Measuring the Carnation Revolution: A Synthetic Control Analysis of Economic Crisis in Portugal (1974-1980)

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Abstract: On 25 April 1974, a military coup toppled Europe's oldest authoritarian regime, Portugal's *Estado Novo*. The event went down in History under the name of "Carnation Revolution" and had vast economic implications: a wage explosion and the reduction of working hours for the country's labour force; a process of capital flight; the expropriation of the assets of the business elite; the end of colonial trade and the arrival of about 500,000 to 700,000 settlers fleeing from the colonies with the end of empire. Thanks to these events, the Portuguese economy inverted the 1950s and 1960s process of high growth and industrialisation, when it counted among the fastest growing in the world. Measuring the actual impact of the revolution is very difficult, due to its coincidence with the 1970s international crisis. What part of responsibility for the poor performance should be attributed to the international crisis and what part to the consequences associated with the revolution? To disentangle the problem, we use the synthetic control method. According to our results, the Carnation Revolution caused a negative structural break that made GDP per capita lower than it would have been in the absence of the revolution.

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Introduction

On 25 April 1974, a military coup toppled what was then Europe's oldest authoritarian regime, Portugal's *Estado Novo*. The event went down in History under the name of "Carnation Revolution" and it turned out to be more than just an episode in political change, as it also had vast economic implications. Portugal fell then into a complex political situation following a typical Cold War pattern, with political agents favouring a democracy of the Western type opposed to others favouring an outright socialist/communist regime. Labour unrest followed, determining a wage explosion and reduction of working hours for the country's labour force. As the forces in favour of a socialist solution seemed to gain the upper hand immediately after the coup, entrepreneurs and most of the business elite panicked and started fleeing the country while placing their capital abroad. Soon the assets of the biggest of them would be expropriated in one of the largest nationalisation programmes ever in Western Europe. As the main objective of the authors of the coup was to end a war with independentist movements in Africa that had started in 1961, the fall of the regime also meant the end of the Portuguese empire. Therefore, the country had to stop trading with its colonial territories and accommodate the arrival of about 500,000 to 700,000 settlers (or something close to 8% of the population) fleeing from those territories after the independentist movements reached power. All of this made the economy collapse, inverting the situation coming from the 1950s and 1960s, when Portugal had one of the fastest growing economies in the world.

Measuring the actual impact of the momentous economic changes brought by the revolution has been for long a *vexata quaestio* of Portuguese economic history. Portugal was seen at the time as a sort of economic laboratory, attracting such famous economists as Robert Solow, Paul Krugman, or Rudiger Dornbusch, who then visited the country integrated in a series of Massachusetts Institute of Technology teams to advise Portuguese authorities (Krugman and Macedo, 1981, and Macedo, 2008). To this day, the events in Portugal remain a crucial moment to understand the impact of social and economic revolution on growth in market economies. The difficulty in isolating analytically the economic impact of the revolution is due to its coincidence with the 1970s international crisis caused

by the 1973 oil shock and the demise of the Bretton Woods system. What part of responsibility for the poor post-revolutionary economic performance should be attributed to the international crisis and what part to the economic consequences of the revolution? In order to disentangle the problem, we use a statistical method that has been increasingly applied in the last decade to measure the effect of certain events or policy interventions on economic outcomes, the synthetic control method proposed and developed by Abadie and Gardeazabal (2003), Abadie *et al.* (2010 and 2015) and Abadie (2021). This is a method that Athey and Imbens (2017, p. 9) consider to be "arguably the most important innovation in the policy evaluation literature in the last 15 years", and that has been used to measure the economic impact of such different events as terrorism in the Basque country between the 1960s and the 1990s (Abadie and Gardeazabal, 2003), German reunification in 1990 (Abadie *et al.* 2010), Brexit in 2016 (Born *et al*., 2019) or, closer to the topic of this paper, the mass influx of white settlers returning to Portugal after independence of the former Portuguese colonies in 1975 (Mäkelä, 2017).

The main problem at stake is that of the relevant counterfactual against which to compare the actual evolution of post-revolutionary Portugal. Put in a simpler way, what would have been the performance of the economy in the absence of the revolution and a series of associated consequences we will analyse below: mass influx of repatriates, external imbalance, fiscal imbalance, and International Monetary Fund (IMF) interventions? The synthetic control method provides an efficient instrument to deal with the question. The method compares a "treated unit" with a "donor pool" (both expressions borrowed from medical literature). This is done in two steps: in the first step the treated unit (e.g. an economy) is compared with the donor pool (e.g. a group of relevant comparable economies) for a certain pre-treatment period in order to observe which combination of units from the donor pool best replicates the behaviour of the treated unit; in the second step, after the treatment has taken place (e.g. a shock such as the Carnation Revolution), the procedure consists in observing how the behaviour of the treated unit differs from the behaviour of the donor pool. The

behaviour of the donor pool in the post-treatment period is understood as providing the counterfactual of how the treated unit would have behaved in the absence of the intervention.

According to our results, the many economic events associated with the Carnation Revolution made the situation in Portugal worse than if the country had been only affected by the international crisis, and on two dimensions: it led to a steeper decline of economic growth in the short-run and to a stronger external imbalance crisis. The simultaneous occurrence of the two events created an economic policy dilemma: stimulating growth to lift the economy up from the crash would further deteriorate its external balance; or, seen from the other end, rebalancing the external situation of the economy would mean delaying the efforts to stimulate growth. The inability of policymakers to square the circle brought two IMF interventions, in 1977 and 1978. It was only after these interventions that both objectives were reached, in 1979, five years after the revolution. But meanwhile the economy had been affected by a negative structural break, making GDP per capita close to 15% lower than it would have been in the absence of the revolution.

The remainder of this paper is as follows. Section 1 summarises the main features of the Portuguese economy in the postwar period until the Carnation Revolution. Section 2 describes the international and national context of the 1970s Portuguese crisis: the international ripples of the demise of the Bretton Woods system and of the 1973 oil shock, and the national instability resulting from the revolution. Section 3 describes in detail the synthetic control method and the data used in the paper. Section 4 provides the results of the test as applied to the Portuguese economy in the period under study.

1. The Portuguese pre-revolutionary economy

1.1. Economic growth and change

The period between the end of World War II and 1973 was the best ever in terms of growth of the Portuguese economy. Growth rates had never been higher and would never be in the future again, at least for such a long period. After more than one century of divergence in relation to the richer

economies of the world, or at best non-divergence, the Portuguese economy converged in a consistent manner, with a particularly strong pace during the 1960s (Figure 1): in 1950, GDP per capita in Portugal was 35% of the average of richer economies; by 1973, the level was 55%, a reduction in the gap of 20 percentage points. The process occurred despite quick growth in most rich economies as well, as this corresponded to the period that has, since then, received the designation of "golden age of economic growth" (Table I). High growth was accompanied by industrialisation, as is usual in processes of the kind: agriculture lost finally its prevalent position in both employment and output, and gave place to the other two sectors, industry and services. Agriculture still employed more than 50% of the active population in 1950 but, by 1973, it only employed 24% (Figure 2), and it represented 30% of GDP in 1950 but only 12% in 1973 (Figure 3). On the contrary, industry only employed 21% of the active population in 1950 but jumped to 35% in 1973, and it terms of output, the figures were 31% in 1950 and 41% in 1973. Meanwhile the services sector became both the largest employer (from 27% in 1950 to 40% in 1973) and the largest contributor to GDP (from 40% in 1950 to 47% in 1973) (Amaral, 2019).

Also notable was the abandonment of the country's tradition of protectionism and lack of openness. Up to this period, the Portuguese economy had been one of the least open in Europe. It became one of the most open. The fact that the political regime existing in Portugal was an authoritarian one (a survivor from the 1920s and 1930s dictatorial age) did not prevent the country from being part of the process of European integration initiated in the 1950s. Portugal participated in all major events and organisations of international co-operation put in place in the postwar period: the Marshall Plan and the Organisation of European Economic Cooperation (OEEC), of which it was a founding member, both in 1948 (Rollo, 1994); the European Payments Union, which was the international mechanism created in 1950 to facilitate international payments (Macedo *et al*., 1988, and Lopes, 1996); and, most importantly, the European Free Trade Association (EFTA), of which Portugal was a founding member, together with Britain, Switzerland, Austria, Denmark, Norway, and Sweden, in 1960 (Lopes, 1996, and Leitão, 2007). Being a member of EFTA implied also joining the

General Agreement on Trade and Tariffs (GATT), the platform dedicated to the reduction of protectionism at the world scale. Portugal became a member in 1961, something that brought further trade liberalisation, now with respect to some extra-European countries (Lopes, 1996, and Valério, 2002). The country also joined the Bretton-Woods institutions, i.e., the IMF and the World Bank, adopting the system's fundamental rule as well: pegging the Portuguese currency (the escudo) to the US dollar (indirectly to gold, as the value of the dollar was defined in terms of gold), in 1960 (Macedo *et al*. 1988). As a consequence of all these steps, the opening of the economy throughout the postwar period was clear: the share of trade in GDP expanded visibly, from around 7% in 1950 to 24% in 1973, approaching the average of Western Europe (Figure 4) (Amaral, 2019).

The growth of openness did not prevent, however, the Portuguese economy from having a persistent trade gap, with imports growing much quicker than exports. But the country was able to cover it thanks to emigrant remittances and some services exports, especially tourism. Remittances grew from the 1950s to the early 1970s, as a consequence of an emigration movement that involved close to one million persons (Baganha, 2003), reaching a peak of 9% of GDP in 1972, as shown by the item Transfers in the balance of payments displayed in Figure 5. Tourism also grew in the 1960s, as Portugal became a favourite beach destination for many north Europeans (Marques, 2000) (Figure 5). Because of this, the current account stayed in balance, displaying even some surplus years of significant size.

1.2. The institutional setting

The institutional setting under which such vast changes occurred had some interesting features. The *Estado Novo* presented itself as a corporatist regime, and Corporatism was to be understood as a "third way" between liberalism and socialism: the relationship between the Government and civil society should overcome both the extreme individualistic atomisation of liberalism and the excessive centralisation of state socialism (Lucena, 1976, and Brito, 1989). The state should, hence, no longer look at individuals simply as such but rather as members of what were then called "intermediate

corps", e.g., the union, the guild, or the corporation. This was fairly typical of the class of authoritarian regimes that became frequent in Europe in the 1920 and 1930s and to which the *Estado Novo* belonged (Payne, 1995, and Cardoso and Mendonça, 2012). The regime only implemented its corporatist structure very imperfectly (Lucena, 1976, and Garrido, 2016), but this did not prevent it from relying on the incomplete structure of organisms that were effectively created to put in place a vast apparatus of Government intervention in the economy (Amaral, 2019).

The regime's corporatist framework was generally unfavourable to labour. Unions were forced to be small by law, representing workers only at the level of the profession and of the region (and never at the national level). The Government intervened in almost every aspect of their life, monitoring elections (and arbitrarily accepting or rejecting their results), sanctioning statutes and constantly interfering in the bargaining process (Lucena, 1976, and Patriarca, 1995). All of this in a context where striking was forbidden and little employment protection existed: reasons for firing workers established in labor law were many and vague, and easy to be invoked by employers. No generalised unemployment benefit existed until late, and when introduced it covered only a few unemployment instances. Working hours were long and holiday periods short or sometimes non-existing, even if some more favourable changes occurred in the last years of the regime (Patriarca, 1995, and Amaral, 2019). All of these features of the framework of industrial relations helped to pressure wages down and keep the cost of labour for firms low.

The regime also preserved throughout the postwar period a non-Keynesian approach to budgetary and monetary matters, even when that approach became the rule in most western countries (Battilossi *et al*., 2010). Demand management through fiscal policy was not part of the acceptable policy arsenal of Portuguese authorities: budgets were to be balanced in an "orthodox" manner, a principle that was enshrined in the regime's Constitution. Consequently, the Bank of Portugal followed a principle of letting the money supply depend on a rule, in gold-standard fashion (Amaral, 2018). This orthodox stance allowed for low inflation, until late in the life of the regime, when

the vast influx of external means of payment resulting mostly from emigrant remittances started pressuring prices up (Nunes and Valério, 2005, and Amaral, 2019).

The non-Keynesian approach of Portuguese authorities did not simply imply fiscal balance but also a low level of public spending. That is what Figure 6 shows, where we can see how the Portuguese Government's expenditure level as a percentage of GDP remained considerably below the West European average until 1973. The differences lay not only in size but in structure too. The main difference between Portugal and most other West European countries resulted from the low level of spending on social items: Social Security, Education, and Health Care. Most of Europe embarked then on the construction of Welfare State projects, but not Portugal. Part of the problem had to do with the military commitment of the Colonial War. Because of it, military expenditure passed from about 3% of GDP in 1960 to about 5-6% from 1961 onwards. Such a weight was very unusual in the western context, except in those countries with a more active role in the Cold War: the US (8.6% of GDP in 1960 and 7.7% in 1970), the UK (6.4% and 4.6% in the same dates), and France (6.3 and 4.1%), and the latter two on a declining trend. All other West European countries had much lower levels, between 1% and 3% (World Bank Open Data, Lopes, 2005, and Amaral, 2019).

The fact that the Government was small when measured by the size of expenditure did not mean lack of systematic intervention in the economy. Through the corporatist organisations, the Government and the different agents of specific markets interacted in order to define various aspects of their functioning. This started with prices, which, for most goods, were controlled at various levels of the economic cycle (in production, consumption, and sale); it continued with the regulation of markets, where sale conditions and margins were also imposed, and was complemented by a series of other instruments such as tax incentives, ad hoc tariff exemptions or special credit instruments, designed to affect the structure and behaviour of the economy (Freire and Ferreira, 2019, and Amaral, 2019).

One of the fundamental reasons why these mechanisms of Government intervention in the economy existed was the general distrust of the regime about competition (Lucena, 1976, Rosas,

1986, and Brito, 1989). This was particularly visible in the case of industrial licensing, where the main instrument of policy was something called industrial conditioning (*condicionamento industrial*), a system that made the opening and restructuring of factories, as well as purchases of industrial inputs and capital goods in the world market, subject to a strict bureaucratic and arbitrary process. Only small industries were exempted from the system.

A final aspect of the institutional setting of the period was the connection of the economy with the empire. Portugal had acquired a substantial overseas empire in the sequence of the late nineteenth century Scramble for Africa, consisting of the colonies of Angola, Mozambique, Guinea, Cabo Verde, and São Tomé and Príncipe, to which a few small Asian territories were added: Macao (in China), Goa, Damão and Diu (in India), and Timor (in Indonesia). Until 1961, the economic relationship between the mainland and the colonies was based on a system of imperial preference whereby: the colonies should provide foreign exchange to help the mainland's balance of payments and also supply it with raw materials for manufacturing as well as agricultural and tropical goods; the colonies should additionally function as markets for both mainland agricultural and industrial goods that Portuguese producers were nor able to place in the world market (Clarence-Smith, 1985). The instruments to implement this policy were, on the hand, the administrative setting of prices and a system of preferences that was based on quotas and discriminatory tariffs, as well as exchange controls.

The imperial preferential system was shattered by the creation of a free trade area within the empire in 1961, under the designation of Portuguese Economic Space (*Espaço Económico Português*: EEP), and according to which quotas, tariff rebates and exchange controls either disappeared or were heavily reduced (Clarence-Smith, 1985). The creation of EEP was determined by the need of the country to adapt to the principles of EFTA: being an EFTA member implied signing the GATT, according to which the system of imperial preference had to be consolidated (i.e. not enlarged), unless the participants in such a system integrated a free trade area or a customs union. The Portuguese authorities opted for the creation of a free trade area comprehending the mainland and the colonies (Lopes, 1996). However, by this point, the empire was starting to lose importance for the Portuguese

economy: according to Clarence-Smith (1985, pp. 230-231), mainland trade with the colonies represented about 22% of all its trade in 1950 but only about 14% in 1973. As the Portuguese economy opened and linked more with Western Europe through EFTA, the overseas territories became less relevant.

The survival of the empire became increasingly more difficult with time. The dominating international powers at the end of the war, the USA and the USSR, had a general stance against European empires. After the independence of Ghana in 1957, a stream of new independent countries appeared rather quickly in Africa: 18 new countries until 1960 plus 16 more from then until 1968 (Meredith, 2005). This international environment led to the birth of independentist movements within the Portuguese empire. These movements initiated military activity in Angola, Guinea and Mozambique between 1961 and 1964. The Portuguese response gave birth to a fourteen-year long conflict on three scattered fronts that came to be known as the Colonial War (Cann, 1997).

2. Two crises in the 1970s

2.1. A revolution within an international crisis

The economic and institutional structure described above was completely shattered by the 1974 Carnation Revolution, a military coup that toppled what was then Europe's oldest authoritarian regime. But attributing the post-1973 growth slowdown to the revolution is not a straightforward affair, thanks to its combination with the 1970s international crisis. The whole of Europe entered a period of much poorer economic performance, and Portugal was no exception (Table I). Two major shocks affected the world economy in the early 1970s: the end of the Bretton Woods system, in the sequence of the Nixon administration's decision to terminate the convertibility of the US dollar into gold in August 1971; and the decision by the Arab countries of the Organisation of Petroleum Exporting Countries (OPEC) to embargo oil exports to various Western countries in October 1973, leading to the quadrupling of oil prices in the world market in a matter of just a few months (Crafts and Toniolo, 1996, and Eichengreen, 2007).

But the revolution introduced an additional layer in this already complex situation. We should start by looking at its main political features. The events were initiated by a movement of junior military officers that gathered into an association to which they gave the name of Armed Forces Movement (*Movimento das Forças Armadas*: MFA). Their starting point was a general dissatisfaction with their career prospects and combat conditions in the Colonial War and their main point was to terminate it. But they associated the end of the war with the overthrowing of the authoritarian regime. On 25 April 1974, in association with some senior officers also involved in the war, MFA orchestrated a military coup that toppled the regime and initiated a process of transition to install a new one (Reis, 1994, Ramos *et al*. 2009, and Amaral, 2019).

There was no consensus among the revolutionaries over the nature of the new regime. They split over the issue, together with the political actors of the time and society in general. The division followed a typical Cold War pattern, with some favouring a liberal democracy of the Western type, while others favoured an outright socialist/communist solution (Reis, 1994, Ramos *et al*. 2009, and Amaral, 2019). Initially, significant importance was given to the abolition of the most notable aspects of Government intervention during the *Estado Novo*. This is the case of industrial conditioning, which was replaced by an industrial licensing system, still discretionary, but based only on technical requisites. It is also the case of the corporatist structure, which was abolished, with the former corporatist organisations being replaced by new, fully public or private, institutions (Lucena and Gaspar, 1991 and 1992). None of this indicated a radical political course. But soon things started changing, and between September 1974 and March 1975, the groups committed to more radical socialist interpretations of the future of the country reached control of its political levers (Reis, 1994, Ramos *et al*. 2009, and Amaral, 2019).

Labour unrest gave a large contribution to the radicalisation of the process, with the occurrence of various strikes and many episodes of occupation of firms by workers. The purpose of much of this activity was to obtain higher pay and shorter working hours. With the revolutionary authorities abstaining from repressing labour, workers were generally successful in their demands: wages

increased 7% and 14% in real terms in 1974 and 1975, respectively (Mateus, 2013). The various governments approved legislation much favorable to labour: in May and June 1974 a national minimum wage was introduced; in August striking became legal; in March 1975 a general system of unemployment benefit was created; in April the old corporatist unions were extinguished and unionisation became free; in July a new Labour Code was approved, making individual firing almost impossible and collective firing also difficult (Amaral, 2019).

While this was taking place, the labour market was rocked by a massive shock deriving from the process of decolonisation. Getting out of Africa was the main objective of the revolutionaries. So, negotiations between them and the African independentist movements started in 1974. As a consequence, panic spread among the colonists, who began an exodus in the direction of mainland Portugal, in a process that corresponded to one of the largest population movements ever in Portuguese history: about 500,000 to 700,000 people (or something close to 8% of the mainland's population), most of them economically active, entered the mainland between late 1974 and early 1976 (Pires *et al*., 1984, and Mäkelä, 2017).

The arrival of the mass of colonists from Africa was not the only shock to the labour market. The slowing down of emigration, as the other European economies were also dealing at the time with the effects of the international crisis, and the demobilisation of the soldiers involved in the Colonial War, were other major contributors. Labour supply expanded massively: active population grew by about 400,000 persons between 1973 and 1975, corresponding to growth rates of 3.08% in 1974 and 4.90% in 1975, spectacular figures by any standard (Amaral, 2009). So, right when both the international crisis and the increase in the supply of labour should lead wages to fall, the exact opposite happened. Labour became a much dearer factor of production, not only because of wages but also of the reduction of working time brought about by the new labour legislation. Thus, firms, already threatened by the cost of energy (as well as of other imported goods) and the fall in national and international activity, felt straight-jacked by unprecedented wage pressures. Capital flight started,

and unemployment, which was virtually non-existent in 1973 (1.7%), jumped to 6.2% in 1974 (Amaral, 2009 and 2019).

In the extremely volatile political environment of the period, the difficulties felt by firms to keep regular activity were understood by the revolutionary authorities as "economic sabotage". Pressures started thus growing for many companies to be nationalised and taken away from their owners. Eventually, in March 1975, these pressures were translated into policy: the assets of the large business groups and of private firms operating in sectors that the revolutionary authorities considered to be "strategic" (in reality, both categories coincided largely) were nationalised (Amaral, 2019, and Valério, 2004). By the end of the process, 250 firms or stock were directly nationalised. But, as many of these firms were banks, with significant shares in non-banking firms, these were also affected, implying the indirect nationalisation of 1,300 firms. No compensation was given to the owners at this time, a reflection of the heightened radicalisation of the political situation. The Portuguese entrepreneurial public sector became one of the largest in the Western world, with the Government controlling totally or partially a wide variety of sectors: money emission, banking, insurance, basic metals, naval construction and repair, cement, paper and paper pulp, chemicals and petrochemicals. The sector became responsible for about 20% to 25% of GDP, 30% of investment, and 8% of the workforce (Baklanoff, 1996).

As a consequence of all these events, the economy crashed, as Table II shows, interrupting the path of high growth and convergence of the previous 30 years (Figure 1). And the process was compounded by a rapid deterioration of the balance of payments, as shown in Figure 5. The structure of international payments described in the previous section collapsed after 1974: the trade deficit without tourism passed from 7% of GDP in 1973 to 10%-15% in 1974 and 1975; the traditional amount of tourist payments and emigrant remittances would not have been enough to compensate for such a deficit, but the situation got even worse as both declined in these years thanks to uncertainty concerning the political situation of the country (Figure 5). The difficulties in international trade were made even more complex thanks to the interruption of trade with the colonies when they entered

their independentist processes. Consequently, the current account passed from a small surplus in 1973 to a deficit between 5% and 6% of GDP in the years 1974 and 1975. The combination of economic collapse with massive external imbalance became the central economic issue of the country (Krugman and Macedo, 1981). In the words of Schmitt (1981, p. 1), "the problem of managing economic growth with a balance of payments constraint was new to Portugal".

Alongside the set of politically revolutionary events, a simultaneous process of institutionalisation of the new regime was also under way. On 25 April 1975, one year after the coup d'état, elections for a constituent assembly took place, and victory went to political forces favourable to a Western-style democracy and a market economy. A typical situation of dual power was then created, with governments invoking revolutionary legitimacy opposed to a moderate parliament invoking electoral legitimacy. The new Constitution, approved on 2 April 1976, was the result of the clash between the two sides. Although incorporating the most important elements of a liberal-democratic polity, the Constitution included also a vast socio-economic section with a heavy socialist/communist penchant. According to its preamble, Portugal was now a country "opening the way to a socialist society". This meant that private property was recognised but should be seen as residual in relation to public property and co-operative property. The nationalisations of the previous year were made irreversible (or "irreversible conquests of the working classes", in the Constitution's wording) and the "basic sectors" (i.e. those nationalised) were closed to private ownership. Also, the labour legislation approved in 1975 became a constitutional matter, making change by regular legislative processes almost impossible. The Constitution made the creation of a Welfare State compulsory, determining the creation of public Social Security and Health systems (Reis, 1994, Ramos *et al*. 2009, and Amaral, 2019).

2.2. Stopping the revolution

If the main thrust of the political process in 1974 and 1975 was radicalisation, the opposite happened from 1976 onward. The first non-provisional parliament and Government were elected in

April 1976, marking the end of the revolutionary phase (Reis, 1994, Ramos *et al*. 2009, and Amaral, 2019). Once the idea of keeping the Portuguese economy within the capitalist mould (although with a large Government intervention) prevailed, the various governments from 1976 onward felt the need for two things: one was to fight the economic crash of the two previous years, the other was to provide the population with those sorts of social services that most European democracies had been developing since the end of World War II under the general heading of the "Welfare State", and which were enshrined in the Constitution of the new regime. But both clashed with the simultaneous need to return to external balance. The contradiction in objectives would lead to more difficulties in 1976 and 1977.

A major instrument for both boosting the economy and increase the size of social programmes was public spending. This led to a radical transformation of the nature of fiscal policy, on various dimensions: the first was that of size; if the *Estado Novo* had kept the Government small, the revolution changed that for good: in three years, the 20% gap between Portugal and the European average was reduced by practically one half (to 10%), and the process would continue afterwards (Figure 6). The change in size also meant change in structure. If the *Estado Novo* governments spent very little on social items, the democratic regime did the opposite. Spending on defence dropped suddenly after 1974, from around 6% of GDP to around 2% in 1977, reflecting the end of the Colonial War, and items concerning various dimensions of social policy grew instead. One final dimension where change in fiscal policy was drastic was in the matter of balance. The *Estado Novo* had followed a very strict policy of budget balance, but that definitely disappeared from 1974 onward (Lopes, 2005, and Amaral, 2019). Another instrument used by the governments to boost the economy was the now vast arsenal of public companies (including the banks), which were used to expand investment (Amaral, 2019).

This sort of approach to public spending and economic activity brought a fundamental transformation of monetary policy as well. Again, the break with the *Estado Novo* could not have been clearer. The latter's approach to monetary policy was essentially anti-inflationary. The authorities of

the new regime attributed only secondary importance to price stability. The automatic link between the gold and currency reserves held by the Bank of Portugal and money supply was broken and replaced by discretionary principles. The Bank of Portugal also started to be concerned with the issue of short-run economic growth, besides being called to use money supply in order to finance the growing budget deficits. The inevitable consequence of this set of forces was an acceleration of inflation (Lopes, 1996, and Amaral, 2019).

The combination of all these factors led to the deepening of the problem of imbalance in international payments that had appeared in 1974, leading Portuguese authorities to negotiate two IMF interventions, in 1977 and 1978 (Zorrinho, 2018, and Amaral *et al*, 2020). The trade deficit reached levels between 12% and 15% of GDP in 1976 and 1977, and the current account deficit levels between 8% and 10% (Figure 5). The IMF intervention packages were based on austerity principles, including wage caps, and price and tax increases. Another of their central elements was the depreciation of the Portuguese currency, the escudo, which was subject to various discrete depreciations, and then inserted in a crawling peg mechanism, under which it would depreciate at the rate of 1% per month in relation to the currencies of the most relevant international partners (Dornbusch, 1981). Interest rates were raised in variable proportions. The budget deficit was to be controlled. To these measures the Portuguese authorities added others typical of IMF financial programming, such as ceilings on domestic credit and on credit specific to the public sector (details in Amaral *et al*, 2020).

The results of the programme were very effective in terms of international balance, visible in the return to balance of the current account, as Figure 5 shows: some contribution came from exports, but, as imports also grew, the contribution of the trade balance was only marginal; the essential contributions came from remittances, first, and tourism, second, both returning in full force thanks to a new confidence of both emigrants and tourists in the new post-revolutionary direction of the country's political situation (Figure 5). The worst fears concerning the negative impact of the IMF programme on economic growth ended up by not materialising, as the economy kept on growing in a robust manner (Table II), something that was closely connected with the significant availability of

foreign exchange provided by remittances and tourism: thanks to them, the external constraint to economic growth was eased and many of the most growth-punishing austerity measures were left to be applied (details in Amaral *et al.*, 2020).

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To sum up the post-revolutionary situation, the process of high growth that Portugal passed through in the postwar period was suddenly interrupted in 1974 thanks to a combination of the 1970s international economic crisis with the economic impact of the revolution. The international crisis affected virtually all countries in the world and could not but have had a strong effect on the performance of the Portuguese economy. But the concomitant occurrence of an internal revolution with enormous economic impact must have determined a specific behaviour of the Portuguese economy. The economy did crash between 1974 and 1976. But what part of that crash can be attributed to the international crisis and what part to the specifically national crisis motivated by the economic effects of the revolution?

In order to tackle this question, we use a statistical method called synthetic control method whereby the performance of the Portuguese economy is compared with a counterfactual performance in which the Portuguese economy would have only been affected by the international crisis and not by the revolutionary one. The international crisis was determined by the end of the Bretton Woods system of fixed exchange rates and the 1973 oil shock. Because of them, virtually all countries in the world saw their growth rates slow down considerably, bringing the postwar golden age of economic growth to an end. The internal crisis was determined by a series of political, social, and economic tensions arising out of the 25 April coup d'état that had many consequences: a wage explosion and the reduction of working hours for the country's labour force, increasing massively the cost of labour; a process of capital flight resulting from panic among the business elite (who many times also left the country) because of the fear of a possible socialist revolution, thus disrupting the general functioning of the economy; the actual expropriation of the assets of the biggest of them; the

end of colonial trade and the arrival of about 500,000 to 700,000 settlers fleeing from the colonies with the end of the empire. Such forces did not just bring severe economic contraction but an extremely serious external imbalance as well: exports were negatively affected by higher energy and labour costs, by the end of colonial trade, by capital flight and by the reduction of demand in the world market, the latter caused by the international crisis; imports grew thanks to higher real wages and a sudden massive population increase. Furthermore, the traditional instruments normally used by Portugal to balance its current account, emigrant remittances and foreign exchange brought into the country by tourists, also fell considerably, thanks to fear of both emigrants and tourists about political insecurity in the country.

The combination of an economic crash with a sizable external imbalance generated a dilemma for policymakers, once the most confusing moments of the revolution had passed: they felt the need to stimulate the economy and expand public social programmes through public spending and large investment programmes by public companies; but stimulating the economy in such a manner would bring further deterioration of external balance. Or, seen from the other end: they felt the need to rebalance the economy externally; but doing it would mean not applying measures to stimulate the economy and develop social programmes. In the end, they chose to stimulate the economy and develop the Welfare State. As expected, external balance worsened, and adjustment programmes had to be negotiated with the IMF in 1977 and 1978.

The proposal of this paper is to assess how far the economic consequences of the Carnation Revolution were responsible for growth and external imbalance outcomes that were worse than expected if the Portuguese economy had only been affected by the international crisis. To do it we implement two synthetic control method tests, applied to both GDP per capita and the current account balance in Portugal between 1974 and 1980. Details are given in the next section.

3. The Synthetic Control Method and the data used

The synthetic control method proposes a way of comparing a "treated unit" with a "donor pool" (both expressions borrowed from the medical literature). This is done in two essential steps: in the first step the treated unit (e.g. an economy) is compared with the donor pool (e.g. a group of relevant comparable economies) for a certain pre-treatment period in order to observe which combination of units from the donor pool best replicates the behaviour of the treated unit; in the second step, after the treatment (e.g. the Carnation Revolution) has taken place, the procedure consists in observing how the behaviour of the treated unit differs from the behaviour of the donor pool. The behaviour of the donor pool in the post-treatment period is understood as providing the counterfactual of how the treated unit would have behaved in the absence of the intervention.

In a more formalised way, a sample of $J + 1$ units (national economies, in the case of this study) is considered. Unit $j = 1$ is the unit we are interested in and units $j = 2$ to $j = J + 1$ are the potential units to compare. Following medical and statistical matching language $j = 1$ is the "treated unit", i.e. the unit that is affected by the event we are trying to measure the impact of (in this case the GDP crash caused by the Carnation Revolution), and $j = J + 1$ is the "donor pool". In order to avoid interpolation bias, the units that are part of the donor pool should be chosen among units having similar characteristics in terms of structural processes: in the case of this paper, the donor sample is constituted by OECD countries. All units are observed in the same time periods, $i = 1, \dots, T$. There is a pre-treatment period, defined as T_0, and a post-treatment period, defined as T_1, the overall time period being $T = T_0 + T_1$. The treatment does not affect unit 1 in T_0, affecting it only during T_1.

The synthetic control should be understood as a weighted average of the units in the donor pool and is defined by a $(J \times 1)$ vector of weights $W = (w_2, \dots w_{J+1})$, with each weight restricted to being positive and having a value between 0 and 1. X_1 denotes a $(k \times 1)$ vector of the pre-treatment features of the treated unit that we are trying to match in the best possible way and X_0 denotes the $k \times J$ matrix of the same variables in the units of the donor pool. The purpose is to find the values of the X_0 variables that are most similar to X_1, and the synthetic control, W^*, is the one minimising the difference in the vector $X_1 - X_0 W$, which corresponds to the difference between the treated unit and

a synthetic control. If $m = 1, \dots, k$, then X_{1m} is the value of the variable m in the treated unit and X_{0m} is a $1 \times J$ vector with the values of the variable m in the donor pool. W^* is the value of W minimising

$$\sum_{m=1}^{k} v_m \left(X_{1m} - X_{0m}W\right)^2$$

in which $v_m$is a weight for the relative contribution of each of the variables.

Y_{jt} denotes the outcome of unit j at time t; Y_1 denotes a $(T_1 \times 1)$ vector containing the values of the outcome for the treated period after the treatment, and Y_0 is a $(T_1 \times J)$ matrix containing the values of the outcome for unit $j + 1$. The impact of the treatment is obtained by comparing the post-treatment outcomes between the treated unit and the synthetic control:

$$Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt}$$

A more detailed explanation of the method can be found in Abadie and Gardeazabal (2003) or Abadie (2021). The main purpose of any statistical exercise is to use inference to establish the validity of the results. This would appear difficult with the synthetic control method, which operates in a context where some essential conditions for statistical inference are absent, such as the randomisation of the sample and a choice of sample units through probabilistic means. However, the method allows for some exercises that provide equally valid results. These falsification exercises are termed “placebos” (again following medical literature) and there are two types of them: in-time placebos and in-space placebos. Suppose we have found a strong impact of some intervention through the use of synthetic control. We would have doubts about the true significance of the result if a similar or larger impact was found for a different time period. In order to control for this possibility, an in-time placebo test is implemented. To do it, we run the method but imposing the intervention to occur at a different date. If no impact is registered, we can be confident that the date chosen for the intervention is appropriate. Using the example of this paper, we have chosen the date 1974 for the impact of the Carnation Revolution. Suppose, instead, that we choose 1964 as the intervention year

and find no impact. We would then be confident that 1974 is the appropriate year for the intervention (Abadie and Gardeazabal, 2003, and Abadie, 2021).

We would also have doubts of the true significance of the intervention if we would find a similar or larger impact in the same date but on other members of the donor pool not subject to the same kind of intervention. To assess this possibility, we reassign the intervention to the units in the donor pool that were not directly exposed to the intervention. If we find that the other units were not affected by it, then we can be sure that the intervention is unique to the treated unit. In this case, we can attribute numerical significance to our exercise by calculating p-values. These can be obtained by estimating in-space placebo effects for each unit in the sample and then calculating the fraction of those effects that is larger or similar to the effect obtained for the treated unit. The p-value in this context will tell us the probability of finding a similar result for another unit (Abadie and Gardeazabal, 2003, and Abadie, 2021).

In this paper the Portuguese synthetic economy is obtained by applying the procedure above to a balanced panel sample of 20 OECD economies for the period 1955-1980: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Japan, Netherlands, New Zealand, Norway, South Korea, Spain, Sweden, Switzerland, and United States, besides Portugal itself, of course. This list of countries deserves some comments: the synthetic control method requires that units having been subject to a similar intervention to the treated unit should be excluded from the sample. Four countries pose potential problems: Greece and Spain, as they transitioned to democracy in these years, similarly to Portugal – Greece in 1974, Spain in 1975; and Italy and the UK, as they were both subject to IMF interventions in 1977, the same year Portugal also was subject to one. We decided to keep Greece and Spain, basing our decision on the idea that their transitions did not bring radical economic change of the kind to be found in Portugal: no end of an overseas empire, no mass influx of expatriates, no sudden labour and wage shock, no pro-socialist revolution implying the nationalisation of the main private business assets. Their political transitions were gradual and negotiated affairs with no fundamental and sudden disruption of the basis of the pre-democratic

economy (Prados and Sanz, 1993, and Alogoskoufis, 2021). On the other hand, we decided to remove Italy and the United Kingdom, basing our decision on the idea that the similarity between the IMF interventions in the two countries and the one having taken place in Portugal was high (Crawford, 1983, Spaventa, 1983, and Amaral *et al.*, 2020), thus introducing a confounding factor in the analysis.

The outcome variables of interest are: first, the level of GDP per capita, and, second, the current account measured as a percentage of GDP. The treatment period was defined as starting in 1974. The variables used to build the synthetic version of the Portuguese economy differed depending on the outcome variable taken into consideration. In the case of GDP per capita the variables were consumption, investment, and Government consumption (all in per capita terms), under the logic that they are the components of GDP. To these, other variables were added, as they were considered to be additional determinants of economic growth: total factor productivity (TFP), trade openness, and the real effective exchange rate. In the case of the current account the variables used were consumption, investment, Government consumption, exports, imports (all in per capita terms), the effective exchange rate, and the real effective exchange rate. The rationale for choosing such variables is that they are the main components of the current account or (in the case of the exchange rates) essential determinants of its behaviour. In this respect, the simultaneous use of the nominal and real exchange rate comes from the fact that they determine different payment flows: the nominal exchange rate determines capital and transfer movements (which were especially important in Portugal thanks to emigrant remittances), and the real exchange rate determines the competitiveness of exports.

Data for GDP per capita, consumption per capita, investment per capita, Government consumption per capita, exports per capita, imports per capita, trade openness, and TFP were obtained from PWT 10.0. Data for the current account were obtained in Pinheiro (1997) for Portugal and Jordà *et al.* (2017) for the remaining countries. Data for the real exchange rate were obtained from Bruegel Datasets. Data for the nominal effective exchange rate were obtained in the IMF's International Financial Statistics. In the case of the current account, due to scarcity of data, the sample

was restricted to a subset of 14 of the countries mentioned above, without Austria, Greece, Ireland, Israel, New Zealand, and South Korea.

4. Measuring the Carnation Revolution

Figure 7 shows the performance of the Portuguese economy as compared to that of its synthetic counterpart. We can see that both fell in 1974 but that the actual one continued declining in 1975, generating a structural break with respect with the synthetic one, which started recovering then. The actual Portuguese economy returned to growth after 1976 but not at a fast enough pace to come back to its previous path, continuing to diverge from the synthetic (Figure 7). According to our estimate, the Portuguese economy in 1980 was 15% poorer than it would have been in the absence of the economic consequences of the revolution.

We can see in Table III the weight of the "donor" countries in the construction of the Portuguese synthetic counterfactual. The largest donor is South Korea, with a weight of 35.9%, followed by Ireland, with a weight of 31.7, Japan, with a weight of 25.4%, and Greece, with a weight of 7%. In one fundamental respect, the contributors to the donor pool make sense: all of them were, much like Portugal, fast growing economies in the period from the 1950s to the mid-1970s. The presence of South Korea and Japan might raise some questions, but only at first sight. Portugal's growth path in the period has been compared in some literature with those of the so-called "Asian Tigers" (South Korea, Taiwan, and Hong Kong) (Mateus, 2006, and Amaral, 2019), of which Japan is a somewhat earlier version. As for the presence of Ireland and Greece, it also makes sense, as theirs were catch-up and relatively less developed economies in the 1950s, 1960s and early-1970s. Table IV shows that the synthetic controls are reasonably close to the actual Portuguese ones in terms of the predictor variables. The table also provides a comparison with the possible alternative method of using the same countries in the sample with their contributions arising from an unweighted average. The synthetic exercise gives much closer results.

Falsification through placebo tests provides meaningful results. We first apply the in-space placebo test, the results of which appear in Table V. The overall probability of the effect being replicated with a different treated unit is 0%, according to the p-value displayed in the last row of the table. This can be interpreted, similarly to traditional statistical inference, as a 0% significance level, showing the high adequacy of the exercise. We conclude that the estimated effect could not have resulted from applying the intervention to a different treated unit.

At a second stage, we conduct the in-time placebo test, which is done by artificially reassigning the treatment to a date before the intervention. To do so we reran the model for the case when the intervention is reassigned to the middle of the pre-treatment period, in 1964. Figure 8 displays the results: synthetic Portugal reproduces very closely the GDP per capita performance for the new pre-treatment period. Most importantly, there is no new significant divergence in the trajectory of the current account between Portugal and its counterfactual, thus suggesting that the estimated gap after 1974 is indeed determined by the treatment.

Measuring now the impact of the revolution on the balance of payments, the outcome is visible in Figure 9: Portugal had a very serious international payments crisis starting in 1974, but its synthetic counterpart had a much slighter deterioration. Also, “synthetic Portugal” returned to balance in 1975 whilst actual Portugal saw its position deteriorate, starting to recover only in 1978 and completing the recovery in 1979. The relevant donor countries in this case are Japan, with a weight of 84.2%, followed by Spain, with a weight of 11.6%, Australia, with a weight of 2.6%, and Norway, with a weight of 0.6% (Table VI). As noted when commenting on the results for GDP per capita, the large contribution of Japan confirms the Asian Tiger profile of the Portuguese economy before 1974. An element common to Japan, the Asian Tigers and Portugal in those decades was a growth process closely linked with increased openness and a healthy balance of payments. Contrary to Japan and the Asian Tigers, Portugal’s consistently positive external balance did not result from an outstanding export success (although there was some), but mostly from the massive influx of emigrant remittances. However, in terms of the shape of the current account, one process is undistinguishable from the other, meaning

that Japan should still be viewed as providing a sensible comparator. Of course, Japan's GDP per capita level was considerably higher than Portugal's since the beginning of the period, but Spain's was similar. Maybe if the complete sample had been available for this exercise, we would have seen a large contribution to the donor pool coming from South Korea, an economy closer to Portugal in terms of GDP per capita level than Japan. The presence of Australia and Norway is essentially negligible and must be due to some sort of coincidental marginal similarity between the external position of their economies and Portugal's. Table VII shows that the synthetic controls are reasonably close to Portugal in terms of the predictor variables, with the slight exception of investment and Government consumption. The table also provides a comparison with the possible alternative method of using the same country sample with their contributions arising from an unweighted average. The synthetic exercise gives much closer results.

The in-space placebo yields p-values of 7% (Table VIII). We conclude that the probability of the estimated effect resulting from applying the intervention to a different treated unit is only 7%, a very good level of significance. However, this does not give the full picture. If we decompose the results by the individual years after the intervention, 1976 (7%), 1977 (7%) and 1978 (0%) provide the best p-values. This is explained by the fact that those were the years when the Portuguese current account most diverged from its synthetic. In 1979, Portugal recovered from the imbalance, something that is indicated with a p-value of 0.5 (i.e. a 50% probability of finding a similar result for another possible treated unit), and in 1975 the Portuguese specificity was not yet entirely evident, which is reflected in a 14% p-value. In 1980, we see a smaller p-value (21%) than in 1979, indicative of the beginning of a new current account deterioration, which indeed happened then (Pinto, 1983, Nunes, 2011, and Amaral, 2019). Figure 10 displays the results of the in-time placebo when the intervention is reassigned to 1964: synthetic Portugal reproduces very closely the current account behaviour for the new pre-treatment period. Most importantly, there is no new significant divergence in the trajectory of the current account between Portugal and its counterfactual, thus suggesting that the estimated gap after 1974 is indeed determined by the treatment.

The two tests above allow us to conclude that the many economic events associated with the Carnation Revolution made the situation in Portugal worse than if the country had been only affected by the international crisis, both with respect to its growth performance and its external imbalance. The latter was very important, for it created a stringent restriction on the ability of policymakers to put in place policies allowing for a quicker return to strong economic growth. In the end, the dilemma between rebalancing the economy externally and make it return to growth was never entirely solved, leading to a negative structural break in the growth path of the Portuguese economy.

Conclusion

We have used in this paper a relatively recent statistical technique, the synthetic control method, to measure the economic impact of the Carnation Revolution in Portugal, to separate it from the effect of the 1970s international crisis. The Carnation Revolution unleashed a series of political, social, and economic tensions that made the economic situation of the country extremely difficult: wage explosion, reduction of working hours for the country's labour force, capital flight, expropriation of the assets of the business elite, the end of colonial trade, the arrival of about 500,000 to 700,000 refugees from the empire, less emigrants remittances and tourist visits. According to our results, this set of factors determined a steeper fall in GDP per capita than it would have happened if the country's economy had been only affected by the 1970s international crisis. The economic events associated with the revolution were furthermore responsible for a stronger current account crisis than the one that it would have resulted from the mere impact of the international crisis, something that made the recovery more difficult. The simultaneous occurrence of the two events created a dilemma for the country between returning to growth and rebalancing the economy, making the achievement of reaching both objectives more difficult than in the absence of disruption associated with the revolution. When external balance was finally obtained in 1979, GDP per capita had become 15% permanently lower than it would otherwise have been.

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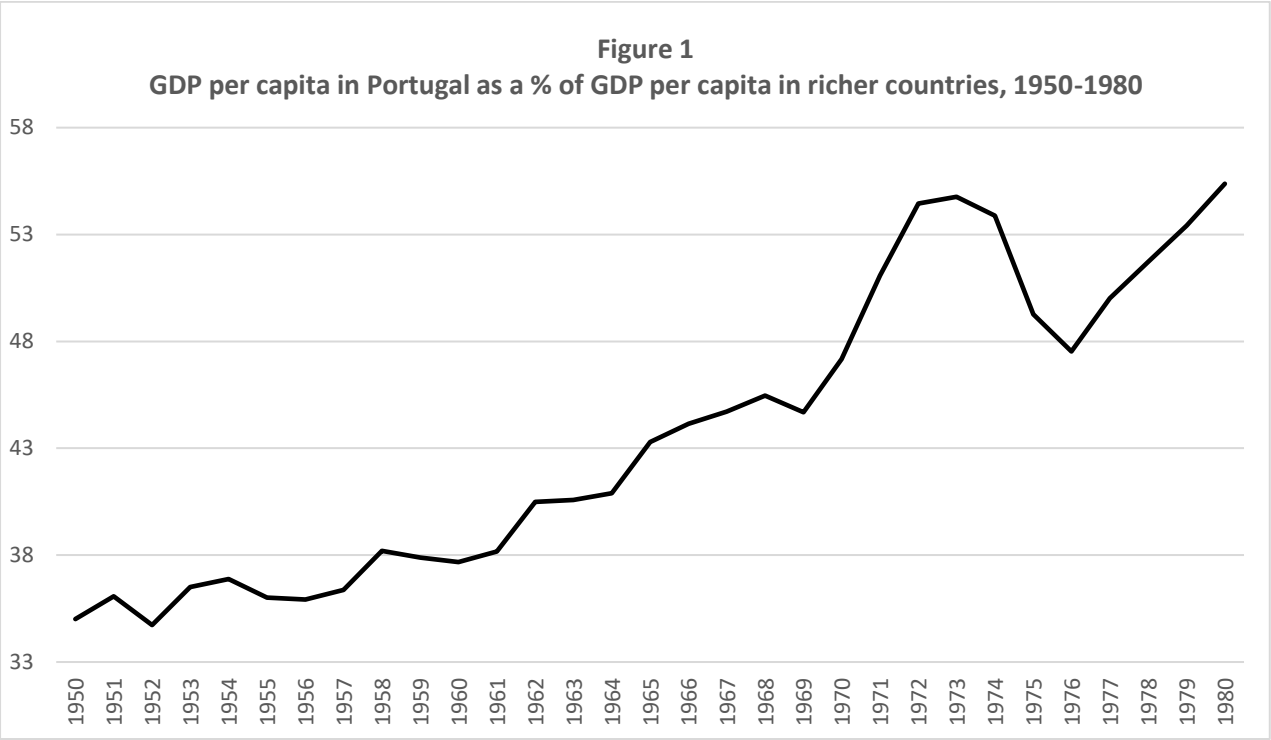
Tables and Figures



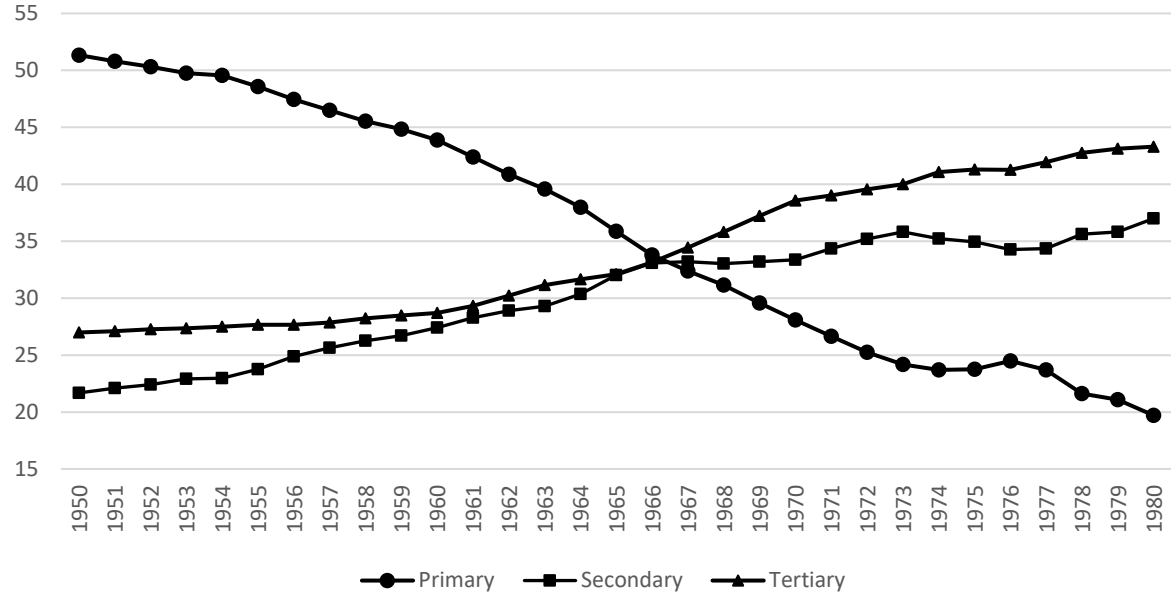
Note: countries represented in the sample: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, New Zealand, Norway, Sweden, Switzerland, UK and US
Sources: Portugal – Amaral (2009); for the other countries: The Conference Board
Unit: EKS 2017 US dollars, converted with 2011 PPP

Table I
GDP per capita, various European countries (average annual growth rates), 1950-1985

	1950-1973	1974-1985
Portugal	5,38	1,60
Austria	4,97	2,32
Belgium	3,56	1,77
Denmark	3,11	1,98
Finland	4,29	2,30
France	4,02	1,77
Germany	5,05	1,99
Greece	6,26	1,68
Ireland	3,06	2,59
Italy	4,97	2,40
Netherlands	3,48	1,32
Spain	5,66	2,02
Sweden	3,23	1,15
Switzerland	3,10	0,69
UK	2,43	1,75

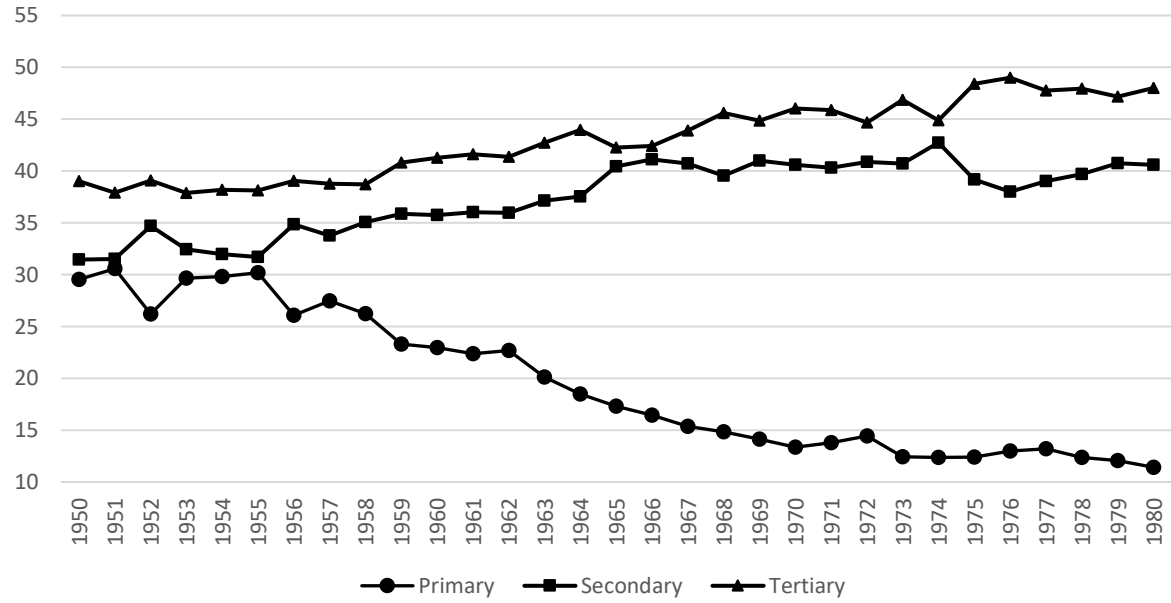
Source: The Conference Board, except Portugal: Amaral (2009)

Figure 2
Structure employment, Portugal, 1950-19850(% overall employment)



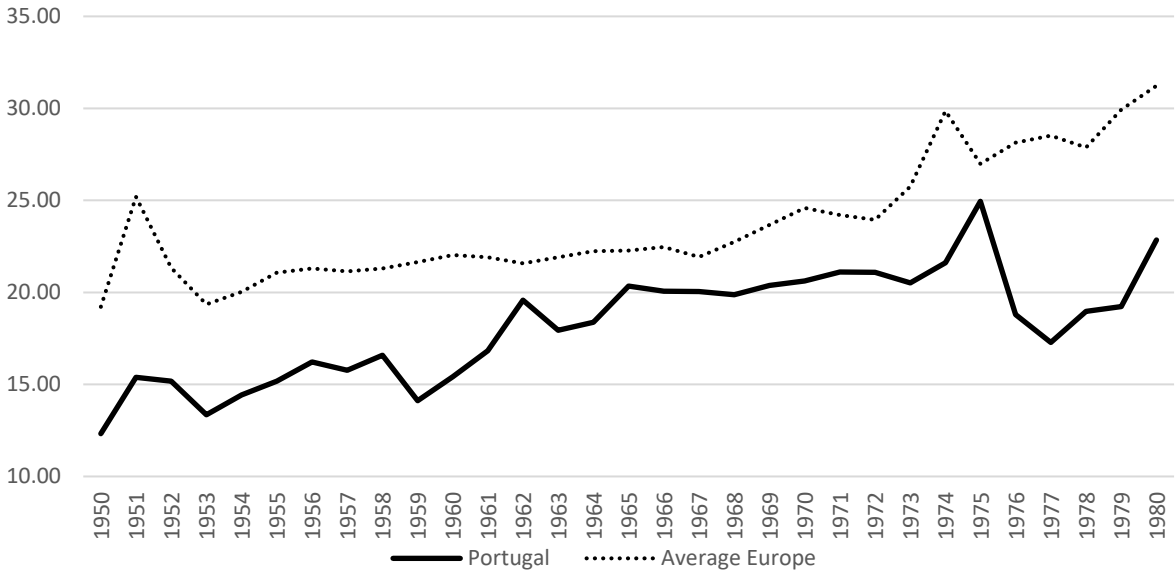
Sources: calculated by the authors using Nunes (2001) and Pinheiro (1997)

Figure 3
Structure economy, Portugal, 1970-1985 (% GDP)



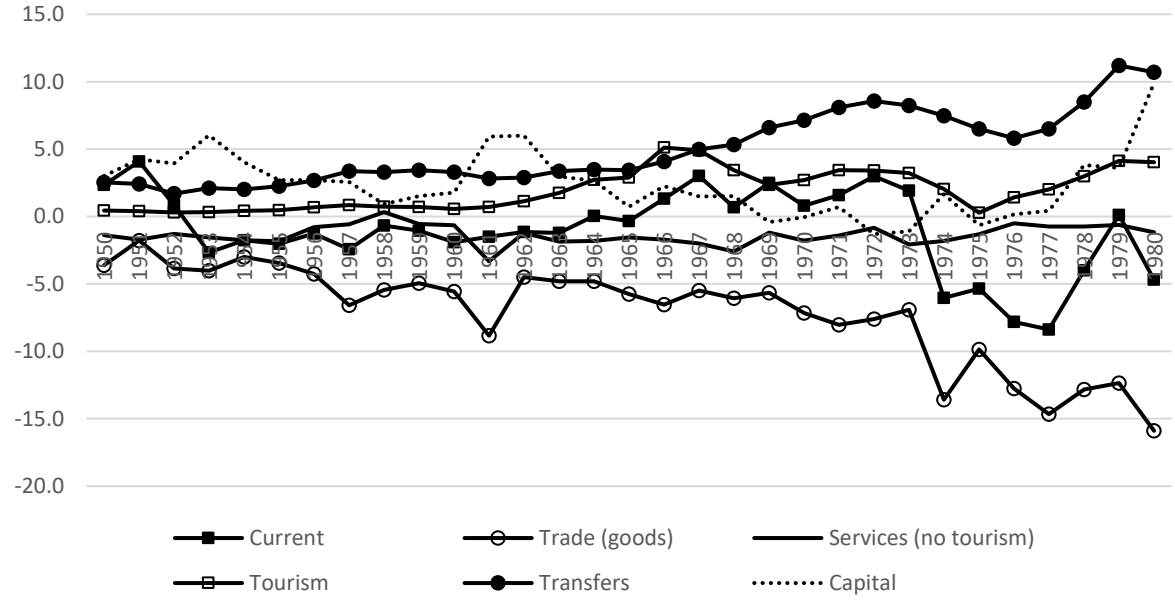
Source: 1950-1952 – Batista *et al.* (1997); 1953-1980 – Pinheiro (1997)

Figure 4
Openness, Portugal and average European countries, 1850-2017



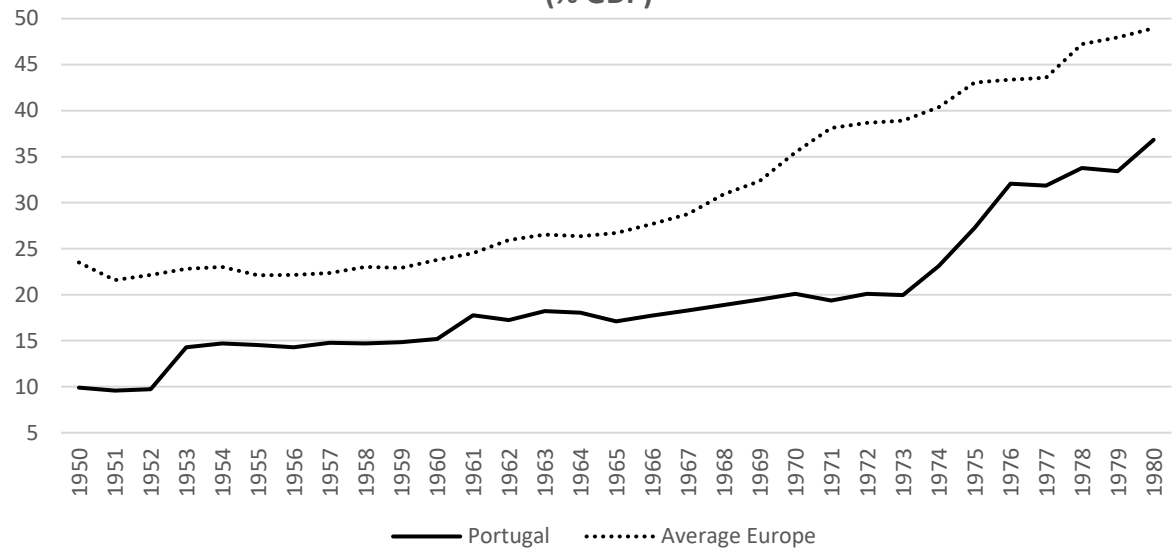
Notes: Openness is measured as 1/2x(exports+imports)/GDP; European countries in the sample = EU-15
Sources: Portugal – Pinheiro (1997); Average European countries: OECD.stat

Figure 5
Balance of payments, Portugal, 1950-1980 (% GDP)



Source: Pinheiro (1997)

Figure 6
Public Spending, Portugal and average European countries, 1950-1980
(% GDP)



Source: Portugal: Pinheiro (1997); other countries: Mauro *et al*. (2013)
Note: the countries in the sample are the UK, Austria, Belgium, Denmark, France, Germany, Netherlands, Norway, and Sweden

Table II
GDP per capita, Portugal (annual growth rates), 1970-1985

1970	9.21
1971	11.07
1972	10.29
1973	4.87
1974	0.24
1975	-9.18
1976	-0.24
1977	7.18
1978	5.43
1979	6.71
1980	4.44

Source: Amaral (2009)

Figure 7
GDP per capita Portugal vs. Synthetic Portugal, treatment 1974

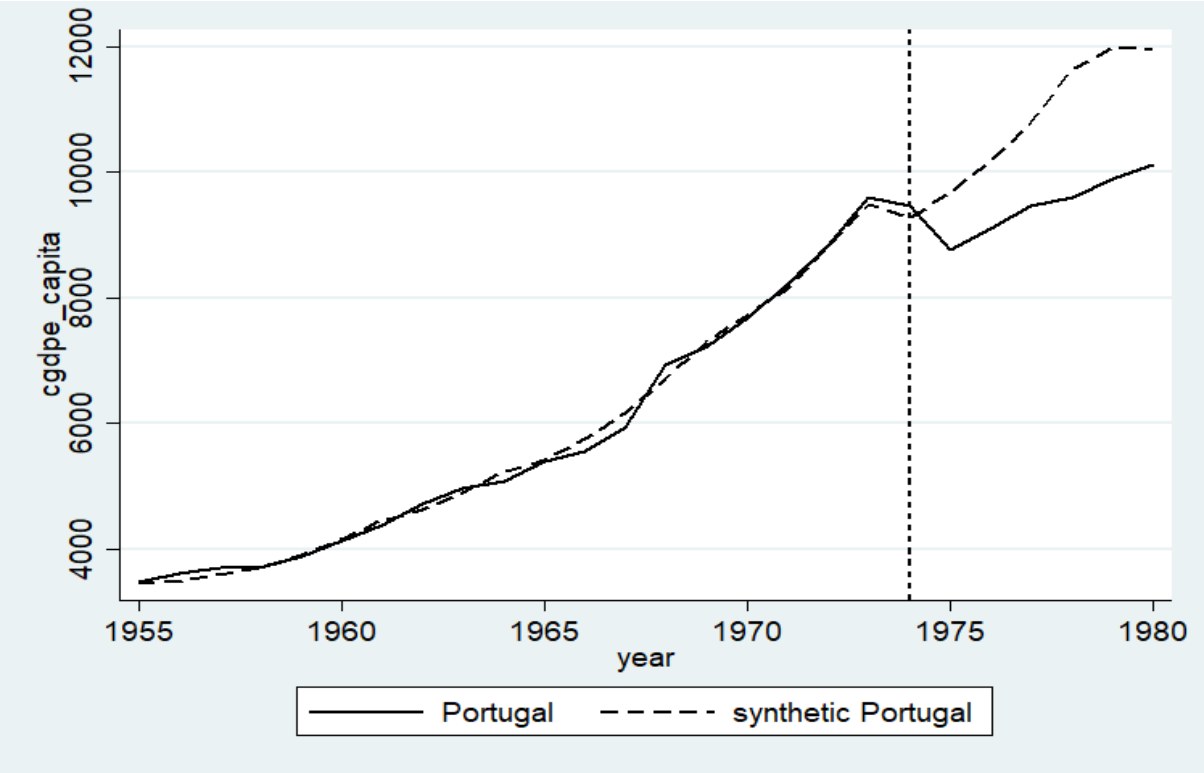


Table III
Country Weights for Synthetic Portugal, GDP per capita

Country	Synthetic Control Weight
Australia	0
Austria	0
Belgium	0
Canada	0
Denmark	0
Finland	0
France	0
Germany	0
Greece	0.07
Ireland	0.317
Israel	0
Japan	0.254
Netherlands	0
New Zealand	0
Norway	0
South Korea	0.359
Spain	0
Sweden	0
Switzerland	0
United States	0

Table IV
GDP per capita Predictor Means for the Pre-treatment Period (1955-1973)

	Portugal	Synthetic Portugal	OECD pool
Consumption Per Capita	4017.888	3568.905	7132.423
Investment Per Capita	1265.528	1513.959	3832.791
Government Consumption Per Capita	618.7027	840.5616	1791.256
Trade Openness	1419.383	1856.473	4932.29
Real Effective Exchange Rate	0.9513424	0.9773902	1.010556
TFP	0.8502527	0.6879624	0.7235818

Table V
P-values for in-space placebo effects, GDP per capita Portugal vs. Synthetic Portugal, 1975-1980

Year	p-values
1975	0
1976	0
1977	0
1978	0
1979	0
1980	0
Overall	0

Figure 8
In-time placebo GDP per capita Portugal vs. Synthetic Portugal, 1964 as treatment

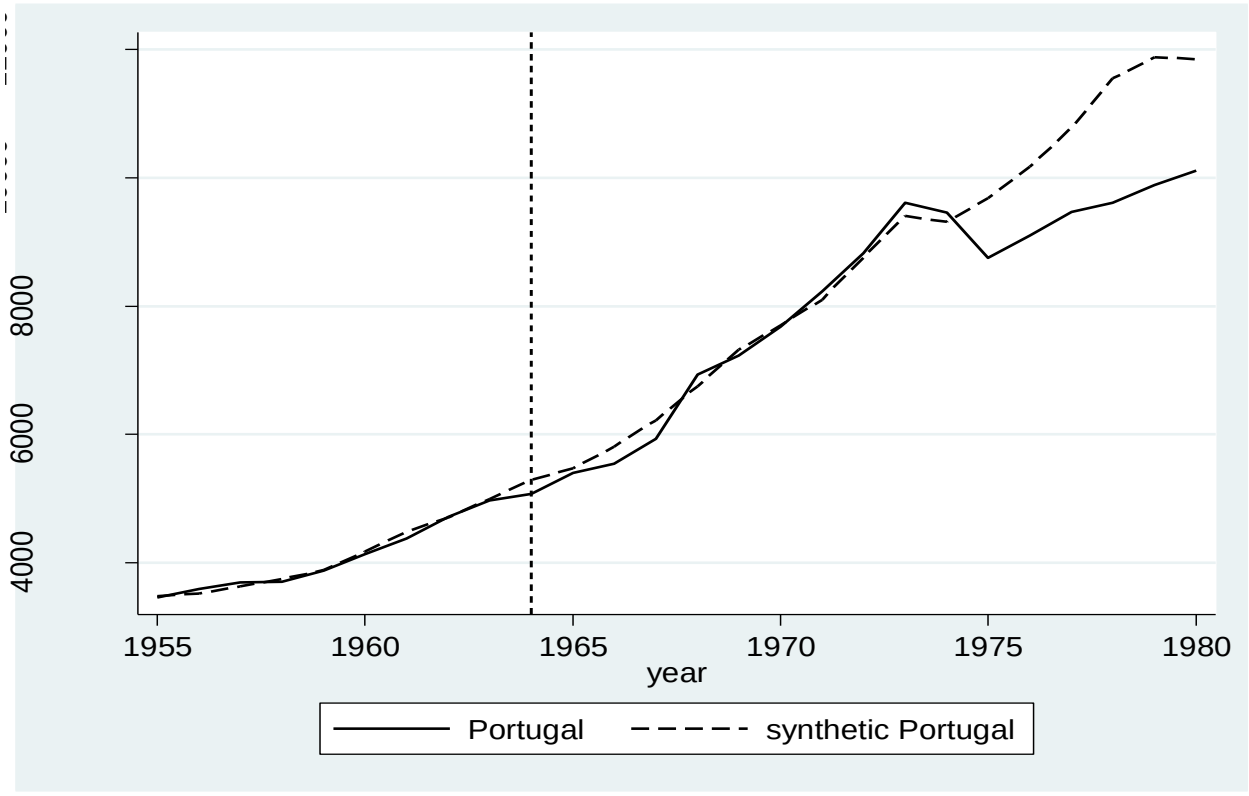


Figure 9
Current Account in Portugal vs. Synthetic Portugal (% GDP), treatment 1974

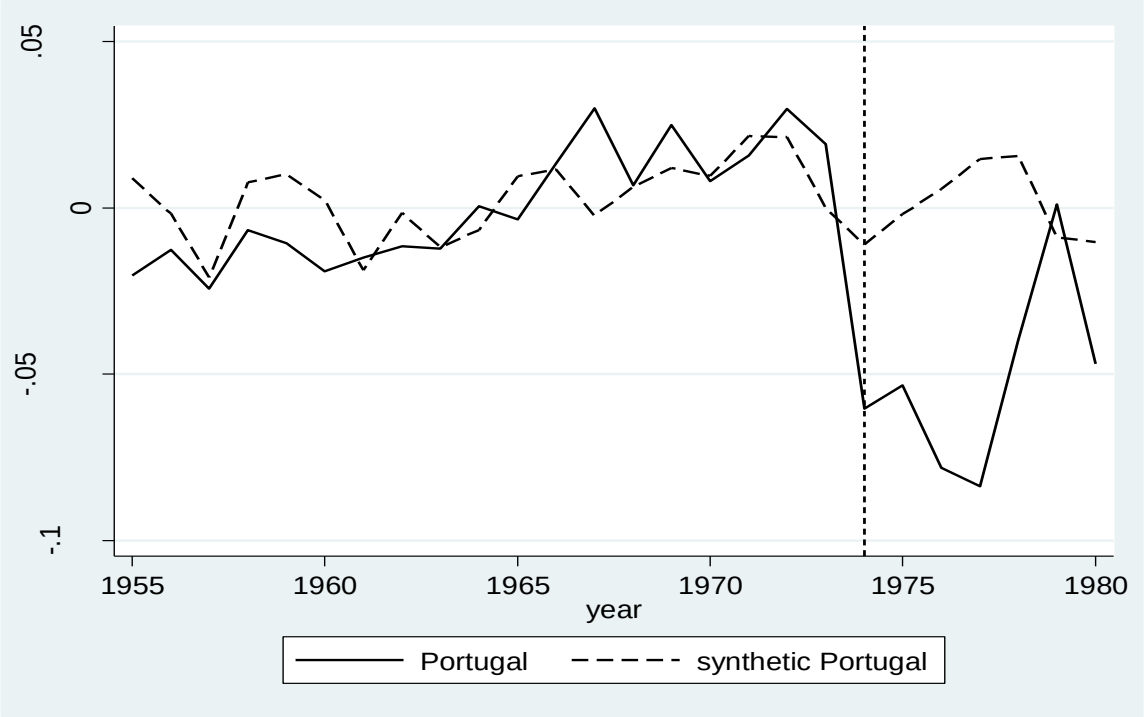


Table VI
Country Weights for Synthetic Portugal, Current Account

Country	Synthetic Control Weight
Australia	0.026
Belgium	0
Canada	0
Denmark	0
Finland	0
France	0
Germany	0
Japan	0.842
Netherlands	0
Norway	0.006
Spain	0.126
Sweden	0
Switzerland	0
United States	0

Table VII
Current Account Predictor Means for the Pre-treatment Period (1955-1973)

	Portugal	Synthetic Portugal	OECD pool
Consumption Per Capita	4017.888	4370.91	7954.383
Investment Per Capita	1265.528	2739.907	4492.512
Government Consumption Per Capita	618.7027	1305.138	1854.091
Exports Per Capita	506.883	614.4739	2628.839
Imports Per Capita	912.5002	909.3655	3129.607
Exchange Rate	0.0352388	0.0351745	0.3525189
Real Effective Exchange Rate	0.9513424	0.9224208	0.9967622

Table VIII
P-values for in-space placebo effects, Current Account Portugal vs. Synthetic Portugal (% GDP), 1975-1980

Year	p-values
1975	0.1428571
1976	0.0714286
1977	0.0714286
1978	0
1979	0.5
1980	0.2142857
Overall	0.0714286

Figure 10
In-time placebo Current Account Portugal vs. Synthetic Portugal (% GDP), 1964 as treatment