

What does the twin transition imply for supply-side economic strategy?

European Commission, Sustaining Productivity Growth in the
Twin Transition
Brussels, 10 October 2024

Diane Coyle

Bennett Institute, University of Cambridge

Transitions will shape economy for decades



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The 'free market innovation machine' has malfunctioned

Sustainability

Health & life expectancy

Resilience/security

Inequality

Flat productivity

Everyday challenges



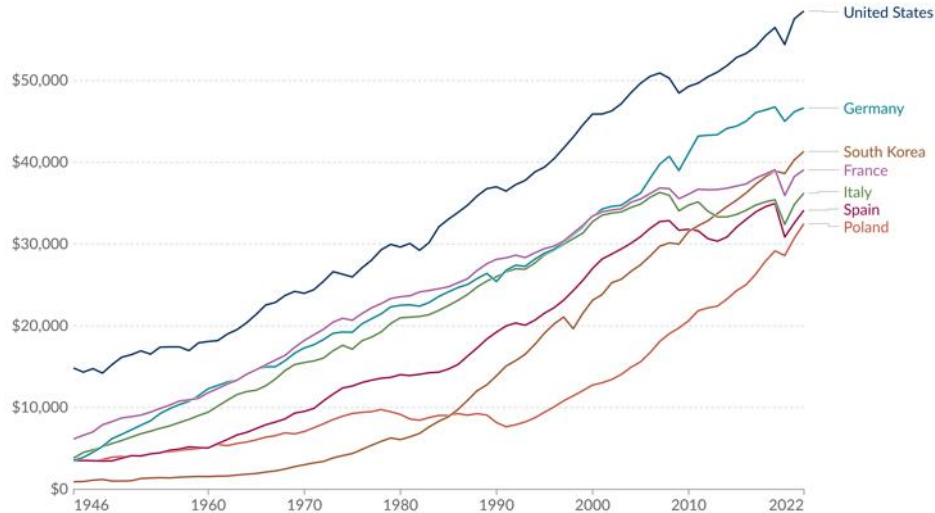
Photo by Grant Ritchie on Unsplash

There are few economic ‘miracles’

GDP per capita, 1946 to 2022

This data is adjusted for inflation and for differences in the cost of living between countries.

Our World
in Data



Data source: Bolt and van Zanden - Maddison Project Database 2023

OurWorldinData.org/economic-growth | CC BY

Note: This data is expressed in international-\$¹ at 2011 prices.

1. **International dollars:** International dollars are a hypothetical currency that is used to make meaningful comparisons of monetary indicators of living standards. Figures expressed in international dollars are adjusted for inflation within countries over time, and for differences in the cost of living between countries. The goal of such adjustments is to provide a unit whose purchasing power is held fixed over time and across countries, such that one international dollar can buy the same quantity and quality of goods and services no matter where or when it is spent. Read more in our article: [What are Purchasing Power Parity adjustments and why do we need them?](#)

Firms face multiple, interdependent, choices

Margin	Response to adverse shock
Output quantity	Output declines (turnover, exports)
Output price	Price rises
Input mix (K,L,E,M,S)	Decline in use of more costly factors, others ambiguous
Production process	Technology, location, WFH, organisation ...
Stay/quit	Business survival, start-up rates

Based on Table 1 in *How do firms cope with economic shocks in real time?* Thiemo Fetzer, Christina Palmou, Jakob Schneebacher, https://assets.publishing.service.gov.uk/media/66e958fee4b40ed591881c44/How_do_firms_cope_with_economic_shocks_in_real.pdf

Firms' choices depend on starting point

Figure 3. Firm productivity in 2019 and likelihood of introducing new digital products during the pandemic

Regression coefficients for labour productivity groups, by digital technology classes (reference productivity group: 40%-60%)

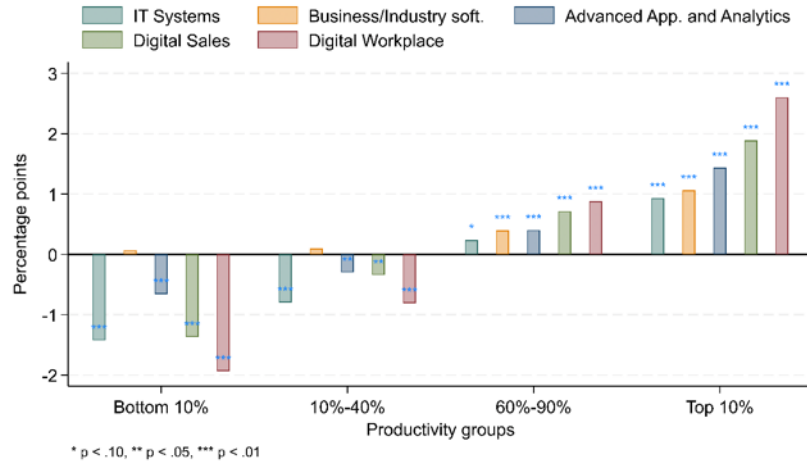
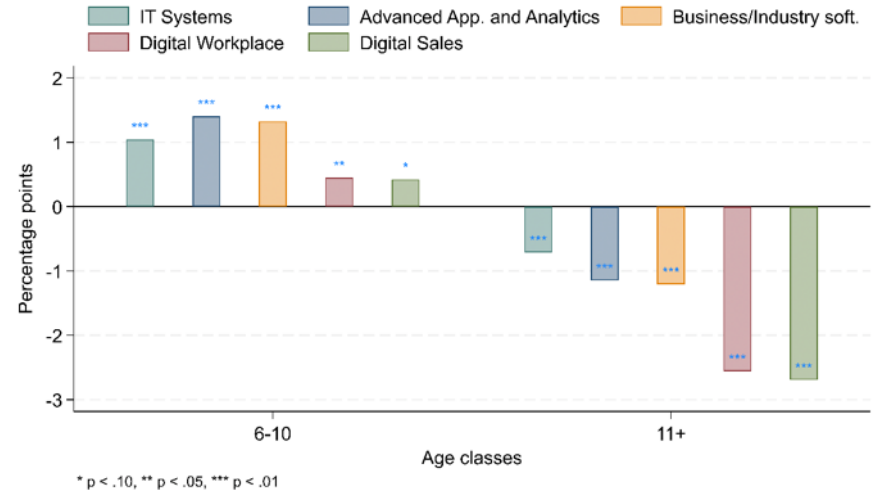


Figure 6. Firm age in 2019 and likelihood of introducing new digital products during the pandemic

Regression coefficients for age classes, by digital technology classes (reference age class: 0-5)



Calvino, Criscuolo, Ughi 2024

Table 1. Digital technology classes, applications, and functionalities

Digital class	Digital application	Digital functionality (e.g.)
Advanced Applications and Analytics	Analytics	Web Analytics Marketing Analytics
	A/B Testing	A/B Testing
	Machine Learning	Machine Learning
	Big Data	Big Data
	Production printer	Production printer
Digital Sales	Digital Commerce	Payment Processing, E-commerce platform, Retail software, E-Commerce Platform/Software
	CRM & Sales software	CRM, Sales Performance Management
	Customer Service	Contact Centre Management, Customer Feedback Management
	Marketing and Advertising	Email Marketing
Digital Workplace	Cloud	Infrastructure as a Service (IaaS), Platform as a Service (PaaS)
	Collaborative Software	Collaboration software, Project management, Document management
	Publishing and Design software	Graphic Design, CAD/CAM, Design & Publishing Software
	Suites and SaaS	Software as a Service (SaaS), Office Suites
Industry/Business software	Industry software	Manufacturing software, Sustainability software
	Business Intelligence	Business Intelligence
	Human Capital	Human Resources Management
	Management	
	ERP & Business Management	Enterprise resource planning, Business Process Management, Enterprise Application Integration, Enterprise Management
	Financial Management	Enterprise Asset Management
	Supply Chain Management	Supply Chain Management
IT Systems	IT Architecture	PCs, Servers, Printers
	IT Development	Frameworks & Libraries, Programming Languages
	Web Architecture	Website Builders
	Data Management	Data Integration, Data Management
	IT Security	Anti-Virus, Data Loss Prevention Software, Disaster Recovery, Email Security

Figure 2: Share of Working Age Adults Using Generative AI

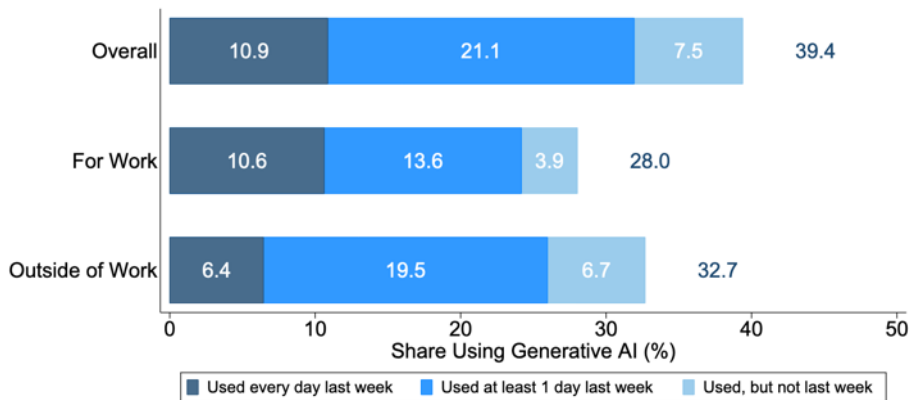
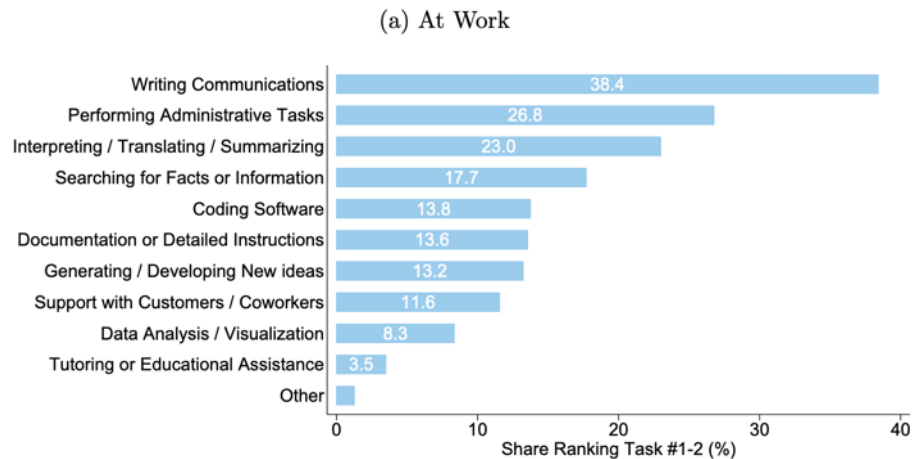
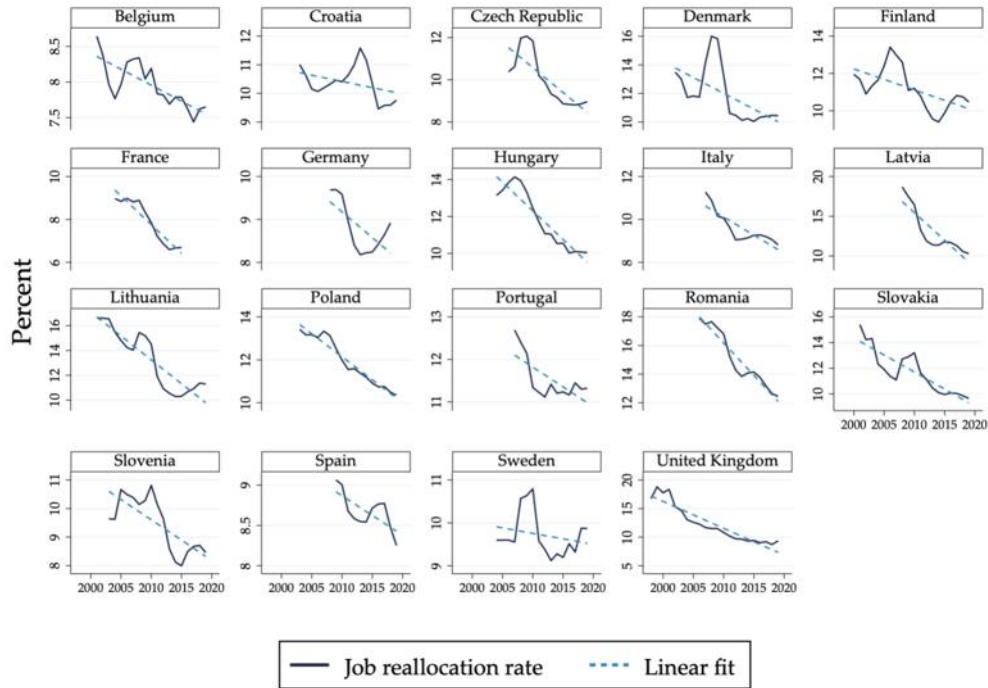


Figure 6: In Which Specific Tasks Is AI Most Useful?



US data from *The Rapid Adoption of Generative AI*, Bick, Blandin & Deming, Sept 2024

Structural change needs business dynamism

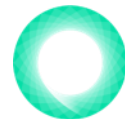


Structural change needs scale





UNIVERSITY OF
CAMBRIDGE



Bennett Institute
for Public Policy
Cambridge

Policies for technology adoption

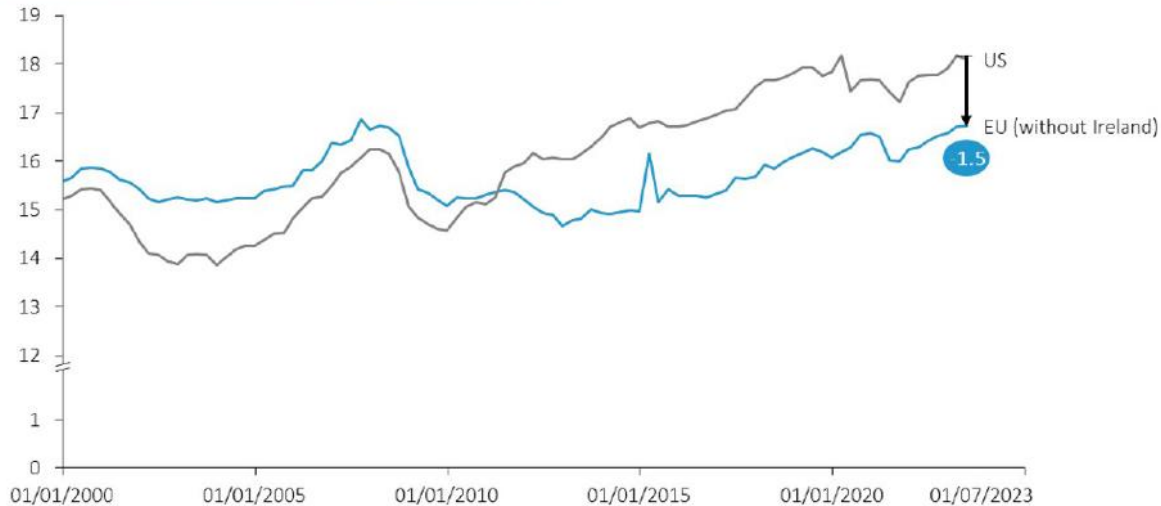
- Output markets
 - Insurance – data risks
 - Standards – scale, supply chains
 - Advance market commitments (public spending & procurement)
- Input markets
 - Know-how
 - Skills
 - Bottlenecks
- Structures
 - Infrastructure
 - Legal/regulatory constraints

Transition requires investment

FIGURE 5

Productive investment

Real gross fixed capital formation excluding residential investment, % of GDP

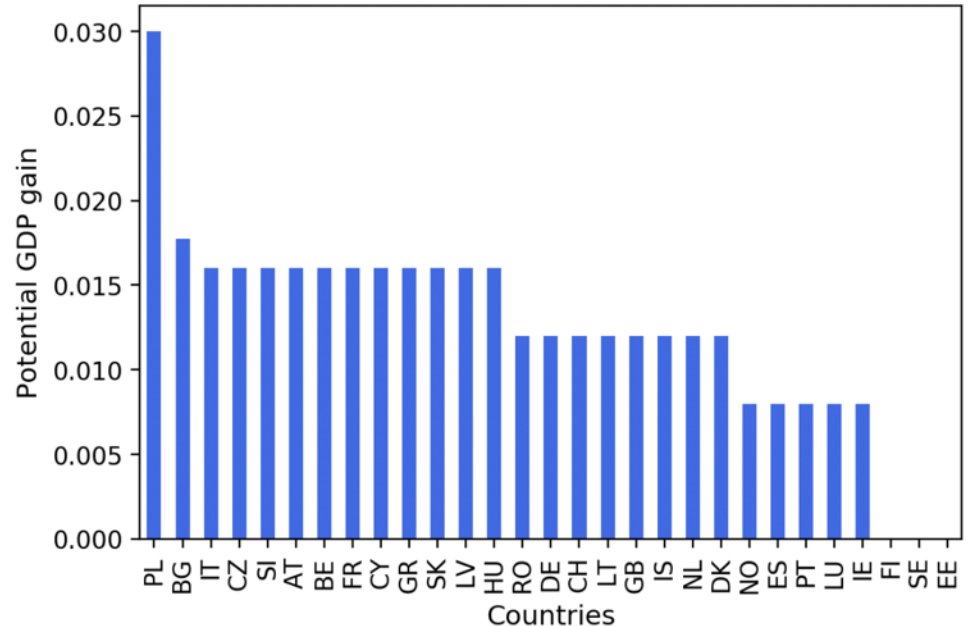


Source: EIB, 2024.

Investment is a broad concept

- Multiple types of capital matter
 - ‘Fixed’ – equipment, structures
 - Intangibles
 - Human – skills, know how, health
 - Natural
 - Organisational – ‘institutions’
- So do the correlations
- Poorly measured – data needs

Figure 5. Predicted impact of EC Directive 2008/50 on country-level GDP.



*Dechezleprêtre, Rivers,
Stadler 2024*

'Technovisionism' won't deliver

-  **Matt Clifford**  @matthewclifford · 11 Jun ...
- (1) The current moment is especially important; lots of unusually powerful technology is going to be built in the next decade, above all in AI
-  1   19  3.9K  
-  **Matt Clifford**  @matthewclifford · 11 Jun ...
- (2) Almost everything we value today is possible because of scientific and technological progress - we need more of it and faster
-  1  1  20  4.1K  
-  **Matt Clifford**  @matthewclifford · 11 Jun ...
- (3) The future is indeterminate: it will be shaped by the agency of a surprisingly small number of extremely driven, visionary individuals
-  1  5  36  4.8K  
-  **Matt Clifford**  @matthewclifford · 11 Jun ...
- (4) Through technology, individuals get to vote for the kind of future they would like. But the world is a weighing - not a counting - machine: small groups of people can have disproportionate impact through sheer force of will and ambition
-  1  5  30  5K  



Nor will 'technical' policy solutions

- Policymakers face normative & long-lasting choices
 - Central banking
 - Competition policy
- Social contract & public consent matter
- Political environment
- Is this a zero or positive sum world?
- Above all – a *coordinated & strategic* approach is essential