

Demographic change, occupational and regional mismatch and matching efficiency in the VET market

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In recent years firms in many European countries report increasing difficulties to fill their vacancies with skilled workers. In Germany, individuals who enter into firm-based vocational training (VET) have decreased by 16% between 2009 and 2021, which is likely to result in further shortages of qualified workers in the future. We find that this trend is mostly driven by the decreasing number of VET applicants over time, whereas VET vacancies have only slightly decreased and mostly during the Covid pandemic. In this paper, we study the main mechanisms behind the decreasing number in VET matches from two perspectives. First, we use data on VET matches and school-leavers by education to show that the main driver of the observed pattern is demographic change. Besides that, changes in young adults' interests in VET and trends toward higher education play a smaller role. In a counterfactual analysis, we show that without demographic change, the decrease in matches between 2009 and 2021 would have been only 9%, while constant educational choices would improve the observed decrease by only 3 percentage points. Second, we study matching in the VET market by using disaggregated data on matches, applicants and vacancies by occupations and labor agency districts. This is important since the aggregate trends hide potential mismatch between vacancies and applicants by occupation and district. When considering the overall ratio of vacancies per applicants, our findings point out to slightly better perspectives for applicants, as this number is increasing from 0.91 in 2013 towards 0.99 in 2021. However, matching in the VET takes place both on a regional and occupational level. Thus, aggregate trends hide potentially larger mismatches by occupation and district. Indeed, when considering the ratio of vacancies per applicants by occupation and region, we find increasing regional and occupational mismatch over time. By estimating empirical matching functions, we are able to study the changes in matching efficiency holding the numbers of applicants and vacancies constant. We find that while relatively stable before 2019, matching efficiency drops sharply during the Covid crisis, even when we instrument for applicants and vacancies to address potential endogeneity issues. Moreover, we are also able to study the matching in occupations and districts separately. In another counterfactual exercise we study the impact of increasing regional and occupational mismatch and worsening matching efficiency over time. Our findings show that the first one was mostly important before the Covid crisis, whereas the latter one mainly contributed to the decrease in matches in the recent years.

References

- Benner, C. (2003). Labour flexibility and regional development: The role of labour market intermediaries. *Regional Studies*, 37(6-7):621–633.
- Dauth, W., Hujer, R., and Wolf, K. (2016). Do regions benefit from active labour market policies? a macroeconometric evaluation using spatial panel methods. *Regional Studies*, 50(4):692–708.
- Fedorets, A., Stops, M., and Lottmann, F. (2017). Job matching on connected regional and occupational labor markets. IAB-Discussion Paper 201735, Institut für Arbeitsmarkt- und Berufsforschung (IAB), Nürnberg [Institute for Employment Research, Nuremberg, Germany].
- Kahn, L. (2010). The long-term labor market consequences of graduating from college in a bad economy. *Labour Economics*, 17(2):303–316.
- Manning, A. and Petrongolo, B. (2017). How local are labor markets? evidence from a spatial job search model. *American Economic Review*, 107(10):2877–2907.
- Muehleemann, S., Pfeifer, H., and Wittek, B. (2020). The effect of business cycle expectations on the German apprenticeship market: Estimating the impact of Covid-19. Economics of Education Working Paper Series 0171, University of Zurich, Department of Business Administration (IBW).
- Oreopoulos, P., von Wachter, T., and Heisz, A. (2012). The short- and long-term career effects of graduating in a recession. *American Economic Journal: Applied Economics*, 4(1):1–29.
- Petrongolo, B. and Pissarides, C. A. (2001). Looking into the black box: A survey of the matching function. *Journal of Economic Literature*, 39(2):390–431.
- Pissarides, C. A. (2011). Equilibrium in the labor market with search frictions. *The American Economic Review*, 101(4):1092–1105.
- Rogerson, R., Shimer, R., and Wright, R. (2005). Search-theoretic models of the labor market: A survey. *Journal of Economic Literature*, 43(4):959–988.
- Schwandt, H. and von Wachter, T. (2019). Unlucky cohorts: Estimating the long-term effects of entering the labor market in a recession in large cross-sectional data sets. *Journal of Labor Economics*, 37(S1):S161 – S198.
- Yashiv, E. (2007). Labor search and matching in macroeconomics. *European Economic Review*, 51(8):1859–1895.