Digitalisation, platformisation and the transformations of local labour markets

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Long Abstract

Since their emergence in the late 20th century, digital technologies have profoundly reshaped the way companies create, deliver, and distribute value, transforming production, consumption, and work dynamics (Perez, 2010). From the early days of the ICT revolution to today's advanced digital landscape, one of the defining features of this paradigm shift has been its ability to revolutionise service-based activities (Kushida & Zysman, 2009; Buera & Kaboski, 2012). The expansion of digital technologies into traditional industries (Porter & Heppelmann, 2014), coupled with increasing computational power, greater storage capacity, and faster communication technologies (Brynjolfsson & McAfee, 2017), has resulted in digital services becoming highly complementary to, and in some cases replacing, traditional physical products (Baines et al., 2017; Paschou et al., 2020; Kohtamäki et al., 2021; Gebauer et al., 2021).

This shift from a product-based to a service-based economy has taken multiple trajectories (Zysman & Kenney, 2018), collectively contributing to what is now referred to as the digital service economy (Capello et al., 2023). Within this evolving landscape, two major digital transformations have emerged: digitalisation and platformisation. Digitalisation refers to the adoption of digital technologies by organisations, involving changes in internal production processes as well as interactions with users and suppliers—often through the integration of services into product offerings within a conventional market structure (Frank et al., 2019; Zheng et al., 2021; Chiarvesio et al., 2022).

Conversely, platformisation represents a more disruptive transformation, characterised by the rise of digital platforms that reconfigure market dynamics through a two-sided market logic, enabling the creation of new digital marketplaces (Vallas & Schor, 2020). Digital platforms facilitate the dematerialisation of products (e.g., CDs) into pure digital content (e.g., music) exchanged in entirely new digital markets (Capello et al., 2024).

Each of these transformations takes different forms. Traditional digitalisation, rooted in the ICT revolution of the 1990s, has evolved significantly requiring a distinction between early forms, such as business

management software (BMS), and more advanced forms enabled by artificial intelligence. Platformisation, though more recent, also presents varying manifestations. Local platformisation involves digital marketplaces facilitating in-person services (e.g., food delivery), tightly linking them to specific locations. Global platformisation, on the other hand, connects geographically dispersed workers, service providers, and consumers in a way that is largely detached from territorial constraints.

While both transformations are underpinned by the integration of digital technologies into value creation and distribution, they differ significantly in how digital tools are leveraged and how market transactions occur. As a result, each transformation influences the labour market differently, leading to varied patterns of job creation and displacement. Distinguishing between digitalisation and platformisation, as well as their specific forms, is therefore crucial in understanding the impact of digitalisation on employment (Zysman & Kenney, 2018). Existing research has often focused on the effects of a single transformation—whether ICT-driven (Autor, Levy, & Murnane, 2003; Consoli et al., 2021; Cirillo et al., 2021), AI-driven (Balsmeier & Woerter, 2019), or platform-based (Bearson et al., 2020)—on specific occupational groups (e.g., cognitive vs. manual; routine vs. non-routine; low-skilled vs. high-skilled). However, the impact of digital transformations on labour markets is highly contingent on the type and intensity of technology adoption, as well as the nature of the tasks affected (Goos & Savona, 2024).

This study investigates the heterogeneous effects of digitalisation and platformisation by analysing their penetration across Italian provinces, revealing stark regional disparities in the adoption of digital transformations. Additionally, the paper addresses a critical gap in the literature: the need to redefine occupational classifications in light of evolving digital transformations. Cognitive jobs, for instance, exhibit a complex relationship with technology—some tasks being automated while others remain indispensable due to their creative, analytical, or relational nature (Tolan et al., 2021; Fernández-Macías & Bisello, 2022). Likewise, the traditional routine vs. non-routine dichotomy has weakened, as new technologies increasingly automate tasks across both categories.

This study makes two key contributions. First, it offers a comprehensive analysis of how different digital transformations impact various occupational groups, comparing the effects of digitalisation and platformisation—a perspective rarely explored in existing research. Second, it leverages regional heterogeneity to assess the uneven diffusion of these transformations across different local labour markets.

Methodologically, the paper first conceptualises the nature of digitalisation and platformisation and their implications for different occupational categories. Using specific indicators, it maps the diffusion of these transformations across Italian regions, demonstrating the significant variation in their adoption. The study then classifies occupations into four categories—manual, cognitive-creative, cognitive-relational, and cognitive-analytical—based on a task-based framework rooted in the routine-biased technological change model (Autor et al., 2003; Goos & Manning, 2007; Autor & Dorn, 2013; Frey & Osborne, 2017).

By examining both the penetration of digital transformations and the occupational composition of local labour markets, the study explores the relationship between digitalisation, platformisation, and job creation or displacement in Italian NUTS3 regions by means of weighted OLS regressions. The findings challenge the

more pessimistic predictions of widespread job destruction, revealing a more complex and nuanced picture of labour market transformation.

Key findings include:

1. When significant associations between digital transformation and employment growth are observed, they tend to be positive, with traditional digitalisation exhibiting the most negative effects.
2. The well-documented complementarity between technology, education, and skills is confirmed, though the study warns against overly simplistic interpretations. For instance, while local platformisation can create employment opportunities, it often does so in low-skilled manual occupations, potentially leading to job downgrading.
3. Most occupational groups remain unaffected by digitalisation and platformisation, suggesting that their effects are more selective than often portrayed.
4. Consistent with prior research, jobs requiring creativity, judgment, and contextual thinking are the most resilient to automation due to persistent technological bottlenecks (Autor, 2022; Frey & Osborne, 2017).

These findings provide a more balanced perspective on the employment effects of digital transformations. While dismissing exaggerated fears of mass job displacement, the study highlights the risk of job polarisation—where digitalisation and platformisation contribute to the growth of both high-skilled and low-skilled jobs at the expense of middle-income occupations. This trend, first observed during the computerisation revolution, continues to shape contemporary labour markets, reinforcing income inequalities.

From a policy perspective, the presence of multiple, distinct digital transformations underscores the need for tailored policy responses. Addressing the redistributive effects of digitalisation and platformisation will require targeted interventions to mitigate job downgrading and ensure inclusive economic growth.

Finally, the study confirms that the expansion of gig work often coincides with the growth of complex, creative occupations. While the automation anxiety commonly associated with robotics may be overstated (Autor, 2015; Estlund, 2021; Jeffrey & Matakos, 2024), the findings raise concerns about wage inequality anxiety—a growing divide in earnings exacerbated by digital transformations. This underscores the urgency of developing policies to support workers navigating an increasingly polarised labour market.

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