic growth: A political-economic explanation of the Barro-effect”, *Public Choice*, 117(1), 27-50.
- Posner, R. (2010). “Autocracy, democracy and economic welfare”, The Becker-Posner Blog, October 10.
- Prados de la Escosura, L. (2016). *Spain’s Historical National Accounts: Expenditure and Output, 1850-2015*, Working Papers 0103, European Historical Economics Society (EHES).
- Prados de la Escosura, L., J. Rosés, and I. Sanz-Villarroya (2011). “Economic reforms and growth in Franco’s Spain”, *Revista de Historia Económica / Journal of Iberian and Latin American Economic History*, 30(1), 45-89.
- Rodríguez-Pose, A. and D. Hardy (2021). “Reversal of economic fortunes: Institutions and the changing ascendancy of Barcelona and Madrid as economic hubs”, *Growth and Change*, 52(1), 48-70.
- Rodrik, D., and R. Wacziarg (2005). “Do democratic transitions produce bad economic outcomes?”, *American Economic Review*, 95(2), 50-55.
- Roll, R., and J. Talbott (2003). “Political freedom, economic liberty, and prosperity”, *Journal of Democracy*, 14(3), 75-89.
- Saint-Paul, G., and T. Verdier (1993). “Education, democracy and growth”, *Journal of Development Economics*, 42(2), 399-407.
- Sirowy, L., and A. Inkeles (1990). “The effects of democracy on economic growth and inequality: A review”, *Studies in Comparative International Development*, 25(1), 126-157.
- Tamames, R. (1998). “La Republica, la era de Franco”, T. 7, in M. Artola (dir.), *Historia de España*, Madrid, Alianza Editorial.
- Tamames, R. and A. Rueda (2000). *Estructura Económica de España*, Madrid, Alianza Editorial.
- Tavares, J., and R. Wacziarg (2001). “How democracy affects growth”, *European Economic Review*, 45(8), 1341-1378.
- Temple, J. (1999). “A positive effect of human capital on growth”, *Economics Letters*, 65(1), 131-134.
- Weede, E. (1983). “The impact of democracy on economic growth: Some evidence from cross-national analysis”, *Kyklos*, 36(1), 21-39.
- Yang, B. (2011a). “Does democracy foster financial development? An empirical analysis”, *Economics Letters*, 112(3), 262-265.
- Yang, B. (2011b). “Political democratization, economic liberalization, and growth volatility”, *Journal of Comparative Economics*, 39(2), 245-259.

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