XI Consiliatura 2023-2028

Productivity in Complex Systems: Analysis, Conceptual Frameworks and a Comparative Perspective Across European Countries

Italy – National Productivity Board
Working Paper
No. 2, April 2026

www.cnel.it
Italy – National Productivity Board

XI Consiliatura 2023 - 2028

Productivity in Complex Systems: Analysis, Conceptual Frameworks and a Comparative Perspective Across European Countries

National Productivity Board
Italy – Working Paper
No. 2, April 2026


CONSIGLIO NAZIONALE
DELL'ECONOMIA E DEL LAVORO

CNEL Working Papers

The scientific Working Papers of the National Council for the Economy and Labour are addressed to both the academic community and the general public. They publish studies presented by Council experts as well as by external researchers and scholars, within the framework of cooperation agreements or seminars held at CNEL. Their aim is to contribute to the scientific debate, including by fostering contributions that may enrich the analysis and proposals on the issues under discussion within the Council.

The choice of topics and research methods reflects the interests of the authors. The opinions expressed and conclusions drawn are solely those of the authors and do not in any way commit the Council.

Translation note: *This English version was translated from the original Italian by Michela D'Ambrosio.*

Table of Contents

Conceptual Frameworks, Unifying Themes and the Puzzle of National Productivity Reports

Pasquale Lucio Scandizzo [1]

Introduction: Conceptual Frameworks and Objectives

The comparative analysis of productivity across advanced economies is a field in which technical language creates an illusion of uniformity: all countries produce measures of total factor productivity (TFP), all adopt the growth accounting framework developed by the OECD, and all discuss the "Solow residual" and "technological diffusion." And yet, beneath this shared surface lie profoundly heterogeneous theoretical frameworks, divergent policy priorities, and differing conceptions of what economic growth is and what it is for. A comparative reading of the main institutional reports reveals a state of interdisciplinary epistemic confusion: the concept of productivity is articulated in a syncretic manner, drawing on a variety of intuitions and on everyday language, and only secondarily on specific economic theories, with the result that cross-country comparisons are less informative than they could be.

This document aims to map the differences in the interpretative frameworks adopted by the main advanced economies: productivity as a technological frontier in the United States; as *Strukturwandel* in Germany; as a lever of the strategic state in France; as incomplete convergence in Spain; as a systemic problem in the United Kingdom; and as the efficiency of intermediation in the Netherlands.

A methodological premise is required. National productivity reports are not purely technical documents, but rather institutional artefacts that reflect the economic culture of the country that produces them; they are shaped by the professional subculture of economists, by the public debate on growth, and by ongoing social conflicts and technological transformations. Reading them as such—asking not only what they say, but why they say it, what implicit assumptions they carry, and which questions they fail to address—is a prerequisite for a genuinely informative comparison.

In this document, the differences among national approaches are used to highlight the different perspectives and interpretations of productivity measures and their evolution over time. They also make it possible to identify some of the most important unresolved puzzles: the questions that

[1] Senior Adviser, Tor Vergata Foundation, University of Roma Tor Vergata.

reports raise without providing answers, and for which a more explicit comparison across national traditions may contribute to a clearer and potentially more fruitful formulation.

Within this context, the productivity measures employed must also be interpreted accordingly. They vary not only because of often subtle conceptual differences, but also because they are applied and interpreted within institutional settings and systemic inquiries that are often radically different. The most immediate measure is partial labour productivity (LP), defined as the ratio Y/L between real value added and hours worked. Its fundamental limitation is that it does not measure what its name suggests: if LP increases, this may be because workers have become more efficient, but also because they have more physical capital per hour worked (capital deepening), because their skills have improved, or because market structures allow for higher prices. LP is therefore a "contaminated" measure: it varies with changes in any input, not only labour. This intrinsic ambiguity means that LP lends itself to a wider range of interpretations, especially in cases – such as France and the Netherlands – where its evolution lends itself to problematic narratives and to the formulation of interpretative puzzles.

Total Factor Productivity (TFP) attempts to isolate what remains of output growth after accounting for the contribution of all measurable inputs. One essential property of TFP is that, by construction, it is independent of the quantity of inputs used: it can increase even if capital and labour remain constant, thus representing a change in the capacity to transform inputs into outputs. It is, however, a concept that is far less intuitive than labour productivity and significantly more controversial in terms of its interpretation and potential estimation errors.

Both measures also present systematic limitations that national reports tend to underestimate, but which are nevertheless invoked when empirical results fail to conform to expectations. In a static context, the residual incorporates not only technical efficiency, but also measurement errors in inputs, variations in the rate of capital utilisation, scale effects, and the effects of market power: in the presence of high mark-ups, the share of capital in income reflects not only its marginal contribution but also the rents extracted, thereby inflating the residual. The systematic underestimation of intangible capital (R&D, software, organizational capital, branding) introduces a bias into TFP measurement whose direction

is not predetermined: depending on the relative growth rates of unrecorded and measured inputs, the residual may be either inflated or deflated. In the context of advanced economies over recent decades, where intangible investment has expanded rapidly, the overestimation bias has tended to dominate.

In a dynamic context, the traditional economic growth model with exogenous technological progress (the model first developed by the economist Robert Solow) shows that capital deepening, i.e., the increase in capital per unit of labour, exhausts its contribution in the long run. With diminishing returns to capital, each additional unit of K contributes progressively less to growth, so that long-term growth is sustained solely by TFP. This conclusion has a direct normative implication: policies aimed at capital accumulation affect the level of income but not its long-run growth rate. To sustain growth over time, it is necessary to act on TFP – or to explain its sources endogenously, which is precisely the objective of endogenous growth theory. Moreover, the distinction between within-firm growth and between-firm reallocation must be taken into consideration: in a well-functioning competitive market, Schumpeterian creative destruction ensures that resources shift towards more productive uses. The weakening of this mechanism – due to barriers to entry, market rigidities, or lax credit policies – is often identified as one of the main causes of the TFP stagnation documented in European economies after 2008.

A further issue concerns the nature of technological progress and its effects on the measurement of the residual. A well-known economic theorem – the so-called Uzawa theorem – requires that, for the existence of a stable dynamic condition for an economy – called steady state with balanced growth, technological progress must be exclusively labour-augmenting in the Harrodian sense. However, the labour share of income has systematically declined in advanced economies since the 1980s, suggesting the presence of a non-neutral, capital-augmenting or labour-saving component. If innovations are concentrated in sectors with high statistical visibility (manufacturing, ICT, business services), while labour-augmenting innovations prevail in sectors with low measurability (healthcare, education, personal care), the aggregate residual incorporates a structural bias that tends to underestimate TFP during phases of technological acceleration and to overestimate it during phases of expansion in poorly

measured service sectors. In both cases, interpreting the residual as a measure of technical efficiency risks being systematically misleading.

1. Unifying Themes: What the Reports Share

Beyond differences in theoretical frameworks, national reports converge on several structural themes that emerge independently of the institutional context. Their cross-cutting recurrence suggests that these are robust stylised facts, rather than artefacts of the economic culture of any single country.

The first unifying theme is the centrality of technological diffusion relative to frontier innovation. In all countries, the main problem is not the lack of innovation at the top of the firm distribution, but the slowness with which new technologies diffuse from the frontier to firms at the lower end of the distribution. This "productivity divergence" – documented through firm-level data in the United States, sectoral statistics in Germany, and surveys on digital adoption in Spain – is perhaps the most robust stylised fact to emerge from research over the past two decades. Its policy implications are more complex than those associated with frontier innovation: incentives for R&D are not sufficient; policies are needed to foster the diffusion of managerial capabilities, labour mobility across firms, and the reduction of entry barriers that protect inefficient firms.

The second theme is the growing importance of intangible capital and its inadequate measurement. All reports acknowledge, to varying degrees, that standard TFP measures incorporate a structural ambiguity linked to intangible capital: since R&D, software, organisational capital and relational capital are largely recorded as current expenditures rather than as investment, their accumulation is not included in the measured capital stock and ends up inflating the residual. Estimated TFP is thus overloaded with two heterogeneous components – true growth in technical and organisational efficiency, and unrecorded intangible investment – that current measures do not allow to be disentangled. The direction of the resulting bias is not predetermined: if unrecorded intangible capital grows faster than measured inputs, the residual absorbs that unattributed contribution and TFP is overstated; if intangible capital is growing slowly or contracting — as occurred, for instance, in the Finnish ICT sector after 2008 — the omission may instead lead to understatement. In the context of advanced economies over recent decades, where intangible investment has

expanded rapidly and persistently, the overestimation bias has tended to dominate, but this remains an empirical regularity, not a theoretical necessity, and its magnitude varies significantly across countries and periods. Properly capitalising intangibles would reduce estimated TFP, but would render the residual component more interpretable, bringing it closer to a genuine measure of systemic efficiency. In this sense, the underestimation of intangible capital distorts productivity measurement not by lowering it, but by making it opaque. The issue is not merely technical: the transition towards knowledge-based economies implies that an increasing share of value added is generated by assets that national statistics struggle to capture. The measurement of intangibles is probably the most urgent item on the productivity research agenda, and the most recent reports—particularly those from the United States, the Netherlands, and the United Kingdom—devote considerable attention to it.

The third theme concerns the relationship between productivity and inequality. More recent reports, particularly those of the American CEA and the French CNP, document that growth in aggregate TFP has been accompanied by an increase in the dispersion of wages and profits. Productivity growth at the frontier has disproportionately benefited those working in the most productive firms and those who own capital, while median productivity has stagnated. This raises a question that standard growth frameworks struggle to address: is it possible that policies which increase aggregate TFP distribute its gains so unevenly as to worsen the welfare of the majority?

The fourth theme is the difficulty of measuring productivity in expanding sectors. The "Baumol disease" explains part of the aggregate slowdown in advanced economies, but it overlaps with a distinct measurement problem: in publicly provided sectors such as education and healthcare, national accounts measure output at the cost of inputs, with a paradoxical implication, i.e., cost reductions achieved through greater efficiency appear in the statistics as a contraction in value added, rather than as a productivity gain. Measurement thus rewards inefficiency and renders improvement invisible. The slowdown in productivity in these sectors is therefore partly a metric artefact: the issue shifts from the technological to the allocative domain, where efficiency is not observable with standard tools and its evaluation requires output measures independent of cost. In this sense, "Baumol disease" does not fully account for the phenomenon.

2. United States: BLS, CEA and the Plurality of Narratives

The United States does not have a single national productivity report, but rather a constellation of documents produced by different institutions with distinct mandates. The Bureau of Labor Statistics publishes the official measures of multifactor productivity for the nonfarm private sector, updated annually. The Council of Economic Advisers produces thematic analyses in its Economic Report of the President. The Congressional Budget Office estimates potential productivity for budget projections. Private organizations such as the McKinsey Global Institute and the Brookings Institution produce sectoral analyses. This plurality is itself culturally significant: it reflects a system in which no central authority coordinates the narrative on growth.

The dominant theoretical framework in BLS–CEA documents is that of endogenous growth in its pragmatic version: TFP is driven by technological innovation, which in turn depends on investment in R&D, human capital, and an institutional ecosystem conducive to entrepreneurship. The market is taken as the primary allocation mechanism, while the state appears mainly as an agent that can remove obstacles or correct specific market failures. This framework is broadly shared across political and institutional actors, but it has recently been marked by growing tensions. The political cycle inaugurated by the Trump presidency brought to the centre of the debate issues such as deindustrialization, the decline of manufacturing communities, and the rebalancing of trade flows – issues that the endogenous growth framework struggles to accommodate without significant revision. It should be noted, however, that these themes did not originate with Trump; in fact, deindustrialization had already been central to the U.S. policy agenda after the 2008 Global Financial Crisis, with the Obama administration responding through manufacturing reshoring initiatives and reindustrialization plans for the Rust Belt, and the Biden administration extending this logic on a more ambitious scale through the Inflation Reduction Act and the CHIPS Act. What constituted a novelty during Trump presidency was not the problem itself, but the policy response based on tariffs and trade restrictions in place of selective industrial policy, making the tension with the official productivity narrative more visible and politically salient. What emerged from this tension is a strand of economic thought – both in segments of the populist right and in

parts of the progressive left – that explicitly re-evaluates the role of the state in industrial policy, restrictions on foreign investment, and the protection of strategic sectors, including through a "technical" reinterpretation of traditional theories of international trade and economic development. This American "neo-dirigisme" has not yet produced a coherent alternative theoretical framework, nor has it translated into a systematic revision of official productivity reports, which remain anchored in the BLS–CEA tradition. Nonetheless, it constitutes a growing anomaly: for the first time in decades, the official productivity narrative coexists with a policy trajectory that contradicts some of its core premises – most notably, the idea that trade openness and factor mobility are conditions for growth rather than variables to be politically managed.

The central puzzle in U.S. reports over the past fifteen years is the so-called *productivity paradox 2.0*. Since around 2005, TFP growth in the U.S. private sector has decelerated significantly compared to the 1995–2005 period, corresponding to the peak of the ICT revolution, despite accelerating investment in artificial intelligence, cloud computing, e-commerce, and automation. While the reports document this slowdown with precision, their explanation of such phenomenon diverge markedly.

A first family of explanations, known as "secular stagnation" and associated with the economist Robert Gordon, argues that the transformative potential of digital technologies is intrinsically lower than that of the major innovations of the twentieth century such as the internal combustion engine, electricity, and chemistry. Computers make certain processes faster, but they do not alter the fundamental physics of production as electrification once did.

A second family, associated with Erik Brynjolfsson and researchers at the MIT Digital Economy Lab, attributes the paradox to a lag in organizational learning: digital technologies require a deep restructuring of business processes before they translate into measurable productivity gains. Statistics capture TFP with a lag of years or even decades relative to technological adoption. In this scenario, the productivity boom driven by artificial intelligence is imminent but not yet visible.

A third family, associated with Chad Syverson and Jan De Loecker, attributes the slowdown not to a genuine decline in technical efficiency but to an increase in market power and mark-ups. Large digital platforms have established near-monopolistic positions that allow them to extract rents,

distorting relative prices and thus TFP measurement. In this interpretation, TFP appears stagnant because markets function less efficiently, not because technological progress has slowed.

The conceptual framework of BLS–CEA reports thus consist in adopting the traditional endogenous growth model while explicitly acknowledging this plurality of interpretations without resolving the debate, reflecting both the intellectual honesty of the institutions and the absence of a professional consensus.

A second puzzle, less discussed but equally relevant, concerns firm-level divergence. TFP among firms at the top of the distribution (the most productive 10%) continues to grow rapidly, while median TFP stagnates. This "productivity divergence" is documented in particular detail in OECD reports drawing on data from the U.S. Census Bureau. Proposed explanations include barriers to technological diffusion, the market power of frontier firms slowing entry by competitors, and a shortage of managerial capabilities needed for technology adoption among follower firms.

3. United Kingdom: ONS, OBR and the Weight of the Productivity Puzzle

The British case is the one in which the gap between expectations and reality is most pronounced and has had the most visible political consequences. The post-2008 productivity puzzle has become a central theme in the UK public debate, with direct implications for fiscal policy choices (the Office for Budget Responsibility regularly revises downward its estimates of potential productivity, with direct effects on deficit projections) and for political narrative construction.

From a theoretical standpoint, the British approach is characterised by a deliberate eclecticism that should not be mistaken for a lack of analytical position. It does not presuppose either the primacy of the market or an active role for the state, but this neutrality is itself a theoretical choice reflecting the empiricist tradition of British economics, from Marshall to Hicks, which privileges the construction of robust stylized facts over deduction from axioms. In this tradition, theory serves to organize observation rather than precede it. The result is a productivity literature that tends to generate layered and pluralistic diagnoses, capable of accommodating competing explanations without prematurely resolving

them, but which for the same reason struggles to translate findings into clear policy prescriptions. British reports are particularly strong in documenting the problem; they are more cautious than their French or German counterparts in identifying the solution.

This methodological stance has an important implication for the interpretation of the post-2008 productivity puzzle: in the absence of a dominant theoretical framework guiding causal selection, ONS and Bank of England reports tend to present possible explanations – such as compositional effects, labour hoarding, weak investment, the impact of Brexit, and firm "zombification" – as an open catalogue rather than a causal hierarchy.

The central puzzle is quantitatively striking: between 2008 and 2019, labour productivity per hour in the United Kingdom grew by only around 2 per cent cumulatively, compared with approximately 20 per cent in Germany and 15 per cent in the United States over the same period. No other advanced economy has experienced such a prolonged stagnation without a deep and continuous recession. ONS reports and Bank of England analyses have systematically explored the possible explanations.

The first category concerns compositional effects: the shrinking of the financial sector (highly productive per hour worked) after 2008 altered the sectoral structure towards lower-productivity activities. The proliferation of "zombie firms", kept alive by very low interest rates despite low productivity, has hindered Schumpeterian reallocation towards more efficient firms. Bank of England reports document that the number of firms with interest coverage ratios below one increased significantly over the 2010–2019 period.

The second category concerns investment. The UK investment rate is structurally among the lowest in the OECD, both in physical and intangible capital. Reports link this to a range of institutional factors: pressure from institutional investors on managers to deliver short-term dividend payouts (short-termism), the structure of the financial system oriented towards capital markets rather than long-term bank credit as in Germany, and political uncertainty associated with Brexit.

The third category, and the most debated in recent reports, concerns regional disparities. Productivity in London and the Southeast is comparable to the most advanced regions of Europe. Productivity in the Northeast, Wales, and large parts of the Midlands is comparable to lagging

regions in Southern Europe. This territorial heterogeneity is not new, but it has intensified, and ONS reports document that the London–rest-of-the-country gap is larger in the United Kingdom than in any other comparable European country.

A key question emerging strongly in post-2020 reports concerns the impact of Brexit on global value chains (GVCs). The reorganisation of supply chains, the increase in transaction costs for trade with the EU, and the reduced attractiveness for foreign direct investment are documented in reports by the Bank of England and the Centre for European Reform, but separating these effects from those of the Covid-19 pandemic remains methodologically challenging and is still subject to debate.

4. France: *Conseil National de Productivité* and the Systemic Vision

The French *Conseil National de Productivité* (CNP), established in 2018, produces annual reports that are distinguished by their ambition for theoretical integration. Unlike BLS or ONS reports, which tend to document facts and present interpretations in a neutral manner, CNP reports advance an explicit thesis, i.e., productivity cannot be analysed in isolation from the French social model, and policies aimed at increasing it must be consistent with the objectives of social cohesion and ecological transition.

The theoretical framework is hybrid but is strongly influenced by the French Regulation School (Boyer, Aglietta), which analyses capitalist growth as a succession of "regimes of accumulation" stabilised by institutional configurations such as wage-setting systems, financial structures, forms of competition, and international regimes. Within this framework, TFP is not an exogenous technical datum but the outcome of interactions among these institutions. At the same time, CNP reports incorporate mainstream literature on endogenous growth and technological diffusion.

The main puzzle emerging from CNP reports is often presented as the paradox of high French productivity. However, this formulation is imprecise: level and dynamics are distinct issues, and a low employment rate combined with high productivity per worker is internally consistent. In fact, the two co-determine each other, since selective labour markets exclude less productive workers, thereby raising the average. The real

French issue is twofold: productivity growth per hour has slowed relative to Germany, and the low employment rate (the share of the working-age population actually in employment) depresses aggregate GDP through a separate channel. France has one of the highest levels of labour productivity per hour in the world, comparable to Germany and higher than the United Kingdom; yet, economic growth has been slower and the employment rate significantly lower. This is not a paradox, but the sum of two distinct structural weaknesses that aggregate statistics tend to conflate. Italy illustrates the same pattern in an even more acute form, with average European-level hourly productivity but stagnant growth and a very low employment rate.

CNP reports address this through a two-part analysis. The first concerns labour market structure: the French model has historically favoured high productivity among those employed at the expense of broad participation. Permanent contracts (CDI) are costly to terminate, leading firms to screen workers more carefully and utilise them more intensively. This generates high productivity among insiders, but also entry barriers for outsiders (young workers, immigrants, and low-skilled labour). The CDI/CDD duality is less severe than in Spain but structurally similar.

The second part is more distinctive and sets CNP reports apart from most European counterparts: the analysis of non-tradable services. A significant share of the French economy operates in sectors shielded from international competition, such as retail distribution, regulated professions, and local public services. In these sectors, productivity is low and competition is constrained by regulatory barriers. Reforming these sectors is identified as the main available lever for improving TFP, but it is politically difficult because they also constitute a relevant electoral base for political forces.

A second puzzle emerging in more recent CNP reports concerns the relationship between ecological transition and productivity. Standard TFP measures do not account for environmental externalities: a firm that externalises pollution costs appears more productive than one that internalises them. The CNP has begun exploring "green TFP" or "adjusted TFP" measures incorporating natural capital, but this agenda remains at an early stage and there is no methodological consensus.

5. Germany: *Sachverständigenrat, Bundesbank* and the Culture of Stability

German reports on productivity, produced mainly by the *Sachverständigenrat* (SVR), the *Bundesbank* and the IFO *Institut*, reflect an economic culture deeply shaped by *Ordoliberalismus* and the tradition of the social market economy. The starting point is not "how to increase growth", but rather "how to maintain structural competitiveness in a context of global transformation."

The theoretical framework is closer to the German institutionalist tradition (Varieties of Capitalism, Hall and Soskice) than to American endogenous growth theory. The German economy is viewed as a system of institutional complementarities: the dual vocational training system, cooperative industrial relations, a financial system oriented toward long-term bank-based credit (Hausbank), and specialization in exports of high-quality capital goods. Within this framework, TFP is the result of the coherent functioning of this system, not of isolated innovation policy measures.

The central puzzle of the German reports is the trilateral *Strukturwandel*: three simultaneous structural transformations that threaten the country's industrial model. The first is the energy transition: the dependence of German manufacturing on low-cost energy (which was based on Russian gas) was brutally exposed in 2022, and the reorientation toward renewable energy requires enormous investments and alters the cost structure of heavy industry. IFO and SVR reports document that sectors such as chemicals, steel, and aluminium production have lost structural competitiveness after 2022 that they are unlikely to recover.

The second transformation is the electrification of transport. The German automotive value chain – Volkswagen, BMW, Mercedes, along with the entire network of component suppliers employing around one million people – is built around the internal combustion engine. The shift to electric vehicles requires different skills, a different supply chain (batteries instead of engines), and puts German manufacturers in competition with Chinese producers that start from scratch without the burden of obsolete assets. Bundesbank reports document that labour productivity in the automotive sector has already been declining since 2018. Moreover, there is a structural effect of the electric powertrain incorporating a radically smaller number of components compared to the combustion engine, reducing the value added

per vehicle produced by an estimated 40 to 60 percent. This effect, however, is not inevitable: the lower mechanical complexity of electric vehicles in principle favours process standardization, shorter assembly times, and greater automation, with potential efficiency gains that can partially or fully offset the loss of structural value added. The net result for productivity depends on the relative speed of these two adjustments. For producers building plants from scratch, such as Chinese competitors, efficient reorganization is immediate; for those that must convert lines designed for internal combustion, the risk is that the decline in value added precedes efficiency gains, leading to a productivity decline that is temporary but statistically visible. Industrial policy should therefore complement employment support with financing for the productive reorganization that generates the compensating gain.

The third transformation is demographic. Germany has one of the oldest workforce age structures in Europe, and SVR reports devote increasing attention to the implications for TFP: older workers tend to have higher productivity in routine tasks but adopt new technologies more slowly. Demographic change is therefore one of the main forces restraining future growth in German TFP, and long-term projections by the *Bundesinstitut* suggest that the shortage of skilled labour will be the dominant supply constraint in the 2025–2035 decade.

An emerging, specifically German puzzle concerns the slowdown in public investment. After years of fiscal austerity driven by the constitutional "debt brake" (*Schuldenbremse*), Germany has accumulated an investment deficit in infrastructure, education, and digitalization that SVR reports estimate at around €600 billion. The debate on reforming the *Schuldenbremse*, which erupted in 2024, is directly linked to productivity: German research institutes estimate that delays in digitalization and infrastructure have reduced TFP growth by about 0.3–0.5 percentage points per year compared to a counterfactual scenario. In March 2025, the Merz government responded with a historically significant shift: a constitutional amendment easing the debt brake for defence spending and a €500 billion special fund for infrastructure and climate over ten years, the most ambitious departure from German fiscal discipline since the reunification years. This development reduces the puzzle as a problem of financial constraint, but does not resolve it: the ability to translate resources into TFP growth depends on administrative and organizational factors such as approval times, shortages of specialized personnel in the public sector, bureaucratic

bottlenecks, which the volume of funding alone does not remove, and which SVR reports identify as a constraint independent of the fiscal one.

6. Spain: *Banco de España*, AIReF and the Diagnosis of Dualism

Spanish reports on productivity are distinguished by an element that has no equivalent in the other countries analysed: the documentation of structurally negative TFP growth over prolonged periods. During the expansionary cycle of 1995–2007, Spain experienced robust GDP and employment growth alongside declining TFP – an almost unique case among advanced economies, which the reports of the Banco de España analyse in detail.

The theoretical framework is that of incomplete convergence, integrated with an institutional analysis of structural rigidities. Spanish reports do not belong to any of the major national theoretical traditions discussed so far: they are more eclectic, more oriented toward diagnosing country-specific institutional failures, and influenced by OECD literature on product and labour market governance.

The explanation for negative TFP is structural and converges on three factors. The first is the growth model: the 1995–2007 expansion was driven by construction and domestic consumption in low-productivity sectors (retail distribution, hospitality, mass tourism, residential construction). Employment growth occurred in the most labour-intensive and least capital-intensive segments of the economy, lowering average productivity through a composition effect. The second factor is labour market dualism: institutional incentives encouraged intensive use of low-cost labour rather than investment in technology. The third is firm size structure: Spain has one of the highest shares of micro-enterprises (less than ten employees) in Europe, and these firms have limited access to credit for investment, insufficient scale for R&D, and a lower probability of adopting digital technologies.

The specific puzzle emerging in the most recent Banco de España reports concerns the National Recovery and Resilience Plan (PNRR). Spain is the European country with the highest allocation of EU transfers relative to GDP (around 7% of GDP in grants and loans). The reports question whether this increase in public investment, concentrated in digitalization, green

transition, and training, will be capable of structurally altering the TFP trajectory or whether it will produce only temporary level effects, as many demand shocks have in the past. The difficulty of answering this question ex ante reflects the limits of growth theory in predicting the effects of specific policies in specific institutional contexts.

A second question, less explored but potentially relevant, concerns tourism. Spain is the second country in the world in terms of income from international tourism, and this sector has an ambiguous effect on TFP: it is labour-intensive, has low productivity per worker, and creates distortions in real estate prices that reduce the availability of skilled labour in cities where tourism is concentrated. Banco de España reports are beginning to document this mechanism, but without a clear policy response.

7. Netherlands: CPB, DNB and the Specificity of the Small Open Economy

Reports by the CPB and De Nederlandsche Bank are distinguished by their methodological sophistication in addressing measurement problems specific to a highly open economy with strong intermediation effects. However, there is an additional analytical dimension that deserves attention.

The theoretical framework of CPB reports can be described as institutionalist pragmatism: there is no single dominant theoretical framework, but rather a combination of different tools, such as computable general equilibrium models for projections, counterfactual analysis using causal identification methods for policy evaluation, and global value chain (GVC) theory for trade analysis. This methodological eclecticism is consistent with the tradition of an institute that must respond to a wide range of policy questions in a short time.

The specific Dutch puzzle explored in recent DNB reports concerns the intensity of R&D investment. Despite the presence of ASML and the Eindhoven technology ecosystem, and despite a robust logistics-financial sector, total R&D investment as a share of GDP in the Netherlands is around the OECD average, rather than at the top levels seen in countries such as Germany or South Korea. The reports ask whether this apparent contradiction reflects a measurement problem (Dutch intangible capital is

underestimated) or a real issue (the intermediation-based model does not require the same R&D intensity as the German manufacturing model).

An emerging, specifically Dutch question concerns the resilience of the labour market governance model under the pressure of the digital transition. The "polder model," based on tripartite consensus, has worked well in a context of large firms with strong collective bargaining. However, the "platformization" of work (Deliveroo, Uber, Helpling) and the proliferation of quasi-self-employment (ZZP — zelfstandigen zonder personeel) are eroding the institutional foundation of the model. CPB reports document that more than 17% of the Dutch workforce is now self-employed – the highest rate in Europe – and that this share has grown significantly over the past decade, with negative effects on human capital accumulation and long-term productivity.

8. Unifying Themes: What the Reports Share Despite Their Differences

Beyond differences in theoretical frameworks and specific puzzles, national reports converge on a number of structural themes that emerge independently of the institutional context.

The first theme is the centrality of technological diffusion relative to the frontier. In all countries, the problem is not so much a lack of innovation at the top of the distribution as the slowness with which new technologies spread from the frontier to lagging firms. This is documented using different methodologies: firm-level data in the United States, sectoral statistics in Germany, surveys on digital adoption in Spain; nonetheless, the stylized fact is robust.

The second unifying theme is the growing importance of intangible capital. All reports, to varying degrees of elaboration, recognize that standard measures of TFP underestimate efficiency growth because they do not adequately capitalize intangible assets: R&D, software, databases, organizational capital, brand value, and relational capital. The measurement of intangibles is the most urgent methodological agenda in productivity research, and the most recent reports (particularly those from the United States and the Netherlands) devote increasing attention to these measures.

The third theme is the relationship between productivity and inequality. More recent reports, especially those from the U.S. CEA and the French CNP, document that aggregate TFP growth has been accompanied by an increase in the dispersion of wages and profits. This raises a question that standard growth frameworks struggle to answer: is it possible that policies that increase aggregate TFP distribute its gains so unevenly that they worsen the welfare of the majority of the population?

The fourth theme is the difficulty of measuring productivity in expanding sectors. Services – particularly healthcare, education, and personal care – are sectors where demand is growing and employment is increasing, yet measured productivity is stagnant or negative. Partly this reflects a real constraint (it is inherently difficult to raise productivity in one-to-one interactions between a doctor and a patient), and partly it is a measurement issue (healthcare output is measured in a crude way). All reports acknowledge this problem, but none has yet provided a methodologically satisfactory solution.

9. Unresolved Cross-Cutting Questions

In concluding this comparative analysis, three questions emerge that cut across all national reports without finding a clear answer, and which represent the open frontiers of productivity research.

The first is the problem of aggregation in the presence of market power. If markups have increased significantly in advanced economies, as the research of De Loecker and Eeckhout documents for the United States, and as data on market concentration suggest for Europe, then measured TFP incorporates an element of rents that does not reflect technical efficiency. Separating these two components requires firm-level data and identification methods that are not yet available for all countries.

The second is the problem of welfare beyond GDP. TFP is a measure of efficiency in the production of measured output. But measured output excludes the value of leisure time, environmental quality, safety, and social cohesion. In economies where these "unmeasured" goods are becoming scarcer while output increases, TFP may rise while overall welfare declines. Reports by the French CNP and, more cautiously, those by the Dutch CPB, are beginning to articulate this critique, but without yet offering a coherent alternative framework.

The third, and perhaps deepest, question concerns causality. National reports document correlations between institutions, policies, and productivity, but causal identification is extraordinarily difficult. A country's TFP depends on its institutions, but those institutions have themselves evolved in response to that country's historical productive structure, so causality runs in both directions. Disentangling it requires exogenous variation that rarely presents itself in a clean form. This identification issue is the reason why the debate on the determinants of productivity remains open after decades of intensive research.

10. A Concluding Note on Comparability

The comparison of the national reports analysed in this document suggests a final consideration of a methodological nature. Differences among countries are not only in interpretations and measurements, such as differences in theories, data, deflators, depreciation assumptions; above all, differences lie in the questions they ask. These questions are embedded in the cultures of different countries, as well as in the collective perception of national and global political-economic issues. The United States asks why innovation does not translate into aggregate productivity. The United Kingdom asks why its economy is so much less productive than expected. France asks how to reconcile productivity with social cohesion. Germany asks how to preserve industrial competitiveness in a context of multiple structural transitions. Spain asks how to move beyond a growth model based on employment rather than efficiency. The Netherlands asks how much of its productivity is real and how much is an artifact of financial intermediation.

These are different questions, and they require different tools. Methodological convergence in productivity economics is a necessary precondition for dialogue, but it is not sufficient to answer these questions. A European research agenda on productivity that aims to be genuinely comparative will need to learn to make these differences in starting questions explicit, rather than concealing them beneath the shared – but ambiguous and polyvalent – surface of economic theory.

References – National Productivity Reports

United States

Bureau of Labor Statistics (BLS) *Total Factor Productivity, 2024*. U.S. Department of Labor, marzo 2025. https://www.bls.gov/news.release/prod3.nr0.htm

Productivity and Costs — main page with historical series and periodic releases. https://www.bls.gov/productivity/

Bureau of Economic Analysis (BEA) — BLS *Integrated BEA GDP–BLS Productivity Account, 2024*. https://www.bea.gov/data/special-topics/integrated-bea-gdp-bls-productivity-account

United Kingdom

Office for National Statistics (ONS) *Productivity measures — main portal with annual and quarterly MFP and LP measures*, updated 2024–2025. https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures

Trends in UK Business Dynamism and Productivity: 2025. ONS, December 2025. https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/bulletins/trendsinukbusinessdynamismandproductivity/2025

National Statistician's Independent Review of the Measurement of Public Services Productivity. ONS, March 2025. https://www.ons.gov.uk/aboutus/whatwedo/programmesandprojects/publicserviceproductivityreview

France

Conseil National de Productivité (CNP) / Conseil d'Analyse Économique (CAE) *Premier rapport du Conseil National de Productivité*, 2019. https://www.cae-eco.fr/Premier-rapport-du-Conseil-national-de-productivite

Deuxième rapport du Conseil National de Productivité, 2021. https://www.cae-eco.fr/deuxieme-rapport-du-conseil-national-de-productivite

CAE portal — notes, focus papers and analyses on French productivity. https://www.cae-eco.fr

Cinquième rapport CNP — *Un monde en mutation: Productivité, compétitivité et transition numérique*, Conseil national de productivité, April 2025. https://www.strategie-plan.gouv.fr/... CNP-2025-Cinquième-Rapport-14avril.pdf

CNP institutional portal (France Stratégie — Haut-commissariat à la Stratégie et au Plan), official repository of all CNP reports CNP 2019–2025: https://www.strategie-plan.gouv.fr/conseil-national-de-productivite

Germany

Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (SVR) *Jahresgutachten 2025/26 — Wirtschaftsstandort Deutschland fit für die Zukunft machen*, November 2025. https://www.sachverstaendigenrat-wirtschaft.de/jahresgutachten-2025.html

Nationaler Produktivitätsbericht 2025 — Strukturwandel in Deutschland: Produktivität, regionale Aspekte und Arbeitsmarkt. Chapter 8 of Jahresgutachten 2025/26; also published in the Frühjahrsgutachten 2025. https://www.sachverstaendigenrat-wirtschaft.de/... JG202526_Kapitel_8.pdf — Spring Report 2025

Jahresgutachten 2024/25 — Versäumnisse angehen, entschlossen modernisieren, November 2024. https://www.sachverstaendigenrat-wirtschaft.de/jahresgutachten-2024.html

Archive of all Jahresgutachten since 1964 in PDF format. https://www.sachverstaendigenrat-wirtschaft.de/publikationen/jahresgutachten.html

Spain

Banco de España *Informe Anual 2024*, May 2025. It includes extensive análisis of productivity, labor market and convergence. https://www.bde.es/wbe/es/publicaciones/informes-memorias-anuales/informe-anual/informe-anual-2024.html

Summary in PDF (*Informe Anual en breve*): https://www.bde.es/f/webbe/SES/Secciones/Publicaciones/PublicacionesAnuales/InformesAnuales/24/Fich/InfAnual_2024_Breve.pdf

Archive of all Informes Anuales since 1998. https://www.bde.es/wbe/es/publicaciones/informes-memorias-anuales/informe-anual/

Netherlands

CPB Netherlands Bureau for Economic Policy Analysis *National Productivity Board 2024 Annual Report*, February 2025. With Michael Polder (CBS/Statistics Netherlands). https://www.cpb.nl/en/national-productivity-board-2024

Report in PDF: https://www.cpb.nl/system/files/cpbmedia/omnidownload/CPB_Publicatie-National-Productivity-Board-2024-Annual-Report.pdf

Productivity Trends and Policies in the Netherlands — accompanying technical document: https://www.cpb.nl/system/files/cpbmedia/CPB-Publication-productivity-trends-and-policies.pdf

Main CPB portal with updated macroeconomics projections: https://www.cpb.nl/en

European Institutional Framework

European Commission — Network of the National Productivity Boards *National Productivity Boards after seven years: An assessment*, 2024. It collects links to reports from all European national committees. https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/national-productivity-boards_en

Overview of Productivity Reports in Selected European Countries

Paola Bonacci [1]

Introduction

By Recommendation of 20 September 2016, the Council of the European Union invited the Member States of the euro area to identify or establish National Productivity Boards with a view to analysing developments and challenges in the field of productivity and competitiveness affecting their respective economies.

Member States outside the euro area were likewise encouraged to establish such bodies.

The European Commission website provides guidance on the establishment of these bodies, as well as the texts of the national productivity reports produced to date.[2]

With regards to the euro area, National Productivity Boards have been established or designated in all Member States, with the exception of Bulgaria and Estonia.

What follows is a synthetic overview of a selection of the national reports published on the Commission's website. Spain is not included among the cases examined as its National Productivity Board, established in 2024, has not yet published any document on the EU website. Portugal is likewise excluded, as the most recent report prepared by its Productivity Council dates back to March 2022.

Among non-euro area countries, following the 2016 Council Recommendation, Denmark only identified a dedicated body, whose report is included in the overview that follows. No information is available regarding the establishment of National Productivity Boards in the Czech Republic, Poland, Romania, Sweden and Hungary.

[1] Senior Parliamentary Official of the Italian Chamber of Deputies. The views expressed are personal and do not in any way commit the institution to which the author belongs.

[2] https://economy-finance.ec.europa.eu/economic-governance-framework/what-economic-governance-framework/evolution-eu-economic-governance/national-productivity-boards_en.

EU Countries in the Euro Area

Austria

1. General Information on the Report

Title: ***Productivity report 2025: Structural change as an opportunity for competitiveness and employment***
Author: ***National Productivity Board***
Year: ***2025***
Number of pages: ***195***

2. Structure of the Report

The Austrian report is divided into an introductory section and three main analytical parts: the first of these analytical sections is devoted to issues of environmental, social, and economic sustainability of the productive system; the second part examines structural changes in the production system and in the labour market situation within the Austrian economy, with the aim of identifying the factors underlying observed productivity dynamics. Finally, the third section presents policy recommendations.

3. Underlying Factors of Productivity Dynamics

The second part of the report, divided into a general analysis and more detailed examinations of specific topics, identifies the main drivers underlying labour productivity dynamics observed between 1995 and 2024, with particular regard to the growth within sectors – which contributed 0.92 percentage points to the overall increase of 1.08 p.p. By contrast, inter-sectoral shifts, driven by an increase in employment (measured in hours worked) towards sectors characterised by higher-than-average productivity, played a significantly smaller role (0.20 p.p.)

Finally, the contraction of sectors with increasing labour productivity and, in parallel, the reallocation of labour towards those with decreasing productivity has reduced overall labour productivity by 0.04 percentage points.

This dynamic is aligned with that observed, on average, across the 27 EU Member States, as shown in the table below (p. 67).

Table 5.1: Growth of labor productivity within and shift between sectors, 1995-2024

	Inside	Static reallocation	Dynamic reallocation	Total
	Percentage points			In %
Austria	0,92	0,20	-0,04	1,08
EU27	0,87	0,28	-0,01	1,14
EA20	0,72	0,16	-0,01	0,87
BENESCAND	0,99	-0,04	-0,01	0,93

Source: Eurostat.
Note: Calculation of sector contributions according to the methodology used in de Vries et al. (2021) ("shift-share aggregation method"). The percentage points in the first three columns add up to the growth in labor productivity in % in the last column. Gross value added in chain linked volumes. Work measured in hours worked.

The largest contribution to labour productivity growth was provided by the manufacturing sector, with an average increase of 2.4 per cent, in line with the average of EU countries and the euro area.

Conversely, in the years 2023–2024, the decline in labour productivity was significantly affected, both in Austria and in EU countries, by the negative contribution of the manufacturing sector itself; on the other hand, among services, the most significant contribution to productivity growth is attributable to the ICT sector.

In addition to examining average productivity growth in Austria in the context of the European Union and the Euro Area, the report also provides comparative elements with the United States.

Within this comparative framework, it highlights the growing importance of **high-productivity services** sector in the overall performance of productive systems: between 2000 and 2019, the most pronounced difference between the US and the EU in terms of contributions to productivity growth is observed in **IT services (NACE classification J62–J63)** and **professional services (NACE M)**. In manufacturing, the US far outperforms Europe in the contribution of computers and electronics: the Austrian report formulates, further, the hypothesis that it is precisely the interaction between this latter sector and IT services that has provided the decisive impetus for the emergence of the productivity gap between the USA and Europe.

The document also highlights that the productivity growth deficit in key service sectors in Austria has been even more pronounced than in the rest of Europe, particularly in the period 2012–2024.

4. Policy Recommendations

A broad set of policy recommendations is then presented.

Among these, the predominant emphasis is placed on reorienting policies for technological development and research, which should follow a selective approach, prioritizing the most innovative sectors in funding decisions.

The report also recommends strengthening the diffusion of innovation and the development of **scientific communities and high-tech clusters**, covering different stages of integration within global value chains.

These initiatives, together with forms of ***regulatory sandboxes***, should generate competitive advantages for the localization within specific areas of the national territory of the most innovative productive activities.

Flexible financing systems are also recommended, capable of covering the entire innovation process, from idea generation to market deployment.

Particular emphasis is placed on policies aimed at **increasing the supply of skilled labour**, identifying and addressing shortcomings in the education and training system.

Additional recommendations concern the promotion of apprenticeships, the implementation of territorially differentiated active labour market policies, the creation of incentives and opportunities for career progression and occupational upgrading.

Specific importance is also attributed to strategies aimed at mitigating the country's energy dependence, improving energy and environmental transition processes, enhancing efficiency, reducing the costs and consumption of energy products.

At the European level, national and EU institutions are encouraged to work towards completing the integration of the European market, concluding agreements with other trade areas, and reducing bureaucratic and regulatory burdens.

Finland

1. General Information on the Report

Title: ***Productivity Growth in Finland – Drivers and Policy Perspectives***
Author: ***Finnish Productivity Board***
Year: ***2024***
Number of pages: ***71***

The report analyses the evolution of productivity in the Finnish economy over recent decades, with particular attention to the structural factors that have influenced economic growth and the country's competitiveness.

The document focuses specifically on developments in labour productivity and total factor productivity (TFP), assessing the role played by innovation, human capital, sectoral transformations, and public policies.

2. Structure of the Report and Main Issues Addressed

The analysis is organised into several sections examining:

- productivity trend in Finland over the long term;
- the main factors that influenced productivity growth;
- implications for economic policy.

Opening Chapters – Long-term Productivity Trends

The initial sections, devoted to productivity trends in Finland from the 1990s to the present, highlight that the country's economy experienced a phase of strong productivity growth between the mid-1990s and the mid-2000s, which was driven by the rapid expansion of the Information and Communication Technology (ICT). During this period, labour productivity growth was particularly strong and made a significant contribution to overall economic growth.

However, following the 2008 global financial crisis, productivity growth slowed significantly. According to the data reported, average labour productivity growth in Finland was around 0.5 % per year in the post-crisis period, a level markedly lower than that recorded in previous decades.

Central Chapters – Structural Factors of Productivity

A central part of the report is devoted to the analysis of the structural factors influencing productivity in the Finnish economy.

These include:

- transformations in the industrial structure;
- technological innovation;
- human capital;
- firm dynamics.

The report highlights that one of the main reasons for the slowdown in productivity growth was the transformation of the ICT sector following the decline of certain large technology firms. The reduced weight of the ICT sector in the economy contributed to slowing aggregate productivity growth.

The document further notes that, given the significant variation in productivity across firms and sectors, it is essential to promote the diffusion of innovation and more efficient managerial practices.

Final Chapters – Innovation, Technology and Firm Dynamics

The final sections analyse the role of innovation and firm dynamics in productivity growth. It is observed that productivity growth depends to a large extent on the ability of the most productive firms to expand and to spread innovation throughout the economic system.

In this context, the report emphasises the importance of resource reallocation processes between firms, which enables labour and capital to shift towards more efficient firms.

3. Specific features of the Finnish economy

The report identifies some structural characteristics of the Finnish economy that influence productivity dynamics.

Historical importance of the ICT sector

As noted, one of the key features of the Finnish economy is the strong presence of the ICT sector, which played a central role in economic growth between the 1990s and the early 2000s. The relative decline of this sector contributed to the slowdown in productivity growth observed in the years following the financial crisis.

High level of human capital quality

Finland exhibits high levels of education and workforce skills, which constitute a key factor supporting the economy's innovative capacity.

Relatively small domestic market

The relatively limited size of the domestic market makes it particularly important for Finnish firms to develop the capability to compete in international markets.

The report also includes more specific considerations on additional factors likely to influence Finland's long-term economic growth, including:

- transformations in the industrial structure;
- demographic dynamics;
- firms' ability to compete in international markets.

Overall, future productivity growth in Finland will depend on the capability of the economic system to strengthen innovation, foster the growth of the most productive firms, and support the adaptation of the economy to technological transformations.

4. Policy recommendations

The report provides several policy indications aimed at strengthening productivity growth in the medium and long term.

Strengthening innovation and research and supporting the growth of innovative and high-productivity firms

The report emphasises the importance of supporting investment in research and development and strengthening the innovation ecosystem.

Improving resource reallocation processes

A further area of intervention concerns improving resource reallocation processes between firms in order to promote the growth of more productive firms.

Strengthening workforce skills

Finally, the report stresses the importance of policies aimed at supporting training and upskilling of the workforce.

France

1. General Information on the Report

Title: ***Un monde en mutation: Productivité, compétitivité et transition numérique***
Institution: ***Conseil national de productivité***
Year: ***2025***
Number of pages: ***260***

2. Structure of the Report

The report of the *Conseil national de productivité* analyses the dynamics of productivity and competitiveness of the French economy in an international context characterised by technological transformations, changes in global trade, and the increasing diffusion of digital technologies.

To assess the evolution of the French production system, the report identifies the following factors, which have significant implications for economic policy:

- recent developments in labour productivity;
- analysis of the competitiveness of the French economy;
- the role of digitalisation and new technologies in productivity growth.

3. Main Issues Addressed

Productivity trends after the pandemic

The first chapter analyses labour productivity trends in France in the years following the COVID-19 pandemic and compares these developments with those observed in other advanced economies.

The analysis shows that the slowdown in productivity growth observed in recent decades in France is part of a **broader trend of declining labour productivity growth across advanced economies**. In the French case, the report highlights that post-pandemic productivity dynamics have been influenced by particularly strong employment growth. This has supported the economic recovery but has resulted in a reduction in productivity per worker.

According to the data reported:

– in 2023, productivity per employed person in France was approximately 3**,5 % lower** than its 2019 level;
– productivity per hour, by contrast, showed a more favourable trend, standing about 7,6 % higher than its 2019 level.

These differences reflect not only the strong expansion of employment but also changes in the composition of employment and in the distribution of hours worked.

Competitiveness of the French economy

The second chapter examines France's competitiveness through both cost-based and qualitative indicators.

The indicators employed include:

– unit labour costs;
– export structure;
– positioning within global value chains;
– quality and diversification of exported products.

In recent years, specific policy measures have contributed to improving certain competitiveness indicators. Among these is the reduction of *impôts de production*, i.e., a category of taxes specific to the French fiscal system that burden firms' productive activities: in fact, these taxes are not levied on net profits but are based on other parameters of economic activity such as production factors, value added and productive assets.

According to the report, the reduction of these taxes has contributed to improving the attractiveness of the French productive system and to supporting corporate investment.

Nonetheless, the document underlines that France's competitiveness remains strongly influenced by **structural features of the productive system and by the sectoral positioning of the economy**.

Digitalisation and productivity growth

The third chapter analyses the contribution of digital technologies to productivity growth.

The econometric analysis shows that digitalisation has a positive and statistically significant effect on total factor productivity (TFP). However,

the diffusion of digital technologies remains **uneven across firms and sectors**.

The report also highlights that all European countries, and France in particular, show lower levels of investment in digital technologies compared to the United States.

In particular:

- European investment in advanced digital technologies is lower than in the United States;
- the diffusion of artificial intelligence and advanced digital technologies remains limited in many firms, especially SMEs.

The document further emphasises that the adoption of generative artificial intelligence could have significant effects on productivity growth in the medium term, especially if accompanied by adequate investment in skills and human capital.

4. Specific features of the French economy

The report identifies several structural characteristics distinguishing the French economy in the international context.

Productivity levels

France maintains relatively high levels of labour productivity, but the growth of this indicator has been more moderate over the past two decades compared to some advanced economies.

Recent employment growth

As already mentioned, in the years following the pandemic, France recorded significant employment growth. This dynamic supported economic growth but temporarily reduced productivity per worker.

Heterogeneity across firms

The report also highlights a high **dispersion of productivity across firms**.

The French productive system is characterised by the presence of:

- large, highly productive firms strongly integrated into international markets;
- a broad base of small and medium-sized enterprises with lower productivity levels.

This heterogeneity represents one of the structural factors limiting aggregate productivity growth.

5. Policy Recommendations

The report identifies several lines of intervention to support productivity growth in the medium and long term.

Strengthening investment in innovation

The report emphasises the importance of increasing investment in research and development and in advanced digital technologies, particularly in sectors related to artificial intelligence.

Promoting the diffusion of digital technologies

A key priority concerns improving the diffusion of technological innovations among small and medium-sized enterprises, which often face greater difficulties in adopting advanced digital technologies.

Investing in skills

Improving education and professional training is also considered essential to enable workers to adapt to technological and organisational transformations.

Improving resource reallocation processes

Finally, the document stresses the importance of policies that promote efficient reallocation of resources across firms and sectors, facilitating the growth of more productive firms and improving market functioning.

6. Additional Relevant Elements Emerging from the Report

The report also highlights further factors affecting the growth prospects of the French economy, including:

- transformations in global value chains;
- the impact of the digital transition;
- changes in the international economic environment.

The report concludes by emphasising that, overall, future productivity growth in France will largely depend on the economy's ability to harness **the opportunities offered by new technologies and to diffuse innovation throughout the productive system**.

Germany

1. General Information on the Report

Title: ***2025 Productivity Report - Supporting structural change and developing future prospects for affected regions*** *(4th chapter of a broader document)*
Author: ***German Council of Economic Experts***
Year: ***2025***
Number of pages: ***ca. 40***

2. Structure of the Report

The report consists of an introduction and 4 sections, complemented by a statistical and methodological appendix.

More specifically, the report:
- analyses the structural changes affecting the national economy and their impact on economic growth;
- examines the drivers of the ongoing changes and the specific features related to regional development;
- illustrates the challenges affecting regions and the labour market;
- finally identifies areas for policy intervention.

The analyses are interspersed with references to **in-depth boxes** located throughout the report and with a form of glossary providing definitions of the terminology used, as well as methodological reflections.

3. Main Issues Addressed

Description of structural changes in the German economy

The first section is devoted to the illustration of **structural changes**, defined as "changes in the shares of value added and in employment shares **across economic sectors and across regions**."

With regards to **inter-sectoral change**, the report highlights that in Germany the share of manufacturing value added has resumed its decline since 2017 while remaining at relatively high levels: in 2023, it stood significantly higher (20%) than in the United States (11%) and above the European average (11% and 16% in 2021).

Structural changes have been accompanied by a decline in the trend rate of productivity growth. According to the report, the reallocation of productive factors across sectors influences long-term growth prospects, as sectors differ both in productivity levels and in productivity growth rates.

In Germany, the structural changes **from the secondary to the tertiary sector** has slowed the growth of potential output, as services have traditionally been characterised by lower productivity than manufacturing.

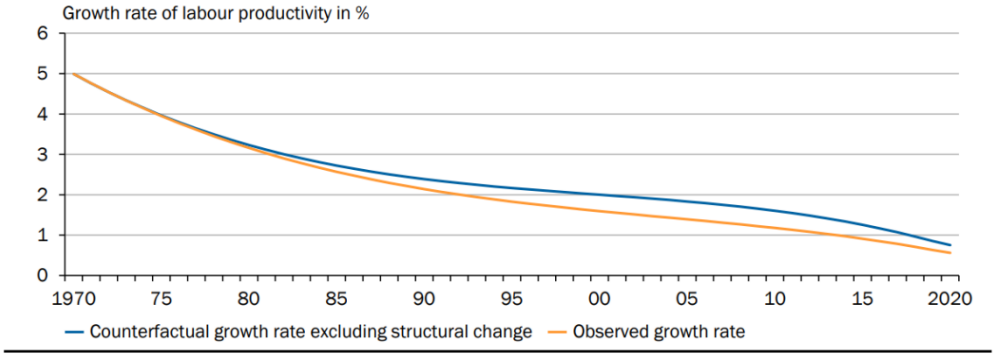
This is compounded by **the relatively weaker development**, compared with other economies**, of highly innovative and knowledge-intensive services**: this trend in the tertiary sector, combined with a manufacturing specialisation in **medium-tech industries**, contributes to slowing productivity growth at a time when, globally, high-tech sectors (both industrial and services) are experiencing strong expansion.

The chart below, drawn from the report (p. 200), compares observed productivity growth rates between 1970 and 2020 with "counterfactual" rates obtained by excluding the component attributable to structural change across sectors.

↘ CHART 46

Productivity growth in Germany

Contribution of structural change between the sectors



1 – Values smoothed using a polynomial.

Sources: Bontadini et al. (2023), EUKLEMS, own calculations

© Sachverständigenrat | 25-013-01

In order to analyse in depth the contribution of structural change to productivity growth dynamics, the report also provides an econometric exercise to assess how much is attributable to inter-sectoral change (*shift between sectors*) *and how much to within-sector dynamics*.

It is noted that the causal link between inter-sectoral structural change and the reduction in trend productivity growth could be mitigated or even reversed by investments and policies capable of increasing innovation rates

in the sectors concerned, for example through **intensive use of AI and other frontier technologies**, particularly in ICT services and other business services.

To date, despite reaching high levels as a percentage of GDP, R&D expenditure has been concentrated mainly in *medium-tech* sectors while innovation has often focused on already established technologies (particularly in the automotive sector). This limited diversification has also been influenced by the lower profitability of *high-tech* sectors in Europe compared to many *medium-tech* industries.

In an international comparison, the expansion of *knowledge-intensive* services has also been slowed by the presence of increasing regulatory constraints.

Overall, productive specialisation has generated forms of dependency and rigidity (with regards to infrastructure and human capital as well), which tend to reinforce existing industries but hinder entry into other sectors such as ICT or biotechnology.

The challenges posed by **decarbonisation, international crises**, and increasing global competition have made these vulnerabilities more evident.

Effects of structural change on regions

The report concludes that structural change is likely to continue affecting the **already weak productivity growth of the German economy over the coming decades**, with a strongly differentiated impact **across regions**.

It therefore examines the regional and territorial distribution of economic activities and the impact that structural change has had on different regional contexts.

Given the productive specialisation of different areas, the effects of change are expected to vary considerably across regions.

In fact, the detailed analysis carried out in this section identifies some specific factors of rigidity and vulnerability at the regional level.

Among these, the report highlights a form of **"spatial segregation"** of the workforce by skill level, resulting from pronounced productive specialisation. For example, the increasing share of value added attributable to services (especially knowledge-intensive ones), mainly located in

metropolitan areas, leads to a concentration of highly skilled workers in large cities, while low-skilled workers tend to remain in more peripheral or less diversified areas.

Drivers of structural change and regional development

The report further highlights that structural change affects the regional disparities described above in different ways depending on the sectors involved and the main drivers of change.

It therefore analyses the impact of structural change on sectoral and regional specificities, considering separately the main drivers, identified as:

- international trade;
- automation, digitalisation and artificial intelligence;
- decarbonisation;
- demographic change and its implications for the labour market.

Challenges for regions and the labour market

Chapter 5 also focuses on the regional differentiation of the German economy. The analysis aims to identify the challenges facing different areas and their **specific implications for the labour market**, taking into account the impact of ongoing structural changes.

The document observes that the drivers of change affect production sectors, regional areas, and employment conditions with varying intensity.

For example, *export-oriented* industrial sectors will be particularly affected by drivers related to international trade and will respond according to their sectoral and territorial specificities.

More generally, the report notes that regions with a high concentration of single sectors are less adaptable to change and to supra-regional shocks or rapid price increases also due to a reduced capacity to reallocate labour.

To assess the nature and magnitude of these challenges, the report focuses on the following developments, outlining the associated risks for the affected territories and sectors:

- **Polarisation and skills mismatch:** changes in labour demand and required skills for certain occupations may lead to mismatches between labour supply and demand. This problem may be exacerbated when

changes occur too rapidly for education and vocational training systems to adjust.

– **Region-specific adaptation challenges:** the report examines the challenges that different regions are likely to face, outlining scenarios of economic change, **particularly in labour markets**, differentiated according to **sectoral and territorial characteristics**. For this purpose, the regions are classified on the basis of phenomena observed in correspondence with the changes that have occurred, into **four types**: "*reinvention regions*", which show strong structural change and above-average employment growth; "*high-flying regions*", with limited structural change but high employment growth; "*depressed regions*", not yet strongly affected by change but with low employment growth; and "*structural change losers*", experiencing strong structural change combined with low or negative employment growth.

4. Conclusions and Areas for Intervention

The final chapter of the report focuses on measures that could be adopted to address the regionally heterogeneous challenges, generated by structural change, with the aim of reducing frictions, rigidity factors and promoting growth and balanced employment conditions, which are also fundamental for social stability.

The recommendations aim to guide effective policies, particularly industrial policies, capable of supporting, rather than halting, the ongoing transformation, and of strengthening productivity in light of the sectoral and regional characteristics described.

Since structural change is reshaping the employment landscape by generating strong demand for new skills and qualifications, training programmes and mobility support measures can limit structural unemployment and mitigate the social impact of change. By intervening in education and training systems, it is possible to ensure that structural change unfolds efficiently, reducing potential skills mismatch.

Economic policy can also counteract the negative effects of structural change on productivity by promoting technological development, particularly in ICT and AI sectors.

Attention should be directed towards innovation and market-based processes, preferably coordinated at the European level, while "vertical" industrial policy measures should be limited to the temporary support of future-oriented activities, excluding purely protective interventions (in line with the principle "*let the losers go*").

In other words**,** structural change should not be obstructed, but "accompanied" through economic policy measures. These should be selective and oriented towards promoting genuinely strategic sectors.

The Report notes that, in the absence of active industrial policy, there is a risk of losing technological leadership.

Particular emphasis is therefore placed on **coordinated policies at the European level** aimed at enhancing the competitiveness of Europe as a whole, rather than intensifying intra-European competition by supporting individual firms. Measures should also avoid distorting competition.

More generally, it is highlighted that the adaptability of the German economy would be strengthened by further development and integration of the European market, as well as by greater integration or coordination in energy policy, security and defence policies, and research and development.

Without investment in *in-house digitalisation*, firms will not be able to achieve autonomy in their automation projects. The use of AI and ICT should be promoted especially among small and medium-sized enterprises through the development of adequate cloud infrastructure. While the EU is well positioned in AI research, it lags significantly in the development and application of such technologies in production processes. This too requires a coordinated European effort.

Particular importance is **also attributed to the restructuring of the energy supply system,** following the transition to decarbonisation, in order to reduce energy prices. Efforts should also focus on strengthening networks, integrating European electricity markets, energy efficiency, reducing regulatory and administrative burdens.

With regard to territorial imbalances, **adjustment frictions in German regions** can be addressed through investments program in infrastructure, research and development, as well as through measures supporting regional development.

In this context, the objective should not **be to prevent change, but to foster its social acceptance**, both through improvements in economic indicators and through the creation of concrete prospects for the most affected regions.

The report also highlights the positive role that territorially tailored policies can play in reducing adjustment costs and compensating for insufficient investment in weaker regions. Greater involvement of municipalities could facilitate the "customisation" of measures to actual needs. In some regions, enhanced research and development could be supported through closer **integration of universities into knowledge networks**, enabling more efficient processes of knowledge and innovation transfer.

Specific reflections are also devoted to employment.

Structural change leads to **labour market polarisation**, with increased demand for both high- and low-skilled workers, while demand for medium-skilled profiles declines. This process is reinforced by globalisation, automation, and demographic change.

In the medium to long term**, demographic developments and technological progress** may result in **shortages of skilled workers** in sectors that are strategic for ongoing transformation. It is therefore essential to ensure the availability of a workforce with adequate skills.

On the one hand, this calls for the automation of many activities, for example in the healthcare and care sectors; on the other, it requires policies to improve the **education system** so that it better responds to the **evolving needs of the production system, in order to prevent skill mismatches and support the transition.**

In the shorter term, labour mobility across firms should be facilitated, for example through so-called ***labour-market hubs***, which connect firms reducing their workforce with those seeking to expand it.

Greece

1. General Information on the Report

Title: ***Annual Report 2025***
Author: ***Greece - KEPE, Centre of Planning and Economic Research***
Year: ***2025***
Number of pages: ***ca. 90***

The annual report of the Greek National Productivity Board analyses the evolution of productivity in the Greek economy in the context of the structural transformations that have taken place following the financial crisis and the process of economic convergence with the European Union.

2. Structure of the Report and Main Issues Addressed

The report is organised into sections analysing:

- recent developments in productivity and economic growth;
- structural characteristics of the Greek productive system;
- economic policies required to support productivity growth.

Opening Chapters – Productivity and Economic Growth Trends

The initial sections highlight that, after the severe economic contraction recorded between 2008 and 2016, the Greek economy has gradually embarked on a recovery process.

According to the data reported:

- real GDP in Greece grew by 2% in 2023, despite an uncertain international economic environment;
- labour productivity has improved in recent years, although levels remain below the EU average.

The report also notes that recent economic growth has been driven primarily by the **services sector, especially tourism and transport**.

Central Chapters – Structure of the Productive System

A central part of the report is devoted to analysing the structural characteristics of the Greek economy that influence productivity.

Key elements include:

– the limited average size of firms, with a strong presence of small and micro-enterprises;
– relatively low levels of investment in research and development.

The document also highlights significant variation in productivity across sectors, with generally higher levels in **"tradable" services** (tourism, maritime transport, etc.) compared to other sectors.

In summary, the main features distinguishing the Greek economy in the European context are:

High prevalence of micro-enterprises

This contributes to a fragmented productive structure, limiting economies of scale and the capability to invest in innovative technologies;

Importance of the services sector

Tourism and related services represent a fundamental component of the Greek economy and contribute significantly to economic growth;

Economic recovery after the sovereign debt crisis

The report highlights that Greece has experienced an improvement in macroeconomic conditions in recent years, supported by structural reforms and increased economic stability.

The document emphasises that strengthening productivity is a fundamental condition for supporting Greece's economic convergence with other EU countries in the long term.

Final chapters – Innovation, digitalisation and productivity

The final sections analyse the role of innovation and digitalisation in productivity growth.

The document highlights that the adoption of digital technologies is a key factor in improving productivity of the economic system. However, their diffusion among Greek firms remains below the EU average.

According to the report:

– R&D expenditure in Greece amounts to approximately **1.5% of GDP**, below the EU average;

– the adoption of advanced digital technologies remains limited in many firms, especially small enterprises.

Accelerating digitalisation is, thus, one of the central challenges for sustaining long-term productivity growth.

3. Policy recommendations

The report identifies several areas of intervention able to support productivity growth in the medium and long term.

Strengthening investment in innovation

First and foremost, the report emphasises the need to increase investment in research and development and to support innovation in firms.

Promoting the digitalisation of firms

Another priority concerns the diffusion of digital technologies, particularly among small and medium-sized enterprises.

Improving the business environment

The importance of policies that support firm growth and improve the regulatory framework is also highlighted.

Investment in human capital

Finally, strong emphasis is placed on the need to strengthen education and skills development policies to support the adoption of new technologies.

Ireland

1. General Information on the Report

Title: ***Ireland's Competitiveness Challenge 2025***
Author: ***National Competitiveness and Productivity Council***
Year: **2025**
Number of pages: ***ca. 90***

The report *Ireland's Competitiveness Challenge 2025* analyses the main factors of competitiveness and productivity in the Irish economy within an international context characterised by **increasing economic uncertainty, technological transformations, and changes in global value chains**.

The document, published by the *National Competitiveness and Productivity Council* (NCPC), aims to identify the key factors influencing the competitiveness of the Irish economy and to formulate policy recommendations to strengthen sustainable growth and productivity in the medium to long term.

2. Structure of the Report and Main Issues Addressed

The report is organized into three main thematic areas:
- macroeconomic context and overall competitiveness of the Irish economy;
- structural constraints affecting competitiveness;
- the role of productivity, innovation, and digital technologies.

Opening Chapters – Competitiveness and Economic Context

The initial sections of the report examine the macroeconomic context and the competitive positioning of the Irish economy.

Ireland continues to record relatively positive economic performance compared to other European economies, with **high levels of foreign investment** and a strong presence of **multinational enterprises in technology-intensive sectors**.

However, these features also underpin exposure to several risk factors, including:
- strong dependence on foreign investment;
- volatility in certain macroeconomic indicators;

– infrastructural constraints and pressures on domestic costs.

Central Chapters – Structural Constraints on Competitiveness

A significant portion of the report is devoted the analysis of the main structural constraints affecting the competitiveness of the Irish economy.

Among the most relevant issues highlighted are:

– infrastructural shortcomings;
– high energy costs;
– housing shortages;
– pressures on business costs.

The report emphasises that these factors may affect Ireland's capability to attract investment and sustain productivity growth in the long term.

Specific attention is given to the **construction sector**. According to the data presented in the report, productivity in this sector in Ireland is significantly lower than in some advanced economies, at approximately **half the level recorded in Norway**. This dynamic contributes to the increase in the costs of infrastructure and housing.

The document also notes that productivity in the construction sector has not yet recovered to pre-2008 financial crisis levels.

Chapter 6 – Productivity, Technology and Innovation

This chapter analyses the factors determining labour productivity and the role of technological innovation, highlighting several key features of the Irish production system.

First and foremost, aggregate productivity in the Irish economy is heavily influenced by **multinational enterprises**, which operate primarily in technology-intensive sectors and show very high productivity levels.

Among the data cited in the report:

– in 2023, labour productivity in Ireland declined by 0.3%, interrupting a seven-year growth period;
– approximately 14.9% of Irish firms were using artificial intelligence technologies in 2024, according to Eurostat data.

3. Specific Features of the Irish Economy

The report highlights additional characteristics that distinguish Irish economy. In addition to the strong presence of multinational enterprises in technology-intensive sectors (including pharmaceuticals, ICT, and digital services), the following factors are emphasised.

Differences between the multinational and domestic sectors

The report underscores the existence of a wide productivity gap between multinational and domestic firms. Multinational firms are generally **more *capital-intensive*** and contribute significantly to the high productivity levels observed in aggregate statistics.

This gap represents a structural feature of the Irish economy and makes the interpretation of productivity statistics more complex.

*Importance of the GNI**

Given this heterogeneity, the report stresses the importance of analysing the Irish economy using indicators alternative to GDP, such as GNI* (*Modified Gross National Income*), which provides a more accurate measure of Irish economic activity.

4. Policy Recommendations

The Irish report highlights that productivity growth is one of the main determinants of long-term economic welfare and formulates several policy recommendations aimed at strengthening competitiveness and productivity in the Irish economy.

Improving productivity statistics

One of the main recommendations concerns the need to publish productivity statistics that are disaggregated between domestic and multinational firms. According to the report, such data would allow for a better understanding of productivity dynamics in the Irish economy.

Diffusion of digital technologies

The report highlights the importance of promoting the adoption of advanced digital technologies and artificial intelligence tools among domestic firms.

Strengthening investment in innovation

Moreover, the report stresses the need to support investment in research, development, and innovation to enhance firms' productive capacity.

Improving productivity in the construction sector

A further recommendation concerns the need to improve productivity in the construction sector through:

– greater use of digital technologies;
– wider adoption of modern methods of construction;
– improvements in planning and permitting processes.

Overall, the report concludes that Ireland's ability to maintain high levels of competitiveness will depend on strengthening productivity in the domestic sector and addressing several structural constraints affecting its functioning, including:

– the availability of infrastructure and housing;
– energy costs;
– the evolution of workforce skills.

Netherlands

1. General Information on the Report

Title: ***National Productivity Board 2024 Annual Report***
Author: ***Centraal Planbureau (CPB) – Bureau for Economic Policy Analysis***
Year: ***2024 (published in 2025)***
Number of pages: ***27***

2. Structure of the Report and Main Issues Addressed

The report consists of an executive summary and four main sections.

The summary highlights the key findings of the analysis.

The first section contains introductory considerations.

Section 2 describes productivity developments in 2023, within a comparative framework with other European countries.

Section 3 seeks to identify the causes of the unfavourable productivity performance observed in recent years.

The final section updates firm-level productivity data, providing specific analyses on productivity dispersion, the relationship between business dynamics and aggregate productivity, and the impact on productivity of exporting firms and their intermediate suppliers.

3. Labor Productivity Trends and Analysis of Possible Causes

In the Netherlands, labour productivity in the market sectors (defined as value **added per hour worked**) was 1.4% lower **in 2023** compared to 2022.

The negative growth in 2023 was driven by:

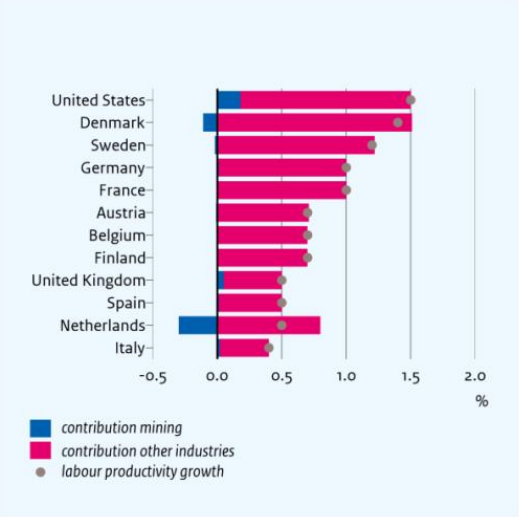
- Total Factor Productivity (–0.8%), which declined after increases recorded in 2021 and 2022 (partly reflecting recovery from the pandemic shock);
- capital intensity (–0.8%), continuing a long-term trend of declining capital stock per hour worked since the mid-2010s.

This was accompanied by an increase in total hours worked.

These results were also influenced by policies *phasing out* gas extraction. Excluding the mining sector, productivity growth in recent years shows a

trend comparable to that of other European countries, as illustrated in the figure reported in the document (p. 7).

Figure 2.2 Average annual growth of labour productivity in the Netherlands was low due to mining (2013-2019)



Source: De Vries et al. (2024), Figure 4.2 & 5.1

The overall *slowdown* in productivity is a long-term phenomenon that introduces uncertainty into overall growth projections.

The report reviews the ongoing debate on the causes of these dynamics, which are likely to be partly common across advanced economies (a natural decline in innovation momentum, demographic factors, a reduced share of employment in R&D, physiological limits to further increases in education and skills, etc.).

It then examines in more detail several possible causes of the unfavourable productivity trends observed particularly over the past decade, presenting the economic debate on the issue.

The report concludes that **there is no broad consensus** on the identification of these factors and emphasizes the **close interdependence among multiple causes, which makes it difficult to determine their individual impact with certainty**.

In particular, the range of possible contributing factors includes the following:

Differences between high-productivity and medium- or low-productivity firms

Differences in productivity growth across firm groups began to widen around 2015. Divergence in productivity dynamics has been more pronounced in manufacturing than in services.

However, this factor alone cannot fully explain the slowdown in productivity growth, which in the Netherlands began well before 2015.

Increase in market concentration

According to a recurring hypothesis, firms with greater market power have weaker incentives to increase productivity. Once "superstar" firms achieve dominant market positions, they may prefer to protect excess profits rather than undertake innovative investments.

Other scholars attribute productivity dynamics in the Netherlands to increased investment in **intangible capital**, characterized by low marginal costs and high fixed costs, which encourages the growth of large firms and may dampen productivity growth.

However, the report also notes that high market concentration can, under certain conditions, foster productivity growth. For these reasons, the decline in productivity in the Netherlands **does not appear to be directly associated to increased market power**.

Weakening of market dynamism

Another hypothesis links lower productivity growth to **reduced market dynamism and firm demographics**, which may hinder the process of "**creative destruction**" and the reallocation of productive factors toward more efficient uses. This hypothesis may be relevant in the Dutch case, as the share of start-ups has steadily declined since 2006. However, this explanation is **also contested, with some analysts arguing that reduced market dynamism may be a contributing factor, but not the main driver of productivity decline**.

Changes in the sectoral composition of the economy

Some economists argue that the increasing share of services in the economy, accompanied by a declining share of manufacturing, has a negative effect on aggregate productivity, since industry contributes more strongly to productivity growth. Others counter that the **intersectoral shift observed between 2002 and 2017 was not large enough** to significantly affect the annual productivity growth rate.

Measurement issues

The report also reviews part of the literature attributing the decline in productivity to measurement problems, particularly in the modern economy characterized by digitalization and intangible investments, which

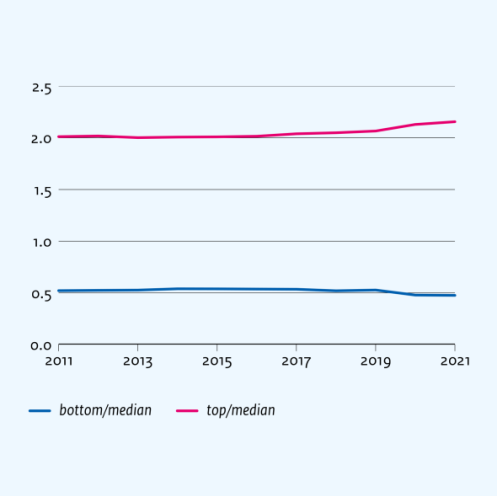
pose both theoretical and practical challenges for productivity measurement.

4. Specialized Analyses: Productivity Dispersion, the Contribution of Business Dynamics, and the Productivity Advantage of Exporting Firms and Their Suppliers

The report includes detailed empirical **analyses** based on highly granular datasets, allowing conclusions at the firm level rather than only at the sectoral level.

A first analysis examines **productivity dispersion** across firm groups, measured by differences between percentiles of the productivity distribution. The results show significant gaps between the upper and lower ends of the distribution, as the figure below shows (p. 13).

Figure 4.1 Labour productivity, frontier (top-10%) and laggard (bottom-10%) firms compared to median, business economy, 2011-2021



Note: top, median and bottom refer to respectively 90th percentile, median, and 10th percentile of the productivity distribution. Productivity is measured as real value added over persons employed in full-time equivalents. Percentile deviations are calculated within-industry (NACE Rev. 2, two digit) and year. Only enterprises with 3 or more persons employed and legal personality (corporations) have been included, that are part of the Business Economy (NACE Rev. 2 B-N, excl. K, incl. 95; we also exclude 19 and L). Nominal value added is deflated using National Accounts industry-level deflators. For more on the underlying data, see CBS (2022a, Chapter 2).

A second analysis investigates the **relationship between *business dynamics* and aggregate (industry-level) productivity**. **The contribution of business dynamics to growth** is measured as the combined net effect of firm entry, exit, and survival.

Comparing the periods 2011–2015 and 2015–2019, the importance of business dynamics in driving productivity growth declined in both manufacturing and services.

Finally, the report analyses the **productivity of exporting firms and of those connected to them through production chains**.

The results confirm the conclusions made by part of the existing literature (Bernard and Jensen, 1999), showing that **exporting firms** tend to have more employees, larger capital stocks, and **higher productivity** than non-exporting firms.

A more original result is that firms supplying exporters also display higher productivity than the average firm.

Combined, exporting firms and their suppliers form the most productive group of firms in the Netherlands.

5. Conclusions and Policy Recommendations

The report concludes by highlighting the importance of export-oriented firms for productivity growth, both directly and through their positive effects on supplier performance.

Policies supporting exports could therefore have a significant positive impact on productivity dynamics.

Government policies should, e.g., focus on promoting knowledge diffusion from exporting firms to other firms and foster linkages between firms to ensure spillover effects from exporters to their suppliers and to other sectors.

Monitoring which firms benefit most from these advantages could facilitate the understanding of the **relationship between exports and productivity** and enable more effective support policies.

Portugal

The Productivity Council was established on 20 March 2018.

No recent reports are available on the EU website; the latest ones date back to 2019 and 2022.

Slovakia

1. General Information on the Report

Title: ***Report on Productivity and Competitiveness***
Author: ***Institute for Economic Analysis (IHA)***
Year: ***2023***
Number of pages: ***34***

2. Main Issues Addressed and Policy Recommendations

The most recent report for Slovakia was published in 2024 and contains data referring to 2023.

The main focus of the analysis is the **dual nature of the Slovak economy**, where foreign-owned firms exhibit productivity levels roughly twice as high as those of domestic firms.

These characteristics stem from the specific way in which the Slovak economy is integrated into global value chains.

Compared to foreign firms, domestic firms face several disadvantages, including **weaker managerial capabilities, lower adoption of advanced technologies**, difficulties in achieving adequate economies of scale and constraints in technical capacity, financing, and access to foreign markets.

The **small size of the domestic market and the lack of production diversification** limit the reallocation of resources across sectors as a mechanism for increasing productivity and competitiveness.

The **dominance of foreign-owned firms** also implies a greater ability to source intermediate goods and to influence price mark-ups for final products.

Finally, the **fragmentation of the national production system** is also particularly evident, with more than one quarter of firms that have fewer than 10 employees, and around half that have fewer than 50.

It is precisely within the category of micro-enterprises that the largest productivity gap between domestic firms and more dynamic foreign firms is observed. Excluding micro-enterprises, the overall gap is reduced. This is partly explained by the significant role of the "informal" economy, i.e., firms that only partially report their production and turnover, which is concentrated among smaller firms.

Moreover, the **"vertical" productivity gap between *leaders* and *laggards*** is among the widest in Europe.

Leading firms exhibit very high productivity performance, even by European standards, while a significant share of firms – particularly in construction, accommodation, food services, and parts of manufacturing oriented toward the domestic market – show some of the lowest productivity levels in Europe.

The result is a **marked polarization of firms and a wide dispersion in productivity**, which is not offset by spillover effects from leading firms to those at the lower end of the distribution. Over the long term, however, a gradual reduction in productivity gaps is expected, driven by relatively favourable dynamics among currently underperforming firms.

The report highlights that a more balanced productivity growth represents both an **economic and a social objective**.

Among the policy recommendations, the report emphasises the need for continuous monitoring of market conditions and the production system in order to detect changes in market power concentration among firms, particularly with regard to access to production factors and intermediate goods.

Spain

The Spanish Productivity Board was established on 30 July 2024.

No reports have yet been published on the EU website.

For information on key indicators and productivity dynamics in Spain, a recent report published on the IMF website can be consulted at the following address: https://www.imf.org/en/publications/selected-issues-papers/issues/2025/06/13/spains-productivity-gap-vis-vis-europe-and-the-united-states-diagnosis-and-remedies-567671

EU Countries Outside the Euro Area

It should be noted that EU countries outside the euro area have only been "encouraged" (rather than "invited," as in the case of euro area countries) to establish a Productivity Board.

Denmark

1. General Information on the Report

Title: ***Only an executive summary of approximately 8 pages is available on the European Commission website, extracted from a broader Economic Report that is only partially devoted to productivity***.

Author: ***Chairmanship of the Economic Councils***

Year: ***2025***

The document is divided into three parts, corresponding to three chapters of a broader report (not published on the EU website).

The three thematic areas are:

– current economic policy;
– economic and public finance forecasts;
– mergers, competition, and productivity.

The Danish economy (spring 2025) is in a favourable position despite uncertainty surrounding global growth and shows high levels of employment.

The United States represents an important export market for Danish goods; U.S. tariff policy can therefore affect exports both directly and indirectly, through participation in production chains involving third countries.

The main risks to the outlook are thus linked to international trade.

Employment has been increasing in recent years; the projected rise compared to 2024 allows high levels to be maintained without generating wage pressures.

However, there are signs of a gradual weakening of competitive conditions in Denmark.

Chapter 3 analyses **competition** in the Danish market, which the report considers crucial for ensuring long-term productivity growth and a prosperous society.

Starting from this premise, Chapter 3 examines how mergers between firms have affected competition and efficiency between 2001 and 2020.

During this period, approximately **6,500 mergers took place among Danish firms**, involving around 20% of employment in non-agricultural private sectors.

The analysis leads to the following conclusions:

- market power in manufacturing and service firms has significantly increased following mergers: on average, firms **raised the gap between prices and costs by about 4–5%** after merging (increase in markups);
- production has undergone a **significant process of concentration**: mergers contributed about one-sixth of the overall increase in market concentration.

The remaining increase is mainly due to rising market shares in already highly concentrated sectors, such as the pharmaceutical industry.

The report notes that while this process has contributed to greater efficiency, with an average reduction of around 10% in firms' marginal costs, only 60–80% of these cost reductions were passed on to consumers through lower prices, while the remaining 20–40% translated into **higher firm markups**.

The report therefore highlights the importance of optimizing competition policy through continuous supervision and improvements in sectoral legislation (recalling recent legislative proposals on mergers), **provided that the regulatory burden does not exceed the benefits**.

The document also emphasises the importance of **energy policy, the development of renewable energy sources, and independence from natural gas**. With specific regard to offshore wind farms, it expresses a preference for tax incentives rather than direct subsidies.

Sweden

At present, no information on the establishment of a Productivity Board in Sweden is available on the EU website, nor is any related report accessible.

Updated information on productivity dynamics in the Swedish economy can be found on the **IMF website** at the following address: https://www.imf.org/-/media/files/publications/selected-issues-papers/2025/english/sipea2025037.pdf


REPUBBLICA ITALIANA
CNEL
CONSIGLIO NAZIONALE ECONOMIA E LAVORO