

Spanish non-financial corporations and the COVID pandemic: vulnerability, resilience and transformation

Vicente Salas-Fumás
University of Zaragoza, Zaragoza, Spain

Abstract

Purpose – This paper aims to assess the vulnerability and resilience of the Spanish non-financial corporations (NFC) to the shock from the COVID pandemic with consolidated income accounts data, and shows comparative labor productivity and endowment of organizational capital of Spanish firms, as indicators of their capabilities at the outset of the new digital transformation wave proposed by the next generation EU program.

Design/methodology/approach – The paper first describes the recent evolution (quarterly 2020 data) of the Spanish non-financial corporate sector (gross value added, labor cost, capital formation, profits) in the assessment of the vulnerability and resilience of the sector to the shock of the COVID pandemic. Then second, it estimates a probit model to evaluate the EU country effects in the explanation of the different propensity firms in the European Company Survey database to adopt innovative management and organization practices.

Findings – In the Spring of 2020, the Spanish NFC were still recovering from the great recession (low resilience), and the severe contraction in value-added and profits of the corporate sector in the first three quarters of the year evidences its high vulnerability. The proved complementarity between organizational and information related assets implies that the low endowment of organizational capital of Spanish firms, could be a severe limitation for the advancement toward digitalization.

Research limitations/implications – The aggregate corporate sector data used in the analysis of vulnerability and resilience of Spanish firms does not account for the heterogeneous effects of the pandemic across economic sectors (manufacturing and services, for example) and across firms (large versus small ones).

Originality/value – The paper complements the country-level analysis of the impact of the COVID pandemic in the Spanish economy with the analysis of the impact of the pandemic in the performance of the corporate sector. It provides one of the first analysis of the current endowment of organization capital of Spanish firms and highlights its relevance for productivity growth.

Keywords Organizational capital, Digitalization, COVID crisis, Next generation EU, Spanish non-financial corporations, COVID-19, Productivity

Paper type Research paper



Introduction

The political economy's responses to the economic crisis resulting from the COVID-19 pandemic in Spain will be articulated in this paper around three concepts: vulnerability, resilience and transformation. *Vulnerability* will be assessed through the magnitude of the contraction in business activity, employment and capital investment in the Spanish corporate sector, directly and indirectly, attributed to the pandemic. *Resilience* refers to the capacity of the corporate sector to recover from the shock, i.e. the time needed to return to the pre-shock level and trend of output, employment and capital investment. *The transformation* has become a key term in the context of the recovery plan agreed under the Next Generation EU (NGEU). The NGEU changes the focal point of the recovery, from the level and composition of output and the trends at the time of the shock, to a similar level of output, but with a different composition, namely, greener and more digitally adept. Transforming the economy, including the corporate sector, is, clearly, more challenging than returning to the pre-COVID path.

The purpose of this text is to contribute to the assessment of the vulnerability, resilience, and transformation capabilities of the Spanish corporate sector with data that, to our knowledge, remain relatively unexplored in the diagnosis of the economic damage wrought by COVID-19 and provide some policy recommendations. In particular, the assessment of the vulnerability will use consolidated data from the national accounts of the institutional sector of Spanish Non-Financial Corporations, NFC. The data are organized via income statements and flows of funds, with information on the evolution of output, employment, capital formation and profits. The assessment of the resilience of the corporate sector to the pandemic will be necessarily incomplete while the pandemic continues to be active. Instead, this paper examines the recovery from the Great Recession (2009–2013) and tries to learn from it.

The NGEU program has a transformation goal and, therefore, the resilience – understood as the capability of the corporate sector to return to the pre-crisis activity path – must be complemented with looking ahead. Then, the paper looks forward examines the general capabilities of Spanish firms at the outset of the new digital transformation wave, evidenced by their comparative labor productivity and endowment of organizational capital, relative to those of firms in central and northern European countries. The data sources are now Eurostat, for the comparison of labor productivity and the recently released European Companies Survey, ECS, for the year 2019, for the proxy variables of organizational capital. Business and economics research studies have demonstrated that organizational capital is highly complementary to the capital built around the information and communication technologies (ICT). The new generation of the digital economy, around the commercial application of advances in artificial intelligence (AI), will also demand a high endowment of organization capital for the realization of its potential and firms lacking this capital will be in clear disadvantage.

Forecasts from national (Banco de España, Funcas, [. . .]) and international organizations (European Commission, the IMF) on GDP growth and unemployment rates, indicate that the fall in Spanish GDP in 2020 will be one of the highest among EU countries. The GDP's recent evolution and the growth economic forecasts are already quite indicative of the high vulnerability of the Spanish economy to the pandemic shock. What this paper does is to examine the vulnerability of the non-financial corporate sector of the economy. The NFCs contribute with 60% of the GDP and they are the core of the market economy.

Investment in intangible capital is growing faster than investment intangible capital and intangible assets contribute more than proportionately to productivity growth (Haskel and Westlake, 2018). Organizational capital is one of the prominent components of the intangible assets of the economy, together with information- and knowledge-based capital. Moreover, in the past two decades research has documented the strong complementarity between organization and knowledge capital in increasing productivity growth (Brynjolfsson *et al.*, 2002). A recent

publication (Schivardi and Schmitz, 2020) documents that Spain, in the recent past, has invested in IT capital to keep pace with the investment in countries such as Germany, but the growth in productivity of the Spanish economy has been lagging with respect to the growth of the German and other central and northern European economies. Moreover, the same research attributes the decoupling between IT investment and productivity growth of the Spanish economy to Spanish firms lagging behind in the adoption of the best management practices that enhance the organization capital. On the edge of a further digitalizing of their value chains, it is of interest to examine in more detail the endowment of organization capital of Spanish firms.

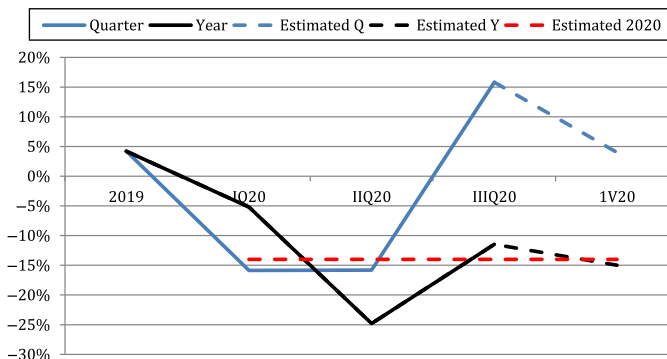
The vulnerability of the Spanish corporate sector to the pandemic

The European Commission’s 2020 autumn economic forecast projects a contraction of –7.8% for the euro area economy and a contraction of –7.4% for the EU economy. The Commission acknowledges that the economic impact of the pandemic varies widely across countries, a reflection of differences in the spread of the virus, the stringency of the health measures, the composition of the national economies and the national responses. The forecast for the change in real Spanish GDP in 2020 is –12.4%, compared with –9.4% for France, –9.9% for Italy, –5.6% for Germany and –3.4% of Sweden. The third-quarter report of the Bank of Spain predicts, in the central scenario, a year contraction for the real GDP of –9.8%.

This section examines the effect of the pandemic in the non-financial corporate sector of the Spanish economy, with quarterly data from national accounts (institutional sector of NFC). Published data are available for Quarters I to III of the year 2020; the fourth-quarter data has been estimated as explained below. The quarterly and annual data used in the analysis is presented in Appendix. The main text summarizes the information in terms of nominal growth rates of output (gross value added, GVA), capital input (gross capital formation) and labor input (labor compensation) (Figures 1–3).

The annual growth rate of GVA of Spanish NFC in 2019 was 4%, slightly lower than the 4.5% average for the whole recovery period 2014–2019 (Figure 1). The irruption of the COVID-19 turned around the positive growth trend and the GVA of NFC in the first quarter of 2020 was –5.2% lower than that in the same period of 2019. Considering that the effects of the pandemic in the economy were concentrated in the past two weeks of March, the annualized contraction in the GVA in this period can be estimated at –31.2% (–5.2 × 6). In the second and third quarters of 2020 the GVA was, respectively, –25% and –11% lower than the GVA of second and third quarters of 2019. Information about the forth quarter of 2020 is not available when writing this

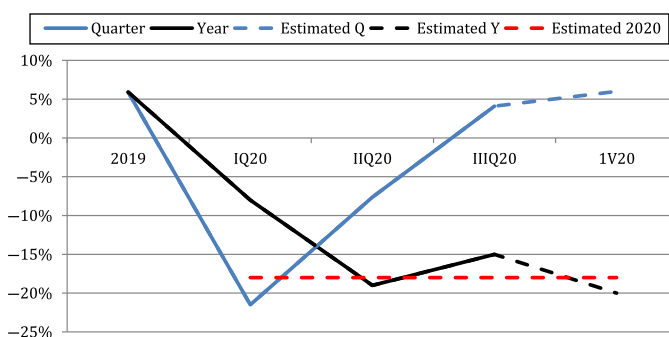
Figure 1. Inter-quarter, inter-year and annual growth rates of nominal gross value added (GVA) of Spanish non-financial corporations in 2019 and 2020. Observed and estimated for forth quarter of 2020



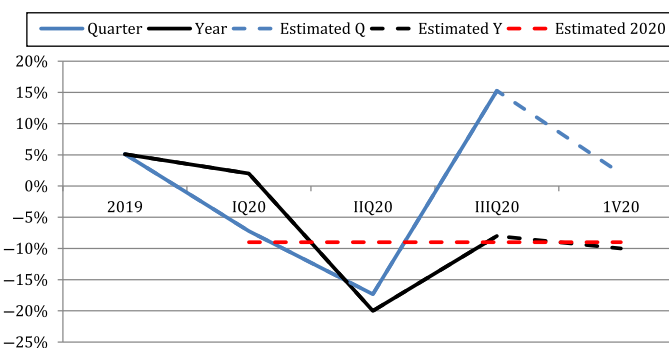
Source: Own elaboration with national accounts data

text. We estimate the income statement and flow of funds for the fourth quarter of 2020 assuming that the main items (GVA, labor compensation investment [. . .]) growth at an inter-quarter rate, half of the growth rate of fourth quarter of 2019. For example, the nominal growth rate in GVA in the fourth quarter of 2019 was 7.9%; then the estimated inter-quarter growth of GVA for the fourth quarter of 2020 is close to 4%. When compared with the forecasts of the [Banco de España \(2020\)](#) for the fourth quarter's GDP, the 4% would be in the optimistic side. With this estimate, the inter-year growth rate of GVA in the fourth quarter of 2020 would be -15%. Adding up the GVA of the four quarters of 2020, the year GVA of NFC in 2020 is -14% lower than the GVA in year 2019.

The effects of the pandemic appear also in the time evolution of labor and capital inputs, [Figures 2 and 3](#). In 2019, the nominal gross capital formation, GCF, of Spanish NFC grew at 6% annual (average 9% during the recovery period), [Figure 2](#). Applying the same estimation methodology than that used for the GVA, the inter-quarter growth in GCF of NFC in the fourth quarter of 2020 is estimated to be -18% lower than the GCF in the year 2019. The pattern of growth rates, inter quarter and inter annual, of labor compensation, the labor input variable, is quite similar to that of the GVA, [Figure 3](#), although the contraction of labor compensation in the year 2020 with respect to compensation in 2019 was lower, -9%. The different time evolutions of



Source: Own elaboration with national accounts data



Source: Own elaboration with national accounts data

Figure 2. Inter-quarter, inter-year and annual growth rates of nominal gross capital formation (GCF) of Spanish non-financial corporations in 2019 and 2020. Observed and estimated for fourth quarter of 2020

Figure 3. Inter-quarter, inter-year and annual growth rates of nominal labor compensation of Spanish non-financial corporations in 2019 and 2020. Observed and estimated for fourth quarter of 2020

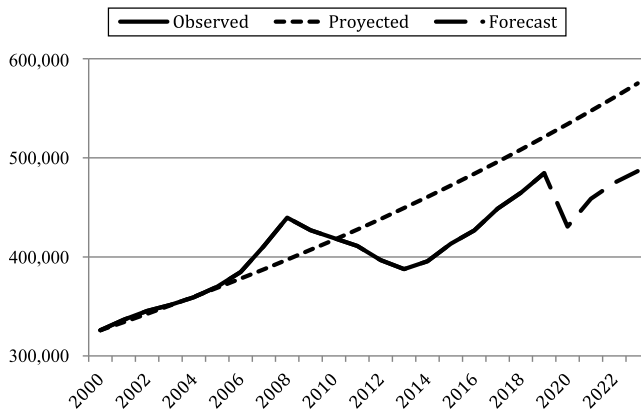
GVA than labor compensation and amortization, determines that the estimated operating and net profits for 2020 are -40% lower than the respective profits in 2019.

The pandemic has also raised concerns about the liquidity needs of the Spanish firms. From [Table A1](#) of the [Appendix](#), in the fourth quarters of 2020, the NFC generate more internal funds (net profit plus amortization) than they use to pay dividends and in financing capital investment, although the estimate for the fourth quarter is that sources and uses of funds practically coincide. Therefore, according to the data presented herein 2020 the NFC will continue financing the rest of sector of the economy [although the contribution in 2020 will be 42% lower than in 2019 ([Table A2](#))]. This result may seem contradictory with other evidence from the Financial Accounts of the Spanish economy according to which the unconsolidated debt of NFC in June 2020 was €43,000m higher than the debt in February 2020; but in this period NFC increased the cash and transferable deposits in 41,000 of euros between, increasing their liquidity position [1].

Recovery and resilience

How fast will the output of the non-financial corporate sector will recover the value of 2019, prior to the pandemic is difficult to know because there are many uncertainties. In fact, the Banco de España contemplates three scenarios for the recovery of the real Spanish GDP where, in the mild scenario, the recovery will be in 2021, in the central scenario by the end of 2023, and in the severe scenario in 2024. In addition of the uncertainties from the evolution of the health situation, it is also uncertain how much the recovery program will impact in the speed of recovery.

[Figure 4](#) shows the evolution of the GVA (at year 2000 prices) of Spanish NFC in the period 2000–2019, and the values estimated for 2020–2023, assuming annual real growth rates of 10% (2021), 3% (2022) and 2% (2023), where the largest fraction of the recovery takes place in 2021, similar to the patten of recovery estimated by the [Banco de España \(2020\)](#) in the central scenario (although the fall in real GVA in 2020 here is -13% and the Central Bank estimates a fall of real Spanish GDP in 2020 of -9.8%), The Figure also shows the projected GVA at constant prices at the 2.5% annual growth rate of the first years of the euro (the impulse of the euro to the Spanish economy, realistic is unlikely to last for more than twenty years but the discussion could be adapted to more modest trend growth rates in recent years.



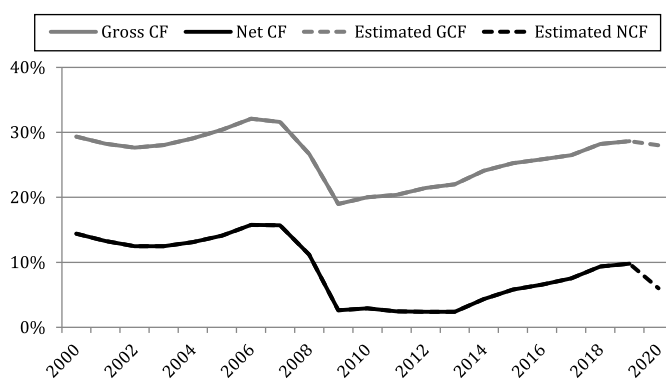
Source: Own elaboration with national accounts data

Figure 4.
GVA at constant 2000 prices: observed, estimated and projected at an annual constant growth rate of 2.5% : Spanish NFC

At its minimum level, year 2013, the GVA in real terms was 12% lower than the GVA at the peak of 2008 and also 12% lower than the GVA estimated for the year 2013 assuming the constant real annual rate of 2.5%. In 2014 and beyond, the GVA returned to a period of positive growth and in 2017 it reached the maximum of 2008; however, this maximum was still 11% lower than the GVA estimated with the 2.5% growth trend. The COVID-19 crisis interrupted the path of slow convergence of the output of NFC toward the twenty-year growth trend; the estimated -13% fall in real GVA for 2020 is practically the same than the fall in GVA during the Great Recession period. The recovery period starting in 2014 was gradually closing the gap with the trend of GVA but in 2019 the trend level of the GVA of NFC was still 7% above the actual value. With the fall in 2020 and the assumed recovery path, in the year 2023, the trend level of GVA will be 18.2% above the estimated GVA for that year. During the great recession, the maximum gap was 16.4% in 2014.

Capital investment is an important driver of the growth in output of NFC in the years of recovery from the Great Depression (Figure 5). The ratio of Gross Capital Formation, GCF, over GVA, decreased by one-third in the two-year period of 2008 and 2009, but it increased again shortly after. By 2018, GCF over GVA reached the 30% value of the first years of the euro. The evolution of Net CF capital formation over GVA is somehow different: the ratio falls sharply in 2008 and 2009, then remains constant from 2009 till 2013 and increases, beginning in 2014, to reach a value of 10% in 2019; the estimation for 2020 is that the ratio will fall to less than 6%. The differences between the gross and net capital investment flows reflect the evolution of depreciation allowances over time, increasing since 2009 (probably because the capital assets invested in recent years have shorter economic life than those invested before the crisis). The greener and more digital economy after the pandemic will likely increase the obsolescence of existing assets and will shorten even more the economic life of new investments. The funds from the recovery program should compensate the reduction in internal generated funds caused by the pandemic and boost again the net capital formation to its pre-pandemic trends.

The information in the Appendix, Table A2, on the income statement and flow of funds of the Spanish NFC in 2007, prior to the financial crisis, and in 2019, prior to the COVID pandemic, complements the diagnosis about the recovery from the recent crisis. In 2007, the internally generated funds were lower than the uses of funds, so external funds were needed to cover the deficit; this deficit, that had been a historical constant in the Spanish corporate sector, increased in an unprecedented way during the years before the crisis. The



Source: Own elaboration with national accounts data

Figure 5. Gross and net capital formation (gross minus amortization) over GVA of Spanish non-financial corporations

consequence was the acceleration in debt and leverage of the corporate sector, from a ratio of debt over GVA of 1 in 2000 to a ratio of 2.1 in 2007. Since 2010, the NFC sector generated more internal funds than it needed to pay dividends and finance capital investment so, with the excess of cash, the debt and leverage of the corporate sector decreased to a ratio of debt over GVA of 1.5 in 2019. The time-increasing internally generated funds during the period 2010–2019 arose from two main factors: the reduction by 6 percentage points in labor costs over GVA, and the reduction by 13 percentage points in the proportion of interest costs and taxes in the GVA. The reductions in these costs are also the main explanation why the net profit increased from 11.5% of GVA in 2007 to 27.3% in 2019.

The financial (leverage) and economic (profits) situation of the SNFC sector in 2019 is then, in the aggregate, much better than it was in 2007, although the aggregate data hides the reality of asymmetric shocks across economic sectors and the heterogeneous situation across firms. Even though the substantial contraction of activity and profits in 2020, for the aggregate of the corporate sector the estimated annual net profits will be 19% of GVA (27 % in 2019), and estimated retained earnings plus depreciation are sufficient to finance capital investment estimated in 28% of GVA. If the sanitary situation improves and aggregate demand returns to moderate growth rates, the Spanish NFCs should recover from the current crisis faster than they recovered from the 2008 crisis. However, it is important to keep in mind that the higher profitability and lower leverage of the corporate sector in 2020 than in 2007 is the consequence of lower labor and capital costs, as well as of lower corporate taxes. For example, with the labor share of 61% of 2007, the labor compensation in 2019 would had been 30,000 millions of euros higher than it was (8% increase in total labor compensation), and profits would had been reduced in the same amount. Interest rates, labor costs and corporate tax rates are at their minimum foreseeable levels so the future profits and growth of the corporate sector will have to depend more on productivity and innovation.

The transformation of the productive sector of the Spanish economy

With the prospects of change made explicit by the NGEU program, the resilience of the current corporate sector is not the main issue; after all, the focal point of the recovery is not to return to the path interrupted by the pandemic, but a new one, still diffuse, around a greener, more digitalized productive economy. The relevant question looking forward would then be as follows: if the critical assets of the new economy are going to be natural capital and a whole range of intangible assets that grow, spurred by advancements in information technologies, IT, what are the strengths and weaknesses of the corporate sector of the Spanish economy conform to these transformation patterns? This is a question that cannot be definitively answered in a paper like this one, so the focus will be on the variables that should be important in coping successfully with change: the comparative productivity and endowment of organizational capital of Spanish non-financial corporations.

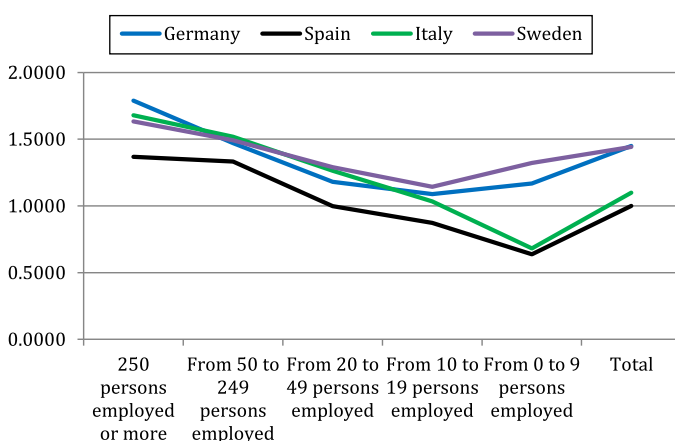
Labor productivity of the Spanish corporate sector

Labor productivity of Spanish firms will be compared with labor productivity of German, Italian and French firms using Eurostat data. Labor productivity will be measured by the ratio between GVA and the number of employees, with two adjustments: GVA is expressed in dollars of purchasing power parity, and the number of employees is adjusted for differences in the average number of working hours across countries. [Figure 6](#) shows the calculated adjusted labor productivity for countries and size classes of firms, with values normalized by the average productivity of Spanish firms [2]. On average, the German and Swedish firms are around 44% more productive than Spanish firms and 31% more productive than Italian ones. Spanish firms are the less productive in all size classes while Italian firms are only less productive in the size

classes of less than 20 employees. The differences in productivity among firms of the southern countries are particularly high in the size class of less than 10 employees. In all the countries compared, average productivity increases with the size of the firm, but the difference between the average productivity of larger and smaller firms is much higher in the southern countries than in the northern ones (ratio 2.3) than in the rest of the countries (ratio 1.5).

The comparatively lower labor productivity of Spanish and Italian firms in the micro-size class is more relevant given the high concentration of employees in firms of this size class, [Table 1](#). Spanish (Italian) firms have 38% (45 %) of all employees working in micro firms while in Germany and Sweden the proportions are between 19% and 24%. The lower average level of individual productivity and the large proportion of low-productive workers appear as main determinants of the divergent productivity of Spanish firms with respect to the northern Europeans. Moreover, the productivity gap of Spanish corporations is far from converging and rather increases over time: the average labor productivity of German firms in 2017 is about 10% higher than average productivity in 2011, across size classes; in the case of Spanish firms, the average productivity in 2017 is only 1.8% higher than in 2011, with productivity decreasing in some size classes (for example, large firms) and increasing in others (mid-size ones).

The divergent productivity at the firm level reproduces itself also at the country level. Organization for Economic Cooperation and Development (OECD) data indicates that productivity levels and growth rates in Spain and other Southern European countries have been lagging behind levels and rates in central and northern European countries. During the twenty years of the euro, 2000–2019, the GDP per hour worked in Germany and Sweden has regularly been between 25% and 30% higher than the GDP per hour worked in Spain ([OECD, 2020](#)). The Spanish economy, and NFC in particular, must respond to the challenges posed by the Next Generation EU program with lower average and more dispersed labor productivity than economies and firms in central and northern EU countries. The higher dispersion in productivity will imply high dispersion in salaries and higher market labor income inequality in Spain than in the rest of countries, an issue that concerns the NGEU program too.



Source: Own elaboration with Eurostat and OECD data

Figure 6. Labor productivity (value-added per occupied) across size classes of nonfinancial, market economy firms from selected countries. Value-added in US dollars of purchasing power parity and number of employees adjusted for differences in working hours. Original values normalized by the average labor productivity of Spanish firms: 2017

Organizational capital

The divergence in labor productivity within the EU countries reported above, coincides in time with the world-wide, and growing, flows and stocks in IT capital, considered to be one of the main drivers of productivity growth in the most advanced economies. The OECD-KLEMS data indicates that North and South EU countries diverge in IT capital stock also: in the period 1995–2015, the stock of IT capital at constant prices multiplied by 4 in Germany and by 3.7 in Spain, but it multiplied only by 1.5 in Italy and by 2.6 in Portugal (Schivardi and Schmitz, 2020). In some of the southern European countries, the divergent productivity may be attributed in part to the divergent investment in IT capital. In others, such as Spain, the investment in IT is comparatively high but the returns in the form of productivity growth are particularly low.

Schivardi and Schmitz (2020) investigate the relationship between IT investment and the divergent productivity of southern European countries, relative to the north. They find that the IT revolution did not have the desired impact in Southern Europe because firms in these countries did not use the “right management practices” [from the standards of good management practices set by Bloom and Van Reenen (2007) and Bloom *et al.* (2012)]. The old and inefficient management practices among firms in Southern European countries kept the productivity gains from the adoption of IT relatively low and this discouraged further investment in these technologies. The lower demand for IT capital, in turn, depressed the demand for employees with the skills to operate the new technologies, so the skilled workers migrated from southern to northern European countries for better employment opportunities. All these effects compounded, kept the productivity of Southern European countries behind. In fact, Schivardi and Schmitz estimate that not taking advantage of the IT revolution accounts for 47% of the divergence in productivity of Spain with respect to Germany, in the period 1995–2008. Cuadrado *et al.* (2020) also attribute the divergence in Spanish productivity to the inefficient use of ICT capital but the reason of the inefficient was the relative deficit of literary and numerical skills of the Spanish population.

The analysis of Schivardi and Schmitz brings up-to-date a broader literature that, for several years, has been highlighting the increasing importance of intangible assets in economic activity, especially those, directly and indirectly, related to information technology (Brynjolfsson and Hitt, 2000; Brynjolfsson *et al.*, 2002; Saunders and Brynjolfsson, 2016). The argument goes as follows: IT, like electricity, belongs to the family of the so-called “general-purpose technologies” (Bresnahan, 2010), i.e. technologies that “define their time” and can radically change the economic environment. They have high potential from the outset, but to realize this potential it is necessary that users redefine the organization of production itself, adopt new human resource practices, invest in training so that their employees acquire the required new skills and, ultimately, develop new organizational models. Most of these complementary assets need to be in place to make fully productive the general-purpose technologies, are intangible and, as such, invisible, complex to measure and complex to manage (Haskel and Westlake, 2018). The most important intangible

Table 1.
Distribution of
employees across
firm size classes:
2017

	250 persons employed or more	From 50 to 249 persons employed	From 10 to 49 persons employed	From 0 to 9 persons employed	No. of total employed
Germany	0.37	0.20	0.24	0.19	29,768,330
Spain	0.28	0.14	0.21	0.38	12,104,938
Italy	0.21	0.13	0.11	0.45	14,547,328
Sweden	0.35	0.19	0.22	0.24	3,305,536

Source: Own elaboration with Eurostat data

complementary assets include data, knowledge, software, human capital and organizational competences, such as management and organization capital.

Economists define “organization” as non-price mechanisms that make possible the benefits of collective actions (Arrow, 1974). Coase (1937) pioneered the definition of the firm as a set of relations that emerges when the entrepreneur takes the place of the price system in the direction of resources, especially authority relationships of employers over employees. The “hierarchy”, in its multiple dimensions of a tree-type structure of communication links and information flows (centralization), bureaucratic structure and control processes, top-down authority and single line of command, represented for many years the benchmark to replicate in organization design. With the introduction of robotics in the production chain, in the 1980s and the consequent reduction in the cost of changing from producing one variety of product to another, created opportunities for new organization designs adapted to the efficient combination of mass-production and customization-differentiation of products and services. With the new design, organization hierarchies flattened (fewer levels) and information flows became almost entirely horizontal (across jobs at the same hierarchical level). The definition of jobs changed, from the high specialization and low rotation of the assembly line, to enriched and empowered job positions occupied by teams of employees who had autonomy on how to perform the corresponding tasks. The delegation of decision power demanded more skilled employees, able to solve more complex tasks on their own, as well as more committed and more trusted. In cases where it was necessary for employees to make investments in human capital specific to the job, employers gave them voice to better protect the value of the investment.

Advances in IT, beyond the incorporation of robots in production lines, facilitate the creation of information and communication structures that can effectively coordinate, in real-time, decentralized and autonomous completion of tasks by multiple-function teams of workers (Milgrom and Roberts, 1995). The effective decentralized coordination increased flexibility and a more rapid adaptation to external shocks. The networks of self-managed teams made possible the efficient combination of local tacit knowledge, with explicit and standardized information and knowledge that had been the traditional advantage of large, centralized organizations. Simultaneously, as employees gained autonomy to solve relatively more complex problems on the job, their skills had to be upgraded and firms invested more in training for specific human capital. The development of a culture of organizational identity that contributes to goal congruence (coincidence between individual and collective goals) results in high levels of mutual trust between employees and their employers and managers. Moral hazard problems arising from delegation of decision power were minimized and collective action could operate under low levels of organizational and management costs.

The organizational capital that facilitates the coordination and motivation of organization members in production and sales is an asset that must be managed, by investing in continuous training of employees, in the continuous redesign of the value chain, from procurement to manufacturing and sales, in building commitment and trust that, in general, means sacrificing short-term gains with the expectation of future ones and investing in time to bargain and reach consensus with empowered employees and their representatives. The list of good management practices of Bloom *et al.* (2012) includes human resource management practices and organizational design choices inspired by lean manufacturing and the total quality management theories that emerged in the transition from Fordism to Toyotism in the 1980s. There is a clear overlap of these practices with those that contribute to organizational capital (Prescott and Visscher, 1990; Black and Lynch, 2001; Lev and Radhakrishnan, 2005). Technology advances have continued in more recent years. The process-oriented horizontal structures that overlap along the value chain are evolving gradually to network structures with buried organizational boundaries and flexible boundary-crossing self-managed teams.

Comparative organizational capital from the European company survey

We complete the exposition of the challenges faced by Spanish firms with the transformations ahead, with some evidence about the comparative endowment of organization capital by Spanish firms, relative to the endowment of firms in other EU countries. We also relate the endowment of organizational capital to a measure of the digitalization of firms. The data for this analysis came from the recently published results of the European Company Survey ([Eurofound and Cedefop, 2020](#)), an initiative to carry out, in 2019, a study “to assess and quantify information on company policies and practices across Europe on a harmonized basis.”

The survey contains the responses to a long list of questions from 21,869 human resource and general managers, and from 3,073 employee representatives, active in the EU27 Member States and in the UK. The unit of analysis is the establishment. The workplace practices and strategies surveyed in the study include those concerning work organization, human resource management, skills use and skills development and direct and indirect employee involvement in organizational decision-making. The ultimate goals of the study are to identify bundles of practices across firms and see which of them are associated with higher work-place wellbeing and superior establishment performance. The data also tell us about possible complementarities between the organizational practices and digitalization, innovation and competitive business strategies.

The document [Eurofound and Cedefop \(2020\)](#) summarizes the main results and conclusions from the analysis of the survey data. The summary identifies bundles of practices along two main dimensions of organizational capital: how much firms invest in their employees and how involved are the employees in the mission and operations of the business. A combination of high investment and high involvement leads to superior results, in terms of economic and employee satisfaction, while the low-low combination is associated with poorer results. Of the establishments participating in the survey across the EU countries, 20% are classified as high-high and another 20% as low-low. The rest combine intermediate values in the two dimensions. In addition to superior performance, the high-high establishments show a positive association with the level of digitalization, product innovation, and value-centered competitive strategies. The Scandinavian countries show a superior proportion of establishments in the high-high group, while the distribution of Spanish surveyed establishments is similar to that of the sample as a whole. In particular, 47% of the establishments in Sweden are classified as high-high, while in the Spanish sample establishments of these characteristics represent only 22% of the total.

This section presents a preliminary analysis of the information on individual respondents from the database of the ECS study. The analysis estimated a probit model with a dependent variable that takes the value 1 if the establishment is implementing a practice considered part of the organizational capital, and 0 otherwise. The explanatory variables are dummies for size, age, economic sector and block of countries, with Spain as omitted country variable [3]. We focus on the estimated coefficient of the block of countries dummy variable that will give the difference, with respect to Spanish establishments, in the probability that the establishments in the respective block of countries adopt the corresponding organizational capital practice. The estimated values of the coefficients of the respective countries' dummy variables, together with the list of the items used for the comparison, and the details of the question asked in the survey appear in [Table 2](#) and in a graphical representation in [Figure 7](#).

The estimated coefficients of the dummy variable Southern Countries are not statistically different from zero in the majority of items. For all items with coefficients not statistically significant, the probability of adopting the corresponding organizational practice is the same in Spain as in the rest of the southern European countries. The probability that establishments in the northern European-Scandinavian countries adopt organizational

capital practices is, in all cases, significantly higher than the probability of adoption in Spain and other southern European countries. For example, the 0.2 estimated coefficient of the item “self-managed teams” indicates that the probability that the establishments in northern European countries adopt this organizational capital practice is 20 percentage points higher than the probability of adoption in Spain and in the other southern European countries. Table 2 and Figure 7 also include one item proxy for the degree of digitalization. From the probit estimation, controlling for sector, size and age of the establishment, the probability of high digitalization among establishments in northern European countries is significantly greater than the probability among establishments in the southern countries.

For space reasons, the exposition has left aside a detailed comparison of the endowment of knowledge and human capital, intangibles that are also critical for the advancement in productivity growth and convergence. As a brief recall, research and development spending in Spain, 1.2% of GDP is much lower than the same spending in Sweden, 2.4% and Germany, 3.1%, for example. With respect to human capital, in 2019, 31% of employees in Spain have less than upper-secondary education, compared to 12% in Sweden and 13% in Germany. In the occupational group of managers, the proportion of all them with less than upper-secondary education is 16.3% in Spain compared with 0% in Finland and 5.2% in Sweden and Germany. General human capital, including numerical and literary skills, is required for the implementation of decentralized organizational designs and self-managed team organization because, without these competences, empowered employees will not be able to solve the problems they face on the job. General human capital is, then, a necessary condition for the growth of organizational capital.

The Scandinavian firms appear as the right benchmark to which Spanish firms should be held, to advance toward digitalization with the leverage of organizational capital. A more thorough analysis of the rich data of the ECS should provide additional results from which to elaborate more precise recommendations on how Spanish firms can simultaneously advance in closing the multiple gaps in organizational capital, digitalization and labor

	Central	South	East	North	Anglo
Digitalization	<i>0.07</i>	0.01	<i>-0.05</i>	<i>0.13</i>	<i>0.04</i>
On the job training	<i>-0.09</i>	-0.01	<i>-0.12</i>	<i>0.07</i>	<i>0.07</i>
Delegation	<i>0.08</i>	0.01	<i>-0.10</i>	<i>0.20</i>	<i>0.09</i>
Self-managed teams	<i>0.07</i>	-0.02	-0.03	<i>0.20</i>	-0.02
Voice work organization	<i>0.14</i>	<i>0.08</i>	<i>0.13</i>	<i>0.40</i>	<i>0.20</i>
Decentralized collective bargaining	<i>-0.03</i>	-0.01	-0.02	<i>0.14</i>	<i>0.08</i>
Trust	<i>0.06</i>	<i>-0.09</i>	<i>0.17</i>	<i>0.30</i>	<i>0.21</i>

Table 2. Estimated coefficients of the dummy variables Central, South, East and North European countries in a probit model for each dependent variable, controlling for industry, size and age of the establishment, with the dummy variable of Spain as omitted variable

Notes: Definition of the variables: Take value of 1 if the answer is yes and zero otherwise; *Digitalization*: At least 80% of the employees of the establishment use computers or laptops to carry out daily tasks. *On the job training*: At least 80% of the employees of the establishment participate in training sessions on the premises during paid work time. *Delegation*: Managers create an environment in which employees can autonomously carry out their tasks. *Self-managed teams*: Team members decide among themselves how tasks are distributed within the team. *Employees' voice*: Managers organize regular meetings with employees to involve them in the organization of work. *Decentralized collective bargaining*: Wages set by collective agreement at the company or establishment level. *Trust*: Managers of the establishment trust the employees' representatives to a large extent. Italic numbers mean estimated coefficients significantly different from zero at $p < 0.05$ or less

Source: Own elaboration with CES data

productivity. At this point, the important thing to remember is that complementarity among the different assets requires simultaneous progress at the same pace in all of them, which means much greater complexity in managing the transition.

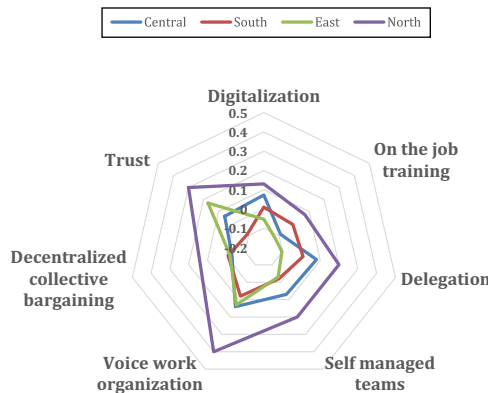
Conclusion

The European Commission, jointly with the governments of the EU members, have decided to change the focal point of the recovery from the COVID pandemic, from the path of activity that the pandemic interrupted in March 2020 to a new and different one, with greener and more digital economies that deliver at least similar levels of output but with more inclusion and less environmental damage. For a country such as Spain, these political decisions pose at least two important questions: First, will the specialization of the Spanish economy, with high concentrations of activity in sectors such as tourism and hospitality, and high endowment of tangible transportation infrastructures (high speed trains, airports), be able to generate sufficient private and social return from this specialization and tangible resources? Then second, is the Spanish productive sector ready for the changes demanded by the transformation ahead?

The evidence presented here indicates that the Spanish corporate sector is highly vulnerable, and with low resilience to external shocks. Moreover, the average labor productivity of Spanish non-financial firms is lower than that of firms in central and northern European countries, and shows greater dispersion, with larger differences in productivity – and presumably in salaries – between employees of large and of small firms. Evidence from other studies indicates that the divergent productivity of Spanish firms may be a consequence of their adoption of inefficient management practices and/ lack of skills of the working population, in the sense that they do not complement properly with ICT capital, and thus limit their contribution to productivity growth. This paper complements the findings of other research papers with evidence of divergence in organization capital of firms in southern European countries, relative to firms in the north. The divergence in productivity and in organizational capital as a facilitator of productivity growth, appear to be serious handicaps for Spanish firms in face of the changes demanded by the next generation EU program.

There are some policy implications that arise from the analysis. The greener and digital economy will require skills and abilities of workers, managers and entrepreneurs that, at this

Figure 7. Organization capital and digitalization: comparative analysis with CES survey data. Values in the figure represent differences from Spain, controlling for size, age and sector of the work establishment



Source: Own calculations with CES (2019) data

moment, most of them do not have. This deficit will be present in many countries, but the capabilities to learn them will very much depend on the basic numerical and literary skills of the population; and the score of the Spanish working population in numerical and literary skills is comparatively low too. Abilities and skills are important on their own, but become critical when they condition the investment in organizational capital that, in turn, conditions the efficient and effective use of green and digital infrastructures in the production of goods and services. Without soft (intangible) capital, hard capital alone will have little or no effect on productivity. As long as firms do not build on organization capital that can reduce the internal costs of growth, the level of productivity of entrepreneurs and managers will continue to be low and the size of the average firm disproportionately small. Moreover, if the high dispersion in size and productivity across firms continues, the divergence in organizational capital will be an indirect determinant of a high market labor income inequality.

Public policies should then prioritize the investment in organizational capital over the investment in IT capital because of its own benefits (the European Company Survey (CES) study finds a positive association between organization capital variables and business performance and satisfaction of employees) and because the former is a prerequisite for the contribution to productivity and profitability of the latter. It is easier to publicly subsidize the investment in computers and related assets than to design policy initiatives to change the dominant model in the internal organization of firms, but it would be an error to provide public incentives for the digitalization of firms without assuring the right endowment of organization capital. The public policy concerns and initiatives to increase organizational capital will be part of the so-called “structural reforms” of the economy, among which the reform of the labor market has been a constant for many years. Organizational capital has to do more with internal to the firm than with external labor markets; the recommendation from this paper is that the reforms should contemplate the two together.

Notes

1. The aggregate data hides the heterogeneity across firms. The program of public guarantees for business loans played an important role in facilitating liquidity funds to Spanish firms during the pandemic. The Banco de España, [Hernandez de Cos \(2020\)](#), reports that till the end of September 2020, 541,000 firms and self-employed received guaranteed loans in a total amount of €102bn.
2. The adjustment parity factor of Spain relative to Germany is 1.27, relative to Italy 1.06, and relative to the Sweden, 1.4. The average number of working hours in Spain is 21% higher than in Germany, 2% lower than Italy and 15% higher than in Sweden (OECD).
3. Central Europe (Germany, Austria, Holland, Belgium, France, Luxemburg); Southern Europe (Italy, Portugal, Greece, Chypre and Malta); Eastern Europe (Scheck Republic, Rumania, Bulgaria, Estonia, Latonia, Hungary, Poland, Slovakia, Slovenia, Latvia); Northern Europe (Sweden, Denmark, Finland); Anglo Saxon (UK and Ireland). For clarity, the estimated coefficients of the Anglo-Saxon dummies are not represented in the Figure.

References

- Arrow, K. (1974), *The Limits of Organization*, W.W. Norton and Company.
- Banco de España (2020), Informe Trimestral de la Economía Española, 4/2020.
- Black, S. and Lynch, L. (2001), “How to compete: the impact of workplace practices and information technology on productivity”, *Review of Economics and Statistics*, Vol. 83 No. 3, pp. 434-445.

- Bloom, N. and Van Reenen, J. (2007), "Measuring and explaining management practices across firms and countries", *The Quarterly Journal of Economics*, Vol. 122 No. 4, pp. 1351-1408.
- Bloom, N., Sadun, R. and Van Reenen, J. (2012), "Americans do IT better: US multinationals and the productivity miracle", *American Economic Review*, Vol. 102 No. 1, pp. 167-201.
- Bresnahan, T. (2010), "General purpose technologies", *Handbook of the Economics of Innovation*, Vol. 2 No. 1, pp. 761-791.
- Brynjolfsson, E. and Hitt, L.M. (2000), "Beyond computation: information technology, organizational transformation and business performance", *Journal of Economic Perspectives*, Vol. 14 No. 4, pp. 23-48.
- Brynjolfsson, E., Hitt, L. and Yang, S. (2002), "Intangible assets: computers and organizational capital", *Brookings Papers on Economic Activity*, Vol. 2002 No. 1, pp. 137-181.
- Coase, R. (1937), "The nature of the firm", *Economica*, Vol. 4 No. 16, pp. 386-405.
- Cuadrado, P., Enrique, M.-B. and Irune, S. (2020), *A Sectoral Anatomy of the Spanish Productivity Puzzle*, Banco de España DO, 2006.
- Eurofound and Cedefop (2020), "European company survey 2019: workplace practices unlocking employee potential", *European Company Survey 2019 Series*, Publications Office of the European Union, Luxembourg.
- Haskel, J. and Westlake, S. (2018), *Capitalism without Capital*, Oxford University Press.
- Hernandez de Cos, P. (2020), *Riesgos y Vulnerabilidad Del Sector Empresarial Derivados de la Crisis Del COVID-19: La Experiencia de España*, Foro Europeo de Dinero y Finanzas.
- Lev, B. and Radhakrishnan, S. (2005), "The valuation of organization capital", in Corrado, C., Haltiwanger, J. and Sichel, D. (Eds), *Measuring Capital in the New Economy*, University of Chicago Press.
- Milgrom, P. and Roberts, J. (1995), "Complementarities and fit strategy, structure and organizational change in manufacturing", *Journal of Accounting and Economics*, Vol. 19 Nos 2/3, pp. 179-208.
- OECD (2020), "GDP per hour worked (indicator)", doi: [10.1787/1439e590-en](https://doi.org/10.1787/1439e590-en) (accessed 8 November 2020).
- Prescott, E. and Visscher, M. (1990), "Organization capital", *Journal of Political Economy*, Vol. 88 No. 3, pp. 446-461.
- Saunders, A. and Brynjolfsson, E. (2016), "Valuing information technology related intangible assets", *MIS Quarterly*, Vol. 40 No. 1.
- Schivardi, F. and Schmitz, T. (2020), "The IT revolution and Southern Europe's two lost decades", *Journal of the European Economic Association*, Vol. 18 No. 5, pp. 2441-2486.

Corresponding author

Vicente Salas-Fumás can be contacted at: vsalas@unizar.es

Appendix. Income statement and flows of funds of Spanish NFC

Spanish non-financial corporations

	I Q 2020	% Cha IQ 19	II Q 2020	% Cha IIQ 19	III Q 2020	% Cha IIIQ19	IV QE 2020	% Cha IVQ19
<i>Gross value added + sub-tax (GVA)</i>	146,117	-5	123,033	-25	142,490	-11	148,105	-15
-Labor compensation	89,864	2	74,288	-20	85,632	-8	87,184	-10
<i>Gross operating profits</i>	56,253	-13	48,745	-29	56,858	-14	56,194	-25
-Amortization and other expenses	32,480	0	32,281	0	32,476	0	32,500	0
<i>Net operating profit</i>	23,773	-29	16,464	-57	24,382	-27	24,261	-43
+ Financial income	6,101	-35	8,407	-72	12,774	87	16,428*	0
<i>Profit before interest and taxes</i>	29,874	-30	24,871	-63	37,156	-7	40,689	-31
-Interest on debt	2,604	-7	2,361	-22	1,774	-40	1,725	-38
-Corporate taxes	458	798	4,733	-11	7,677	2	6,996	13
<i>Net profit</i>	26,812	-33	17,777	-70	27,705	-6	31,968	-37
<i>Internal funds (profit + amortization)</i>	57,498	-19	48,507	-46	58,623	-3	64,468	-20
Dividends	7,347	-25	8,179	-80	16,771	69	23,256*	0
Capital investment	39,689	-8	36,664	-19	38,164	-15	40,694	-20
Change financial position	10,462	-41	3,664	-16	3,688	-39	518	-93

Note: * Indicates same value than forth quarter 2019

Source: Own elaboration with data from National Accounts

Table A1.
Income statement and flow of funds 2020: Quarters I to III and estimated for IV quarter (million euros)

	2007	(%)	2019	(%)	Estimate 2020	(%)	% Change 2020-19
<i>Gross value added + sub-tax (GVA)</i>	541,885	100	656,456	100	559,745	100	-14
-Labor compensation	333,231	61	371,504	57	336,968	60	-9
<i>Gross operating profits</i>	208,654	39	281,572	43	218,050	39	-23
-Amortization and other expenses	92,995	17	133,072	20	129,737	23	-3
<i>Net operating profit</i>	115,659	21	148,500	23	88,880	16	-40
+ Financial income	41,145	8	60,806	9	43,710	8	-28
<i>Profit before interest and taxes</i>	156,804	29	209,306	32	132,590	24	-37
-Interest on debt	55,132	10	11,335	2	8,464	2	-25
-Corporate taxes	39,208	7	18,592	3	19,864	4	7
<i>Net profit</i>	62,464	12	179,379	27	104,262	19	-42
<i>Internal funds (Profit+amortization)</i>	148,415	100	302,703	100	229,096	100	-24
Dividends	56,201	38	83,722	28	55,553	24	-34
Capital investment	170,687	115	187,484	62	155,211	68	-17
Change financial position	-78,473	-53	31,496	10	18,332	8	-42

Source: Own elaboration with data from National Accounts

Table A2.
Income statement and flow of funds (millions of euros): 2007, 2019 and 2020 (estimated) (million euros)

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com