Working papers economics - Using online vacancy posts to analyze the return to skills and knowledge in the formal labor market

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In the Colombian labor market, possessing a broad and diverse set of skills and knowledge—beyond basic requirements for each occupation—can make a significant difference in wage determination.

Publication Date: Wednesday, 24 of December 2025 **Approach**
The way individuals search for jobs and companies post vacancies has changed radically with the expansion of the internet. Today, online job portals are the main tool for connecting workers and employers. In addition to facilitating job searches, these platforms provide valuable information for understanding the labor market. For instance, the textual descriptions of posted vacancies can reveal the skills and knowledge demanded by firms.

Contribution
This study analyzes data from the online job board of the Public Employment Service, the largest public online employment portal in Colombia, to identify which skills and knowledge generate higher wage returns. Using text-processing methodologies applied to vacancy descriptions, these descriptions are compared with the international O*NET classification, which organizes competencies into specific categories. The study also incorporates salary information published in each vacancy, allowing for more accurate estimates.

Results
Evidence shows that skills and knowledge that cut across a broad set of occupations not only complement formal education and experience but also explain wage differences within the same occupation. The findings indicate that, within a given occupation, the prevalence of certain basic skill categories—such as mathematics, writing, time management, and instruction—is associated with higher wage returns. It is worth noting that most skill categories with significant positive returns are not occupation-specific; rather, they represent transferable capabilities that enhance performance across a wide range of tasks and occupations. Regarding knowledge, areas such as engineering, humanities, communication, and law stand out, driven by specific competencies such as English, economics, history, management, and technology. For both knowledge and skills, the vast majority of these competencies are transversal, meaning they apply to multiple tasks across different industries, making them strategic tools for improving employability.

These findings have important implications for workers, firms, and policymakers. For workers, they reinforce the need to diversify skills and invest in continuous, holistic training. For public policy makers, they provide inputs to design training programs that respond to actual market demand. For firms, they highlight the importance of clearly defining required competencies to attract the right talent. This study shows that, in the Colombian labor market, possessing a broad and diverse set of skills and knowledge—beyond basic requirements for each occupation—can make a significant difference in wage determination.

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