The impact of regulations and institutions on competitiveness and productivity: the case of Greece

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Abstract

The discussion on the causes of the Greek crisis has focused on the twin deficits: the fiscal and current-account deficit. The objective of this paper is to examine how the twin deficits came about implicating structural features of the Greek economy which contributed to the loss in competitiveness. The paper uses evidence on labor market outcomes and business demographics together with detailed information on product and labor market institutions to support the argument that these institutions played a role in the premature deindustrialization of the economy and in shaping a structure binding the economy to a low productivity level. These structural characteristics are related not only to cost elements but also to the capacity of the economy to deliver.

1. Introduction

Most of the discussions on the causes of the Greek crisis have focused on the features that made the country vulnerable when the global financial crisis hit in 2007-8. The twin deficits: the fiscal and current-account deficit are identified as such (Kouretas and Vlamis, 2010, Manessiotis, 2011; Noyer, 2015; Santacreu, 2015). How did the twin deficits come about? Antzoulatos (2012) and Feld *et al.* (2016), *inter alia*, argue that these developments suggest state failure in regulation and supervision. Others (Rebooting Consensus Authors, 2015) point the finger to unfettered markets. A third group, however, suggests that the Greek crisis was an accident waiting to happen as market signals for adjusting wages, prices and productivity were ignored (Belke and Gros, 2017; Ioannides and Pissarides; 2015; Taylor, 2015).

This paper falls in the third strand of the literature identified above and presents characteristics of the Greek economy which contributed to the loss in its competitiveness. The aim is to *identify* labor and product market *institutions* that seem to have contributed to the formation of the economic imbalances. These institutions are not a recent feature of the Greek economy. In the past, however, they had not created visible obstacles as Greece was not part of a monetary union and the option of currency devaluation was available. The focus of the discussion is on the interaction between

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labor and product market institutions. More specifically, the paper elaborates on features associated with the low productivity of the Greek economy (composition of economic activity, high share of self-employed, small size of firms, limited product market competition, lack of appropriate workforce skills) and on the wage-setting mechanisms (multi-layer bargaining, extension mechanisms) behind the limited responsiveness of wages to unemployment (as pointed out by amongst others Belke and Gros, 2017).

The mechanisms through which institutions affect the economy have been investigated theoretically by *inter alia* Blanchard and Giavazzi (2003) and Joskow and Rose (1989). The main idea is that product market institutions impact on the intensity of economic activity while labor market regulation influences the distribution of rents between employers and employees. Furthermore, as stressed by Aiginger and Rodrik (2020) and Rodrik (2016), institutional quality can also affect the composition of economic activity which in turn affects the dynamism of a country's economy. Finally, social partnerships and the industrial relations climate also impact on the size and composition of economic activity (Mueller and Philippon, 2011).

The reference time is the period between 1996 and 2007. The starting point is the year in which Greece began preparing for entry into the euro area. The end point is the year in which the global financial crisis hit.

During the period 1996 to 2007, Greece grew at a rate considerably above the euro area average. This growth was accompanied, however, by a considerable loss in competitiveness as manifested by the large fiscal and current account deficits at the time the global financial crisis hit. Between 1996 and 2007 nominal and real interest rates in Greece decreased significantly and the working-age population increased as immigrants flowed into the country at high and accelerating rates. The above two factors contributed to the surge in activity; the average annual growth rate stood at 3.9%. But this was an expansion based on sectors sheltered from international competition: the construction sector and wholesale and retail trade sectors expanded at rates higher than average (5.0% and 7.2% respectively). Private sector investment expenditure was significant (around 19% of GDP) although a large share, especially in the first half of the 2000s, was concentrated in housing.

Nominal unit labor cost increased by 4.2% per year in Greece. In Germany, Greece's third largest export destination, nominal unit labor cost decreased between the two years. In a monetary union and given intense world-wide competition, regular divergences in nominal unit labor cost developments are difficult to sustain. The combined current and capital account deficit ballooned from around 4% of GDP in 1996 to 12.6% in 2007.

These imbalances were also reflected in the unemployment rate which despite having decreased, did not fall anywhere as much as expected given the expansion in activity. The unemployment rate stood at 8.3% in 2007 from 10.3% in 1996.

The sequel is by now well known: a severe sovereign crisis compounded by a deep recession resulted in Greece producing around 24% less output in 2018 compared to 2007. The unemployment rate peaked at 27.5% in 2013 (26.5% in 2014, 24.9% in 2015). In the absence of an effective safety net, poverty also increased (Koutsogeorgopoulou *et al.*, 2014).

The above developments reflect the lack of an industrial strategy for the country's future.

The paper is organized as follows: Section 2 documents the low and deteriorating level of competitiveness of the Greek economy. Section 3 outlines the thread of the argument used in the paper. Section 4 focuses on labor market rigidities that could dampen the responsiveness of wages to changes in economic performance. Section 5 then discusses potential reasons for which productivity in the Greek economy has been lagging that of other developed countries. Section 6 next outlines the elements a strategy for the future could include to address Greece's competitiveness and productivity issues. Finally, Section 7 summarizes and concludes.

The analysis in the paper is based on aggregate macro and sectoral-level data and on information on the institutional framework. Data on the latter are derived from a firm-level survey on wage and price setting practices conducted by the Bank of Greece (BoG) in 2007/8, as part of an ESCB/Eurosystem research initiative on wage and price setting procedures (the Wage Dynamics Network, WDN). and from the OECD Product Market Regulation (PMR) database.

2. Developments in price, cost and structural competitiveness of the Greek economy

Fagerberg (1988) defines international competitiveness as the ability to compete in price (price and cost competitiveness), in technology and in delivery (capacity). Price and cost competitiveness are usually measured in terms of the effective exchange rate while several indices are used to proxy capacity.

From the mid-1990s and until 2000, Greece followed stability-oriented economic policies which set the stage for Euro Area (EA) entry (IMF, 2001). Policies were effective in reducing the rate of inflation and this is mirrored in the improvement of competitiveness as measured by the ECB harmonised competitiveness indicator (real effective exchange rate) deflated by the consumer price index (Figure 1). Competitiveness indicators deflated by either the unit labor cost or the GDP deflator did not improve as much (Figure 1) but nevertheless these also picked up for part of this period. For a number of reasons - including the nature of the products exported by Greece, the sunk costs firms incur before starting to export, the uncertainty around the exchange rate - Greek exports do not respond swiftly to changes in the real exchange rate (Belke and Kronen, 2016). As a result, and given that during this period domestic demand for imports (for both consumer durables and capital goods) increased while exports did not rise to the same extent, the current account deficit deteriorated. Early in the 2000s analysts (see, *inter alia*, IMF, 2001) expressed concerns that the widening of the current account deficit, despite it being only a proximate gauge of domestic imbalances in a monetary union, suggested a trend of deteriorating competitiveness. As it turned out, following entry into the euro area, Greek international competitiveness weakened (Figure 1) both because of the appreciation of the euro (between 2000 and 2007 the euro appreciated by over 48% against the US dollar) as well as due to insufficient adjustment in the domestic economy. The strength of the euro should have led to internal devaluation – that is a decline of domestic prices and wages. Instead wage costs continued rising at rates higher than productivity.

Figure 1: Harmonised competitiveness indicators for Greece (1999=100)
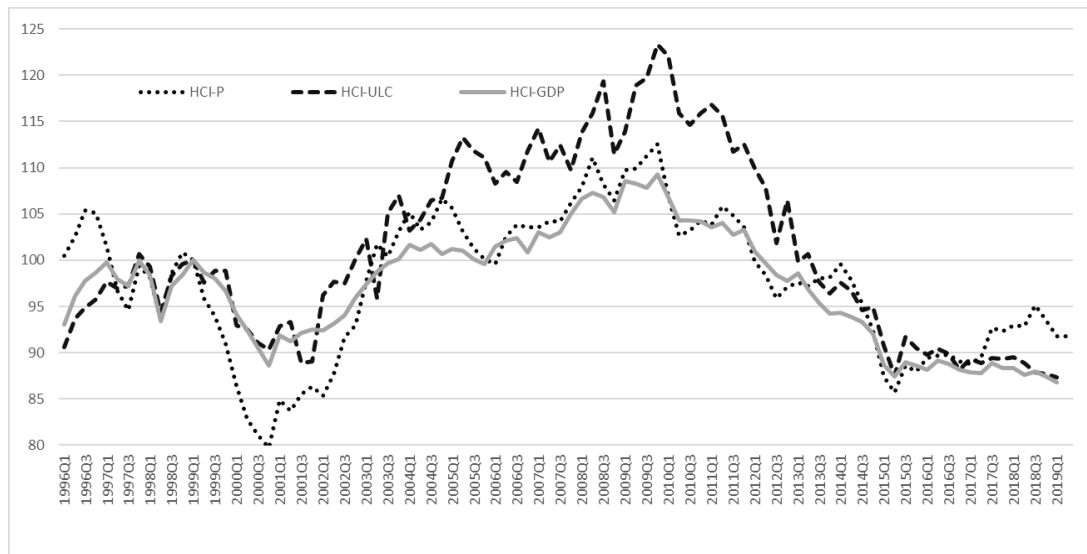
If we delve a little deeper on ULC we find that between 1996 and 2007 the annual rate of increase of the nominal ULC in Greece was 4.2% compared to 1.3% for the EA-19. The gap between Greece and the EA-19 in the ULC was much wider than the corresponding gap in the rates of inflation (annual inflation rate of 3.5% in Greece vs 2% in the EA-19).

Looking at developments in wages and productivity separately, the picture becomes more complete. The annual rate of increase of real hourly wages in Greece was 3.2% compared to 0.5% in the EA while the corresponding figures for hourly productivity were 2.9% in Greece and 1.4% in the EA. The gap between the change in wages and the change in productivity explain the growth rate in ULC.

Even though productivity in Greece increased at a rate double that in the EA, productivity per hour worked in Greece was at most 60% of the respective EA-19 value. The gap reflects amongst other factors a disadvantage in what Fagerberg calls technology and capacity competitiveness, or what is more often termed structural competitiveness. Greece appears to be lagging and not catching up fast with countries at the frontier as institutional factors (Belke and Kronen, 2016). Indicators such as the World Bank's *Ease of Doing Business* indicator published as part of the *Doing Business* report, illustrate the difference in achievement.

The above provide a succinct picture of the competitiveness position of the country prior to 2007. What we turn to next a presentation of the mechanisms through which institutions can affect economic performance and competitiveness.

3. From institutions to economic performance and competitiveness: a framework for analysis

Before turning to identify in more detail the institutions that hampered labor and product market adjustment and led to the imbalances in the Greek economy, we outline the mechanism that can lead from institutions to economic performance and competitiveness.

Regulations in the product market - such as for example, procedures and restrictions in setting up or closing businesses, environmental licensing permissions, price controls, state control of businesses, taxation - are established to protect the environment, public finances, consumers and businesses alike. In several instances, however, especially if technologies change and these established procedures are no longer necessary or efficient, they can cause more harm than good by restricting economic activity, protecting inefficient businesses, sheltering from competition and leading to a misallocation of valuable resources. Such regulations can thus lead to *inter alia* a move away from tradeable sectors, which are exposed to international competition, to non-tradeable sectors mostly services. This can in turn lead to deindustrialization. While deindustrialization is to some extent inevitable - due to technological progress - the timing of it as well as the sectors that are to replace manufacturing shape future economic performance. Deindustrialization that takes place before the level of per capita income reaches the level it had when industry peaked in developed countries is likely to be premature (Rodrik, 2016) as new dynamic sectors have not yet been established to replace it. Dynamic sectors need human capital and this takes time to form. That is why the education system must be leading the industrial policy.

Regulations can also impact on the size of firms – firms might wish to remain small either to avoid having to deal with the regulations or because being smaller they can avoid complying with the regulations or because they wish to avoid confrontations

at the workplace. Finally, incumbent firms could try to exploit these regulations to their advantage by, for example, lobbying in favor of retaining them to prevent the entry of other firms in the market.

Regulations that increase the costs of the factors used in the production of tradeable goods – labor costs and energy – more than productivity and over and above what is the case for competitor countries imply a loss in competitiveness. Certain labor market institutions, more specifically, can increase wages of insiders without considering either those not currently in the labor market (the outsiders) or the loss in the country's international competitiveness. Unemployment is the result of low productivity – for the reasons explained in the previous paragraph – and increases in labor costs.

4. Wage setting institutions

In 2008 and 2009 even though the Greek economy was already in recession (-0.3% and -4.3% respectively), the minimum wage increased both in nominal and in real terms. The minimum wage declined in real terms from 2010 having increased by 2% in 2008 and 4.5% in 2009. In nominal terms, the minimum wage continued increasing until 2011 inclusive. These developments suggest that the labor market was unresponsive to real economic conditions (see, *inter alia*, Belke and Gros, 2017). The institutions that permitted this decoupling are the subject of this section.

4.1. Main features of collective bargaining

Between 1990 and 2011 collective bargaining in Greece took place at multiple and overlapping levels. At the most centralized level, social partners signed the National General Collective Labor Agreement (NGCLA). The NGCLA determined a floor for wages in sectoral, occupational and company-level agreements. NGCLA negotiations took place approximately every two years. Minimum wages were set both for manual workers and for salaried workers. Even within these two groups, however, there was no unique minimum wage; rates varied by tenure and marital status.

Automatic wage indexation was abolished in 1990. However, until 2002 inclusive, in those instances in which CPI inflation turned out higher than expected, NGCLAs typically provided for a correction (with retroactive application) of the agreed minimum wage increase. While the government did not participate in the negotiations, the

Minister of Labor could extend sectoral and occupational-level agreements to all companies in a sector and to all individuals within an occupational group provided parties to the agreement represented at least 51% of the individuals in the sector or occupation. At the firm-level coverage was complete; collective agreements were extended to the entire workforce of a firm independently of whether workers were unionized. Public sector wages were set in the budget annually, were ratified by law and served, to a large extent, as a lead for agreements in the private sector (Demekas and Kontolemis, 2000).

## 4.2. Wage developments - macro rigidities

The provision for setting the minimum wage following negotiations between the social partners was designed as an improvement over the system prevailing up to 1990, in which the government's role was more extensive and distortionary (ILO, 1978; OECD, 1993; Ioannou, 2012). Since the end of the 1990s, however, this system of setting the minimum wage together with multilevel bargaining and extensions of agreements appeared to "fail" the country. The reasons are related with the wage-setting mechanism itself but also with the way this was operationalized in a low-inflation environment within the context of an ever more rigid labor law (Lixouriotis, 2011) within a monetary union. Multilevel bargaining with no consideration of the country's competitive position together with an asymmetric arbitration procedure (only unions were permitted recourse to arbitration) were among the faults of the mechanism. The lack of independence from party politics, as unions preserved their ties to political parties, while the government also retained a role by providing administrative extensions of collective agreements and the lack of transparency of the arbitration procedure (Ioannou, 2011) are considered as faults in operationalization. As a result, the minimum wage increases did not take account of the continuous deterioration of the country's competitive position (Figure 2) and the fact that due to the participation in a monetary union, internal devaluation was necessary.

Figure 2: Cumulative change of the real minimum wage and the real (GDP deflated) effective exchange rate
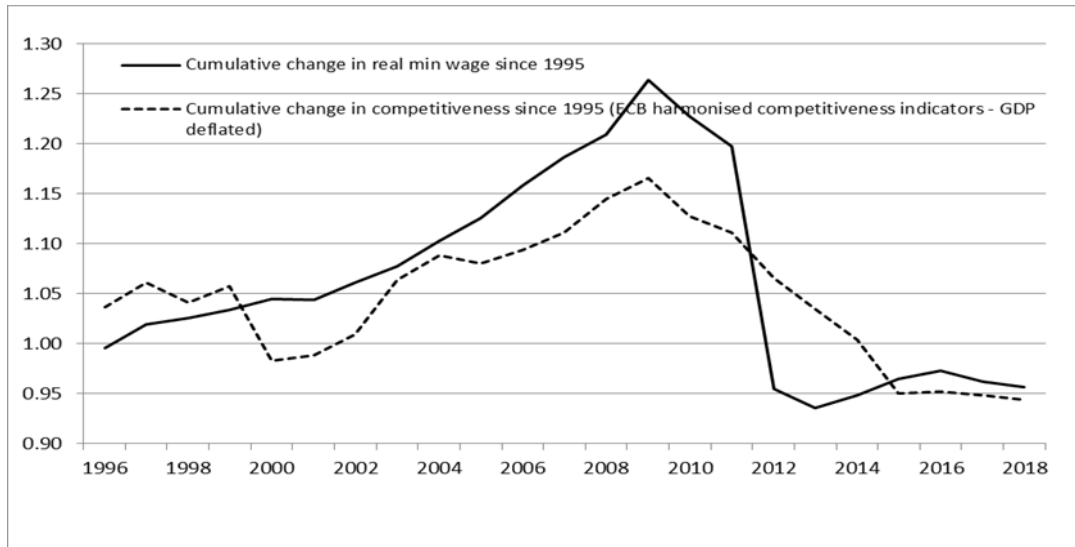
Sources: NGCLAs (for the minimum wage), ELSTAT (for CPI index), and ECB for the harmonized competitiveness indicator.

Figure 3: Real consumption and real production wage (1995=100)
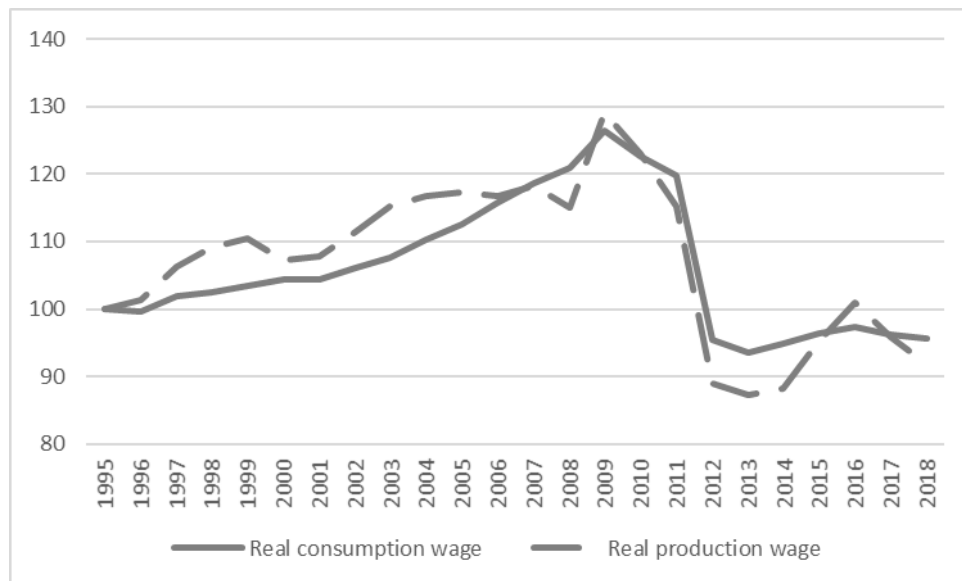
Sources: NGCLAs for minimum wage; ELSTAT for price indices

Between 1995 and 2005 the real consumption minimum wage i.e. the minimum wage deflated by the consumer price index - which is the variable unions are interested in - increased by less than the real product minimum wage i.e. the minimum wage deflated by the producer price index (here producer price index for manufacturing). The

wedge between the two (Figure 3) reflects lack of product market competition and is perhaps the explanation of why employment - which is determined by the product wage - did not grow by as much despite the high growth rates of the economy. The minimum wage was binding; over the period 1996-2007 the ratio of the national minimum to the median wage (Kaitz index) in Greece stood at around 0.5, towards the upper end compared to other EU and OECD countries.

Sectoral-level unions did not effectively abide only by the level of the national minimum but also regarded the *rate of increase* of the national minimum as an acceptable increase. This practice resulted in a tenuous association between sectoral wage increases and sectoral productivity.[1]

The argument in favor of extensions of sectoral collective wage agreements to all firms in a sector, independently of whether they participate or not in the wage negotiations, is that this creates a level playing field and thus competition can take place on other matters besides labor costs. However, it is possible that by agreeing to pay a high wage, incumbents manage to prevent the entry of new firms in the sector. Recent empirical literature argues that extensions can lead to lower employment (Murtin *et al.*, 2014 and Martins, 2020). The literature identifies two conditions for extensions to cause fewer job losses: first, firms should be allowed to opt out from sectoral agreements and second, there should be adequate representation of firms at the bargaining table (Boeri and Burda, 2009; Jimeno and Thomas, 2013). The first condition did not hold in Greece while there is also some evidence that participation in sectoral wage negotiations fell short of being representative.

The above suggest rigidities at the macro level. There is, however, also evidence of wage rigidities at the micro-level to which we turn to next.

4.3. Wage developments – micro rigidities

Firm-level evidence from a survey conducted by the Bank of Greece confirms the existence of wage rigidities. The survey was conducted in the period December 2007 - March 2008 and was part of the ESCB/Eurosystem Wage Dynamics Network (WDN).

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[1] Evidence from the 2006 Structure of Earnings Survey (SES) suggests that the sectoral minima are also binding.

The questionnaire contains a number of factual questions on bargaining levels and procedures, workforce features (e.g. number of employees, skill composition, contract-types, working arrangements, remuneration principles etc), price-setting strategies, the share of labor costs in total costs and product market competition faced by the firm. The survey was qualitative in nature.[2,3]

The survey results provide some support of wage inflexibilities. More specifically the survey finds: little flexibility in remuneration methods;[4] binding national, sectoral and occupational minima (as also found by Anagnostopoulos and Siebert, 2015); inadequate representation in wage negotiations at levels higher than the firm; no account of labor market conditions when hiring new personnel and limited wage freezes. When asked which factors prevented wage freezes even though these might have been necessary to contain labor costs, institutional factors appear to be of paramount importance followed by factors related to productivity and morale (Table 1).

Table 1: Factors preventing firms from keeping wages flat (% of firms)

Factor	Not important	Somewhat important	Very important	Total
Collective agreement	11.8	11.0	77.2	100.0
Negative impact on employees' productivity	5.3	21.6	73.1	100.0
Negative impact on employees' morale	7.6	21.1	71.3	100.0
Implicit contract with employees	24.1	34.1	41.8	100.0
Industry wage differentials	23.0	36.5	40.5	100.0
Endangering the firm's reputation	29.8	36.2	34.0	100.0
Difficulty in attracting workers	27.6	52.0	20.4	100.0

Source: BoG WDN survey data – employment weighted data.

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[2] Details about this survey can be found in Druant *et al.* (2012).

[3] A total of 444 firms replied to the questionnaire. While the sample size is within the bounds of other similar surveys, the response rate is low (6.6%) which is, however, not unusual for surveys in Greece. As the survey aims to capture objective strategies it is not clear why firms would have any strategic reluctance to respond thus mitigating concerns about non-response bias.

[4] Bloom and Van Reenen (2010) also report that Greek firms have the lowest score amongst the countries they survey in incentives management.

Firms were also asked what they would do in the event of a hypothetical scenario of a permanent slowdown in demand. Firms respond being more likely to fire unskilled workers (on fixed-term and indefinite length contracts) rather than freeze wages, contain wage increases or adjust working time (Table 2). The rapid increase of the unemployment rate in the initial stages of the recent crisis combined with continuing wage increases suggests that the replies to the hypothetical scenario might not be far removed from practice.

Table 2: Ways to contain operating costs in the event of a permanent demand shock

Procedure	Unskilled	Skilled
Reduction in the number of employees on indefinite length contracts	25.6	21.3
Reduction in the number of employees on fixed-term contracts	21.9	10.0
Freezing wages or contained wage increases	22.1	25.4
Working time adjustment	18.9	22.1
Reduction of flexible labor cost components (bonuses)	10.1	17.2
Reduction of other operating costs	1.4	4.0
Total	100.0	100.0

Source: BoG WDN survey data – employment weighted data.

The above rigidities apart from reducing the speed of adjustment of wages to economic developments also suggest lack of dialogue between employers and employees. If employers and employees would sit and discuss with an eye on long-term economic prospects, they would have concluded against wage increases not aligned with productivity and in favor of capital investments to prevent a derailment in competitiveness and the huge increase in unemployment and standards of living (Aiginger and Rodrik, 2020).

5. Looking behind the productivity gap of the Greek economy

The lower productivity in Greece compared to that in the frontier economy reflects *inter alia*: the composition of economic activity; business demographic factors; shortcomings of the education system; management practices. We argue that these features are potentially not independent of the prevailing product market institutions.

5.1. Composition of economic activity

Greece, compared to the EA-19, has a much larger share of output in low-productivity sectors such as the Primary Sector, Trade, Accommodation and Restaurants sectors (Figure 4) at the expense of manufacturing. In fact, the share of manufacturing is only about a tenth of total value added in Greece whereas it is around 17% in the EA-19. Manufacturing is important for economic growth for amongst other reasons because it generates innovative products and processes thus stimulating growth further and also because, due to the fact that it is exposed to international competition, it converges at greater speed and unconditionally to the country at the frontier (Rodrik, 2013). In addition, as argued by Olney and Pacitti, 2017 manufacturing is in general less susceptible to business cycle fluctuations. Note, in fact, that during the recent economic crisis Greek manufacturing value added declined by less than the value added in most service sectors.[5]

The share of manufacturing in total value added has been on a declining trend in Greece since 1987. Greece appears to have experienced what Rodrik (2016) calls "premature deindustrialization" – countries reach the peak in their share of manufacturing well before the per capita income has risen sufficiently. Rodrik estimates that prior to 1990 the countries that had gone "…through a proper experience of industrialization" started deindustrializing when their per capita income was around 47 thousand USD. Post-1990, on the other hand, countries started deindustrializing when their per capita income was only around 20.5 thousand USD. In 1987, when the share of manufacturing peaked (15.2%) in Greece, the per capital income was only 18.3 thousand USD. Manufacturing in Greece was hit by the increase in unit labor costs and companies decided to relocate to neighboring Balkan countries (Belke *et al.*, 2019).

However, even if we assume that Greece had the structure of economic activity of the EA-19 it would still lag the productivity levels of leaders. This becomes clear from Figure 5 which depicts productivity (value added per hour of work) in each of the industries used in Figure 4 in both Greece and the EA-19; in all sectors productivity in

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[5] Between 2007 and 2016, according to Eurostat data, the volume of value added declined by 33.6% in Manufacturing; 60.8% in Construction; 37.5% in Trade, Transport, Accommodation and Food Service Activities; 40.7% in Information and Communication Services; 23.2% in Finance and Insurance; 46.9% in Professional services and 28.8 in Arts and Entertainment. Value added of the Real Estate Services sector *increased* in the same period by 29.8%.

Greece is lower than in the EA-19. [6] Potential explanations of why even within each broad sector productivity is lower in Greece than in the EA-19 include the make-up of these broad sectors. So, for example, manufacturing is dominated by relatively low growth, low technology, low innovation subsectors, such as food and textiles ((Anagnostaki and Louri, 1995; Heymann and Vetter, 2013 and Alcidi *et al.*, 2016)), contrary to the big EA-19 countries.

Figure 4: Share of each sector in total value added, Greece and the EU-28, 1996-2007

1 Industry includes manufacturing and energy.
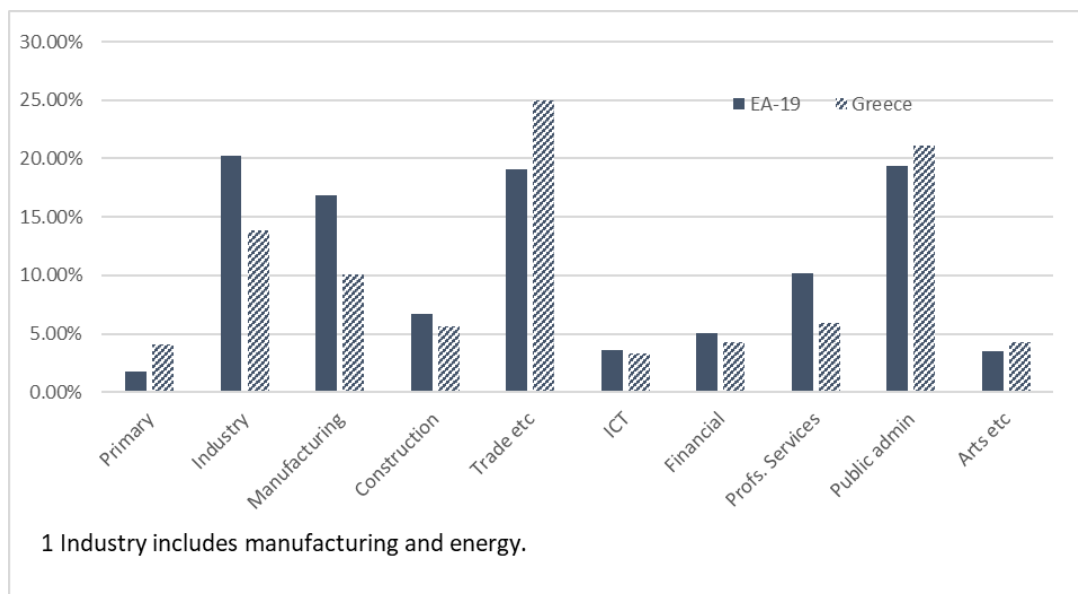
Source: Eurostat, National Accounts Database, accessed 2ⁿᵈ Aug. 2019

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[6] The Real Estate sector has been excluded as its value added is influenced to a large extent by the prices of real estate, which fluctuate largely, while the number of individuals working in the sector is small. Thus, when real estate prices increase a lot it appears that productivity in the sector increases significantly.

Figure 5: Value added per hour of work by sector: Greece and the EA-19, 1996-2007
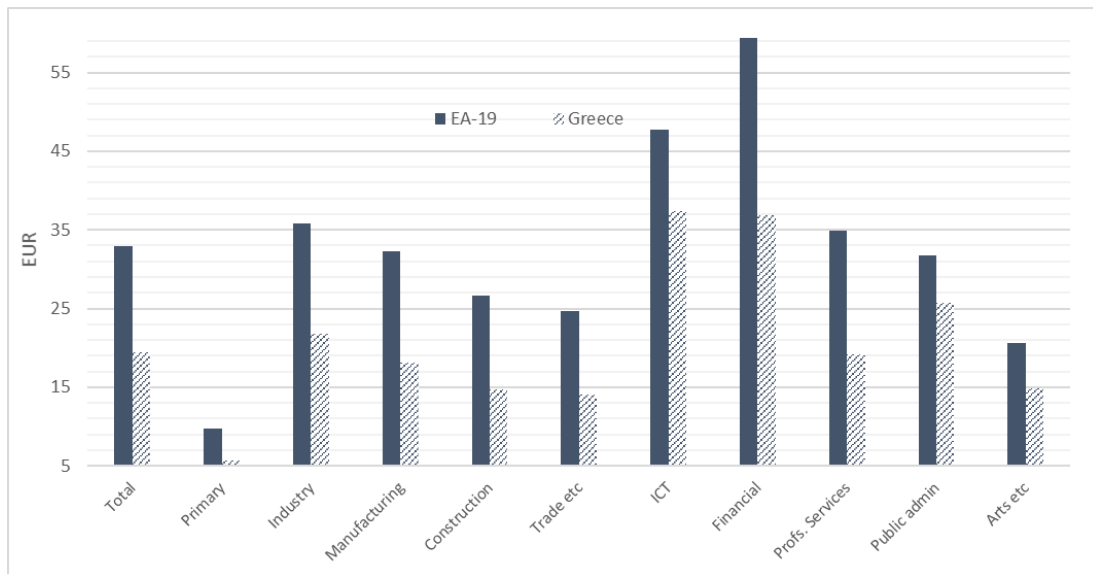
Source: Eurostat, National Accounts, accessed 2nd Aug. 2019

5.2. Business demographics and self-employment

A distinctive feature of the Greek economy is that it is populated by a remarkably high share of small enterprises; over 90% of enterprises in all sectors have less than 10 employees. As a result, there is an extremely high concentration of total employment in small enterprises; in manufacturing and services around 45% and 60% of employment respectively is employed in firms with fewer than 10 employees.

In fact, some firms are so small that they employ only the owner – entrepreneur (self-employed individuals). In 2007 for the age group 20-64 the self-employed, without considering unpaid family members, stood at 28.9% of all employed. If we widen the definition of self-employment to include unpaid family members, this percentage rises to 34.7%. The corresponding figures for the EU-28, excluding Greece, are 14.4% and 15.9% respectively. In fact, the self-employment rate is highest in Greece than in any other EU-28 country. The share of self-employment in the business sector is higher than for the whole economy as there are no self-employed in the public sector. The self-employed (defined to include unpaid family members) account for 45% of the business sector workforce or around 37% of the non-farm business sector workforce.

The individual and productive determinants of self-employment supply in most countries are no different in Greece; self-employment is more popular among men than

women, among older rather than younger individuals and among less educated than more educated individuals (Livanos, 2009).

Self-employment and small firm size provide flexibility and autonomy to the individuals involved (Nickell, 1997). Despite this flexibility, however, a high share of self-employment of small-sized firms have potential negative implications for productivity (Blanchflower 2000; Blanchflower 2004; Pagano and Schivardi 2003).[7]

The hypotheses that have been put forward in the literature to explain the concentration of employment in small firms and the preponderance of self-employment include the composition of economic activity, the tax system and the ease of tax evasion which increases returns to self-employment and to small enterprises, the role of the industrial relations climate in the country (Bronchi 2001; Burtless 2001; Mueller and Philippon, 2011; Torrini, 2005). In addition, the role of financing in shaping firm size cannot be overstated (see Hart and Moore, 1994 and Simintzi *et al.*, 2015). Product market restrictions and certain labor market institutions are thought to also contribute to the extent of self-employment (Torrini, 2005). Finally, *fluctuations* in the rate of self-employment over time are linked to the unemployment rate.

The composition of economic activity in Greece is *not* the main reason behind the higher rate of self-employment in Greece: even if the composition of economic activity was the same as in the EU-28 the rate of self-employment in Greece would still exceed that in the latter.

Barriers to entrepreneurship, on the other hand, are a potential explanation behind the high rate of self-employment. The mechanism is the following: individuals channel their entrepreneurship to small-scale operations which to a certain extent can circumvent product market regulations. In addition, product market regulations obstruct business entry and thus compress job creation (Bertrand and Kramarz, 2002). The absence of jobs pushes individuals to self-employment. Three pieces of evidence are consistent with the above:

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[7]. Recent business organization and sociological research has been focusing on the `comeback' of self-employment. One strand of research questions whether the relationship between economic development and self-employment is U shaped (Wennekersa *et al.*, 2010). The argument goes as follows: in the initial stages of a country's development self-employment appears to decline. Past a certain stage of development, however, there is an increase in the rate of self-employment as individuals look for new ways to channel their innovations.

First, a positive association between the OECD Product Market Regulation Index (PMR) and the proportion of self-employed (Figure 6). The role of product market regulation in explaining differences in self-employment rates is not new. It has been discussed by *inter alia* Torrini (2005) who finds a positive association between PMR and the self-employment rate.

The OECD PMR index takes values from 0 to 6 with higher values suggesting a more restrictive environment (see Koske *et al.*, 2015 for a detailed presentation). The index is a composite of several sub-indicators measuring different restrictions on entrepreneurship. While the scatterplot in Figure 6 and the regression refer to 2008, we have investigated the robustness of this result by looking at *changes* (between 2008 and 2018) in product market regulation and in the share of self-employed. The plot together with the regression line are presented in Figure 7 and suggest the same sign in the association between the two variables.[8]

Figure 6: The share of self-employed and the OECD Product Market Regulation Index, 2008

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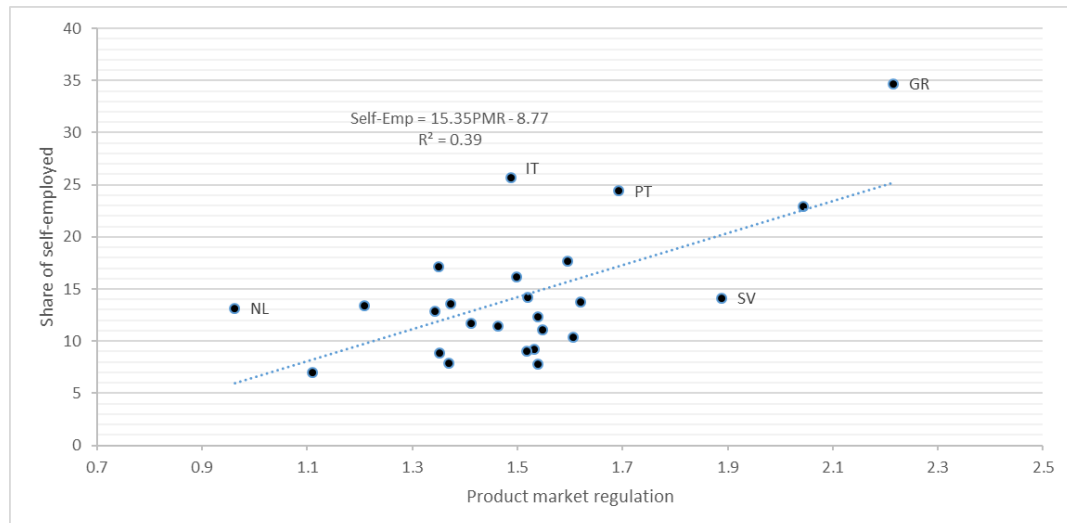
[8] As expected, the strength of the association between changes is weaker. A few prominent cases (Portugal, Netherlands, Italy) are driving the results in Figure 7 but as we do not have that many observations we have not reduced the sample given also that for most countries changes in these structures (PMR and self-employment rate) are usually small and slow.

Figure 7: Change in the share of self-employed and in the OECD Product Market
Regulation Index, 2008-2018
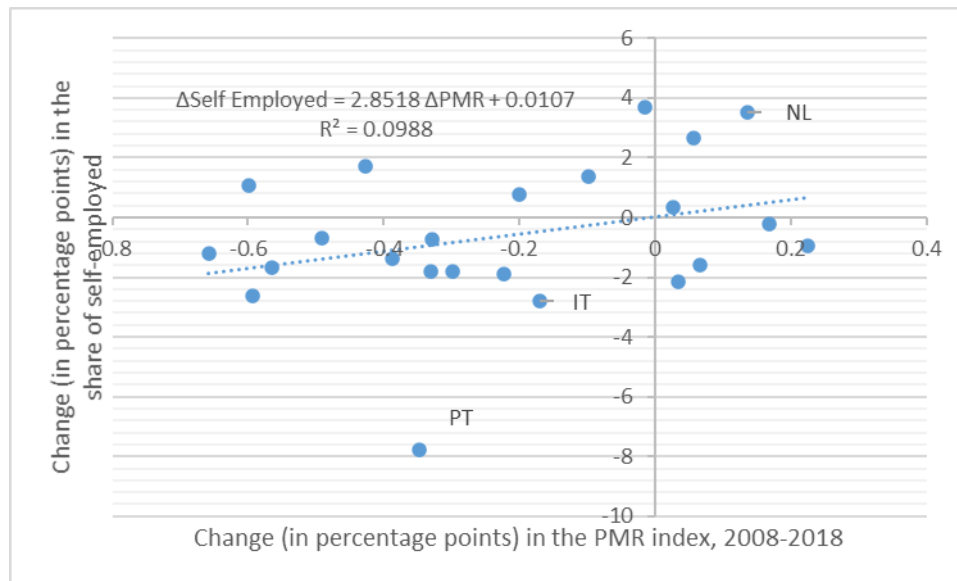
Second, the high share of self-employment in Greece in heavily regulated sectors. While the rate of self-employment in Greece is higher than in the EU-28 in all NACE single digit sectors, 3 sectors stand out: *Manufacturing*; *Transportation and Storage* and *Retail Trade*. In these three sectors the self-employment rate in Greece is over double (and in manufacturing around three times) that of the EU-15.

Retail trade and certain manufacturing sectors (e.g. manufacture of coke and refined petroleum products, manufacture of basic metals) have been identified by Daude (2016) as having substantially higher profit margins in Greece than in the EU on average.[9]

Until 2010, the *Transport and Storage sector* faced high barriers to entry: the number of licenses for road haulage was fixed (at the same level as in the 1970s), the operation of pickup trucks and vans was restricted and cargo fares were set administratively. As a result, it was difficult, or impossible, for road haulage companies to enter the sector which had a high share of self-employed individuals. According to the OECD (2011, p. 144)) `The restrictiveness of the legal framework for road freight resulted in high rents

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[9] The *Hotels & Restaurants* sector in which the self-employment rate in Greece is higher than it is for the economy is found to have a 30% higher profit margin in Greece than in the EU on average.

for incumbents, inhibited competition, and has affected adversely the modernization of the sector.'

Activity in *Retail Trade* was obstructed by a number of restrictions on amongst other things operating hours (a major overhaul took place in 2005, a further on Sunday opening in 2012), on the outlets in which certain goods (e.g. baby milk, tobacco, newspapers and magazines) could be sold and on pricing practices. These are thought to have prevented the establishment of larger firms in the sector.

In *Manufacturing* the administrative burdens in setting up a business - especially regarding environmental licensing - were such that it was easier to work as a self-employed free-lancer for a larger firm rather than try to set up shop. In addition, already established firms seeking ways to avoid the rigidity of hiring and firing restrictions and the high social security costs preferred enhancing flexibility by cooperating with several sub-contractors (free-lancers).

To be able to investigate for the presence or otherwise of an association between the strictness of the regulatory environment and the self-employment rate at the *sectoral level* we move further to some regression analysis. As regulation evolves only slowly over time, the use of time-series data on a single country to identify the impact of regulatory changes on other structural features (such as the rate of self-employment) is rarely used. Cross-country evidence on regulatory restrictions can be exploited, however, to this effect.

We use here two sectors (Trade and Hotels & Restaurants) for which the sectoral classification of the two series needed for the investigation (self-employment rate and index of regulatory strictness) coincide. These two sectors have a high share of self-employment and account for a sizeable share of value-added output in most countries. The regulatory *impact* indicators used, are those of the OECD, and measure the extent to which production is affected by regulation in the sectors supplying the inputs used in the sector. We estimate regressions of the self-employment rate on regulatory impact indicators for each of the two sectors using a sample of 20 countries and two time periods: the period 1992-99 and as a robustness check for the period 2000-08. The estimated equation for each sector has the form:

$$SE_{it} = \alpha + \beta \, PMR_{it} + \varepsilon_{it} \tag{1}$$

where *i*=country, *t*=1992-99 or 2000-08.

The estimates of (1) using a sample of around 20 OECD countries are presented in Table 3. The results (Table 3) suggest a *positive association* between regulatory impact and the self-employment rate in both sectors and in both time periods.

Table 3: OLS coefficient estimates of the association between the self-employment rate and regulatory impact

Time period	OLS estimates		Adj. R²	Number of observations
	Constant	Reg. impact		
Trade				
1992-99	0.0985 (0.061)	0.377 (0.17)	0.18	19
2000-08	0.0804 (0.044)	0.369 (0.14)	0.23	21
Hotels & Restaurants				
1992-99	-0.0319 (0.050)	2.411 (0.50)	0.54	20
2000-08	0.00998 (0.036)	2.120 (0.45)	0.51	21

N.B. S.E.s in brackets below coefficient estimates.

5.3. Workforce competences and management practices

The importance of education for productivity cannot be overstated. Greece's population is heavily divided by age in terms of qualifications: amongst individuals older than 50 around 60% have less than secondary-level education, for individuals between 20 and 49 the corresponding percentage is around 25%. Thus, a high share of older individuals cannot readily be employed in manufacturing jobs -which demands secondary education (Belke, 2015; Belke *et al.*, 2019). Furthermore, it appears that manufacturing jobs do not appeal to younger individuals (SEV, 2019). Thus, it is difficult for manufacturing firms to expand in Greece.

In addition to "general" skills, the business and economics literature has been focusing on the role of management practices on productivity (Bloom and van Reenen, 2010). For reasons related to amongst other factors ownership structure, Greek family-owned firms in an international comparison appear to lack organizational skills.

6. Going forward

The above attempt to shed some light on the mechanisms that did not prevent the derailment of the Greek economy. A possible value of this identification is to avoid these structures in the future; institutions and regulations are necessary to protect the

environment, the consumers and the smooth functioning of the economy but if they are not constantly updated they risk becoming shelters for economic inaction.

Following the economic crisis Greece finds itself with a much weaker infrastructure capacity as investment declined substantially during the ten-year period 2008-2018. In addition, or because of this decline, a remarkably high share of the labor force (16.8% at end 2019) is still unemployed. There is need therefore to implement a high-growth strategy for the future.

The discussion on growth at European Union level in the last few years has focused on the type of industrial policy countries should follow (Aiginger, 2014). There is moreover a revival of arguments in favor of manufacturing (Veugelers, 2013) for reasons related to amongst others the robustness of the sector; lower business cycle fluctuations; its potential for exports and its contribution to job creation (Olney and Pacitti, 2017; Rodrik, 2011). It is clear, however, that the expansion of manufacturing by itself will not bring about growth and furthermore, that not all manufacturing sectors have the same potential to contribute to growth (Heymann and Vetter, 2013). To illustrate the point, note that the most industrialized area of Greece (Northern Greece) also has the lowest per capita income (Belke *et al.*, 2019). Manufacturing therefore cannot be the sole focus of industrial policies. Other sectors can contribute to growth and employment and will have to be developed and modernized.

A necessary condition for other sectors to flourish is the provision of high-quality education and the creation of conditions to foster innovation. Lowering labor costs further is not a means to ensure high and dynamic growth and improve competitiveness (Palaskas *et al.*, 2013). Developments and policies in once rundown regions of other countries (e.g. Germany) which focused on innovation and education for their successful revival could be followed (Belke et al., 2019 and Palaskas, 2013).

The state in partnership with social partners should act as a facilitator (Aiginger and Rodrik, 2019) for growth. Societal goals such as inequality, justice, meritocracy, and climate should be placed high on the agenda to ensure viability of long-term growth.

7. Summary and Conclusions

The argument presented in this paper is that several structural features can explain the severity and the length of the ten year long economic crisis that Greece went

through. These structural characteristics restrict the adjustment of the economy to meeting international competition and are not only related to cost elements but also to the capacity of the economy to deliver. Greece lost external competitiveness during the first decade of the 21st century. This is manifested by the rise in unit labor costs because of increases in wages larger than productivity improvements. The focus of this paper is on labor market institutions that prevent adjustment in wages and on the features of the Greek economy associated with low productivity. Both labor and product market institutions, it is argued, have played a role in shaping the structure of the economy.

The main contribution of this paper is to provide details about the features that contributed to the loss in competitiveness in the Greek economy. The interaction between product and labor market institutions has been the focus of both in the economics and the political theory literature. There is a multitude of mechanisms through which these institutions can impact on economic performance and through which they can interact with each other.

The analysis that focuses on the impact of institutions on economic performance is usually hampered by lack of appropriate data to `measure' institutions and by endogeneity issues. This paper is no exception. In search, however, of better data and instruments that will permit clear identification, along the lines of the analysis of, for example, Acemoglu *et al.* (2001), discussing potential mechanisms of association could provide some contribution to the ongoing discussion.

While this paper looked at certain features that prevented robust growth, it did not undertake a detailed analysis of developments in the manufacturing sector. Such an investigation, using historical time series, of the strengths and weaknesses of the Greek manufacturing sector and its subsectors could help identify best the reasons for the premature deindustrialization of Greek economy.

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