



YOUTH EMPLOYMENT IN THE DIGITAL ECONOMY: TOWARDS AN INTEGRATED THEORETICAL FRAMEWORK

Tagaev Behzad Anvarovich

Independent Researcher, Higher School of Business
and Entrepreneurship

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Abstract. The paper examines the theoretical foundations of youth employment management under conditions of digital transformation. It argues that the established schools of labour-market thought - Marxian, neoclassical, Keynesian and institutional - each capture only a partial aspect of the mechanisms that generate youth employment once work becomes technologically mediated, and that segmentation and human-capital theories require re-specification. Drawing on the taxonomy of digital work and the typology of demand drivers developed by the World Bank's Solutions for Youth Employment (S4YE) coalition, the paper proposes an integrated supply-demand framework in which youth employment outcomes are expressed as a function of four demand drivers, three levels of digital skills, the institutional environment and a set of inclusion filters. The framework offers a theoretical explanation for the empirically documented failure of supply-side-only youth employment programmes and reformulates the unit of policy analysis from the occupation to the task.

Keywords: youth employment, digital economy, labour market theory, digital skills, labour market segmentation, human capital, demand for labour, online outsourcing, institutional environment, task-based approach.

1. Introduction

The employment rate is one of the most informative characteristics of any labour market: as an economic indicator it simultaneously reflects the level of satisfaction with wages, the number of employees, the degree of involvement in labour activity and the extent to which personal needs are met. Within this aggregate, youth constitute a distinct and highly volatile - a "hot" - segment, since young people enter the market with education but without work experience, and the mismatch between their qualifications and employer requirements translates directly into unemployment. The theoretical study of youth employment is therefore not an abstract exercise but the precondition for designing effective policy.

Digitalisation, however, has changed the object that these theories are meant to explain. Work is increasingly contracted, performed and paid for online; production processes are disaggregated into tasks that can be executed anywhere; and the skills that determine employability are becoming transversal



rather than sector-specific. The purpose of this paper is to establish which elements of classical labour-market theory retain explanatory power under these conditions, which require modification, and how they can be combined into a single analytical framework.

2. Classical foundations and their limitations

None of the economic schools that study the labour market can be regarded as universal, and none can be applied identically across all periods and all countries; each rests on a specific set of theoretical premises. From the standpoint of economics, Marxian analysis is characterised by the primacy of inequality between entrepreneurs and hired employees; neoclassical theory emphasises the market nature of relations between the participants acting in the labour market; Keynesian analysis stresses the particular importance of regulating the labour market; and institutionalism is distinguished by its orientation towards regulating and supporting the labour market through traditions, the strengthening of legislation in this field and the establishment of common rules.

In the broad sense, the labour market may be defined as a system of social relations, social norms and institutions that ensures the exchange determined by the demand for labour and its supply at a given price. In Uzbek scholarship, Academician Q. Abdurahmonov defines the labour market as the market that allocates labour resources and within which employment decisions are taken. Segmentation theory adds a further layer: the labour market is subdivided by enterprise (internal and external), by administrative-territorial attribute (national, regional, district), by international dimension and by time horizon (current, potential, forecast), and - most relevant here - by group, producing distinct markets for women, for persons with disabilities, for physicians and for youth.

These frameworks share two implicit assumptions. First, that the locus of employment is a spatially bounded enterprise located in the same jurisdiction as the worker. Second, that the skill relevant to employability is largely occupation- or sector-specific and is acquired once, at the point of entry into the labour market. Digital work violates both. Business processes are contracted to providers in other countries; freelancing platforms distribute complex tasks across a global labour pool; and microwork decomposes a service into tasks completed in seconds or minutes. Consequently, the equilibrium between demand and supply that classical analysis locates within a regional labour market may in fact be struck between a young person in one country and a client in





another, and the segment to which that young person belongs may be defined not by territory but by connectivity, device ownership and digital skill.

3. Digital work and digital skills as theoretical categories

A workable theory requires categories that are neither too broad nor too narrow. Defining digital work as all work that uses digital technology would encompass the majority of jobs in advanced economies; restricting it to advanced careers in the IT industry would exclude the fastest-growing sources of demand. The S4YE report therefore distinguishes three categories: ICT-intensive work, which is directly focused on ICTs; ICT-dependent work, which is made possible by digital technologies and could not exist without them; and ICT-enhanced work, which uses digital technologies to varying degrees but could in principle be performed without them. These categories overlap in practice, yet they permit granular analysis at the level of industries and of individual jobs.

Digital skills, in turn, exist on a continuum from basic through intermediate to advanced, and refer to a combination of behaviours, expertise, know-how, work habits, character traits and critical understandings that enable young people to participate in the digital economy. They do not operate in isolation: cognitive skills (literacy, numeracy, reasoning, creative thinking, problem-solving) and non-cognitive or socio-emotional skills (cooperation, communication, responsibility, self-control, persistence) are complementary conditions of employability. The theoretical implication is significant: digital employment is not a sector but an attribute of work. Sectoral analysis must therefore be supplemented, and in part replaced, by task-based analysis - the unit of observation shifts from the occupation to the task and from the qualification to the skill level.

4. The demand side: a typology of drivers

Identifying skills without identifying where the corresponding jobs originate leaves the analysis incomplete. Four drivers of demand for digital jobs may be distinguished: (I) the public sector, through the digitalisation of administrative functions, e-governance and e-public goods; (II) the private sector, comprising the ICT sector itself, non-ICT sectors that adopt digital tools, and digital entrepreneurship; (III) online outsourcing, comprising business process outsourcing, virtual freelancing and microwork; and (IV) digital platforms that improve livelihoods, including on-demand service platforms, business services for farmers and SMEs, and job-matching platforms.

The empirical magnitudes attached to these drivers carry theoretical weight. The ICT sector accounts on average for about 1 per cent of the workforce in low-



and middle-income countries and 2–5 per cent in OECD economies; the sector itself is therefore not, and will not become, the mass employer of young people. The greatest potential for digital technologies to improve employment opportunities lies outside the ICT sector, in the rising share of workers using digital tools across all industries, and in multiplier effects: in the United States and Turkey, one job in the high-technology industry has been found to generate three to five additional jobs elsewhere in the local economy, many of them low- or medium-skilled. Online outsourcing merits separate treatment because it detaches demand from the local economy altogether: the global business process outsourcing industry generated revenues above USD 140 billion in 2016, growing at 4.4 per cent annually over 2012–2016, while the market for online freelancing has been estimated to grow at roughly 14 per cent per year.

5. An integrated framework

Combining these elements yields a framework in which youth employment in the digital economy (YE) is a function of four arguments: $YE = f(D, S, I, A)$, where D denotes the composition and intensity of the four demand drivers, S the distribution of digital skills across the three levels together with complementary cognitive and non-cognitive skills, I the institutional environment (legislation, regulation, social protection, infrastructure, connectivity), and A a set of inclusion filters that determine which young people can actually convert skills into employment.

The framework generates two testable propositions. **First**, supply-side interventions have a marginal effect on employment approaching zero where D is not simultaneously expanded: providing training programmes on digital skills is insufficient to stimulate youth employment if there are not enough existing or newly created jobs in the market that require those skills. This proposition is consistent with the S4YE finding that almost two-thirds of youth employment programmes fail to have any impact on youth employment, a result attributable in large measure to the neglect of demand-side programme components. **Second**, the inclusion filters in A operate multiplicatively rather than additively, so that disadvantages compound. The gender dimension illustrates this clearly: in 2017 the labour force participation rate for young men aged 15–24 stood at 53.7 per cent against 37.1 per cent for young women; the global gender gap in Internet use was 11.7 per cent, rising to 32.9 per cent in the least-developed countries; and even among employed women who use ICT at work, women are less likely than men to perform work requiring advanced digital skills (6 per cent against 9 per cent) or to be digital specialists (3 per cent against 5 per cent). Territorial location,





asset ownership, disability status and safety concerns interact with gender in the same multiplicative fashion.

A third, normative implication follows. Because online outsourcing and platform work are contracted through channels that are largely invisible to national statistical and regulatory systems, the institutional argument I is not exogenous to the model: e-lancing and microwork have traditionally been unregulated and informal, with the only effective regulation exerted by the platforms themselves. Any theory of youth employment in the digital economy must therefore treat the extension of social protection and labour regulation to digitally mediated work as an endogenous policy variable rather than as a background condition.

6. Conclusion

The classical schools of labour-market thought retain their explanatory value at the level of general mechanisms - inequality of bargaining power, price formation, the necessity of regulation, the role of institutions - but they were formulated for an economy in which the job, the firm and the territory coincided. Digitalisation dissolves that coincidence. Three theoretical conclusions follow. First, youth employment analysis must be reformulated on a task basis rather than a sectoral one, since digital work is an attribute of work rather than a branch of the economy. Second, an integrated framework that specifies demand drivers and skill supply simultaneously is the minimum structure capable of explaining programme outcomes; single-sided models systematically over-predict the effectiveness of training. Third, inclusion filters must enter the model explicitly and multiplicatively, since the aggregate expansion of digital employment is fully compatible with the widening of intra-cohort inequality among young people. These conclusions define the analytical basis on which empirical assessment of national youth employment policy can be conducted..

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