

Titolo del progetto*

Skill mismatch and productivity: causes and consequences

Acronimo progetto

PRO-SKIM

Abstract del progetto*

Skill mismatch is defined as misalignment between the skills workers are endowed with and the requirements for the available jobs in the economy. Due to a lack of direct measures of competences, researchers traditionally used educational attainment as a proxy for individuals' supply of skills. Match quality is then measured in terms of distance between workers' education and the level of qualification typically required in their occupations.

A persistent misalignment between the demand and the supply of skills can have drastic consequences on individuals, firms, and economies (Brunello and Wruuck, 2021). For individuals, skill imbalances can be a source of job and life dissatisfaction, with serious wage penalties especially for overqualified employees. For companies, the suboptimal use of individuals' skills can negatively affect productivity and their ability to implement new products, services, or technologies. At the aggregate level, skill mismatch may hamper economic growth and competitiveness, leading to a high level of structural unemployment.

Despite the fact that the characteristics and severity of the problem vary across member states and economic activities, skill mismatch has become a growing concern for policy-makers. Recent analysis shows that mismatch is a pervasive phenomenon in Europe, and particularly relevant in Italy. The international comparison reveals that Italy ranks high in terms of both under-skilling and over-skilling: the labor market does not match the demand for and supply of skills efficiently (Adalet McGowan and Andrews, 2017). The task of matching skills in the labor market has become even harder due to several factors, usually called mega-trends, that affect the demand and the supply for skills. Technological change, digitalization, automation, globalization, demographic changes and crises like COVID-19 are changing the world of work and the demand for skills at a fast pace (Cedefop, 2022). Many of these trends are creating pressure for people to develop the right skills, as well as to use them more effectively and to continue upskilling throughout life. This dynamism of both skill demand and supply has led to severe and persisting skill imbalances.

The prominence of skill mismatch and the increasing relevance of the topic calls for a better understanding of its causes and consequences. The research project aims at investigating the roots and

consequences of qualification mismatch in the Italian labor market. The project is made up of two parts.

The first part aims at exploring the determinants of qualification mismatch at the firm level, investigating two aspects that have been largely overlooked in the current literature and that are particularly relevant for the Italian labor market. A first aspect concerns the relationship between skill imbalances and the type of labor contracts. Italy, unlike other countries, is characterized by a strong labor market duality where a large share of temporary contracts coexists alongside a stock of open-ended contracts with much stricter employment security. The qualification mismatch problem can be exacerbated in labor markets characterized by stringent regulations on the firing of permanent employees. In these contexts, open-ended contracts hamper the continuous flows of workers from one job to another, making it more difficult for firms to adapt their labor force structure to address possible changes in the demand and supply of skills. On the contrary, temporary contracts allow firms to substitute workers with different skills, improving the quality of educational matches and leading to a significant reduction of skill imbalances. As a consequence, for a given firm, increasing the use of temporary contracts should lead to lower levels of skill mismatch. However, since temporary contracts imply lower turnover costs, both firms and workers are likely to be less selective in accepting a proposal in the labor market, lowering the quality of matching. In this case, increasing the use of temporary contracts should lead to higher levels of qualification mismatch within firms. A second aspect deals with the role played by the manager's characteristics (i.e., age, gender, and level of education) and practices (monitoring and remuneration scheme of managers) in affecting the efficiency in matching the right worker to the right job. In many firms the responsibility for monitoring and appraising of workers skills is delegated to a supervisor or manager. Hence, the ability of firms to hire employees that constitute a good 'fit' for the company depends, among other things, on the human resource management's ability.

To study the role of temporary contracts and managers' characteristics and practices in qualification mismatch at the firm level, we exploit the panel survey RIL (*Rilevazione Longitudinale Imprese e Lavoro*) conducted by INAPP (*Istituto Nazionale per l'Analisi delle Politiche Pubbliche*). RIL collects precise information on the labor demand by Italian firms, thus allowing us to build the appropriate proxies for the intensity of temporary contracts across firms. Moreover, RIL contains information on the above-mentioned characteristics and practices of the apical management of firms.

The second part of the project aims at investigating both theoretically and empirically the effect of qualification mismatch on productivity, analyzing in particular its impact on allocative efficiency. Although the question of how skill mismatch is related to firms' productivity has been explored previously in the literature, the relationship between skill imbalances and allocative efficiency has been less investigated. At the firm level, hiring an over-skilled worker might increase its productivity, assuming there are no adverse effects on job satisfaction or wages. At the aggregate level, however, higher levels of skill mismatch, particularly in the form of "over-skilling", can have a negative impact on productivity since it can lead to an inefficient allocation of resources. Indeed, to the extent that the pool of available skilled workers is fixed and there are no short-term wage adjustments, more productive firms

may have difficulties in hiring skilled employees who are already employed by less productive companies. We propose a theoretical mechanism, where mismatch between individuals' skills and firm productivity (due search costs) leads to mismatch between firm's productivity and their endogenous sizes as measured by the covariance. We then empirically explore the link between mismatch and allocative efficiency by combining two different sources of micro-level data for the period 2008-2020: the Italian Labor Force Survey (IT-LFS), used to build our measure of qualification mismatch at the industry-province level, and the Digitalized Analysis of Companies (*Analisi Informatizzata delle Aziende - AIDA*), which allows us to measure firms' total factor productivity (TFP). Starting from firm-level TFP estimates, we then compute a measure of allocative efficiency, focusing on the covariance between firm size and productivity (Olley and Pakes, 1996).