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JOB POLARIZATION IN DUTCH LOCAL LABOR MARKETS – AN EMPIRICAL EVALUATION

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Résumé / Summary

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Introduction – Theoretical Background

Since the early 1990's employment structure in the developed world exhibits increasing job shares in both tails of the wage and skill occupational distribution (Autor, et al., 2006). Goos and Manning (2007) characterize the above trend as "job polarization", formally defined as: "the simultaneous growth of the share of employment in high skill, high wage occupations and low skill, low wage occupations" (Acemoglu and Autor, 2011: p 1070). Cumulatively, the above two trends contribute to hollowing out the employment shares in the middle skilled jobs. Vibrant empirical literature confirms the pervasiveness of job polarization (Acemoglu and Autor (2011) and Autor et al. (2006, 2008) for the US, Goos and Manning (2007) for the UK and Spitz-Oener (2006) and Dustman et al. (2009) for Germany). More recently, job polarization is investigated at the sub-national level. In that respect, Autor et al. (2013) conclude that polarization is widespread among US local labor markets. Similarly, Dauth (2012, 2014) and Blien and Dauth (2016) find that polarization prevails in the German provinces.

The leading concept in explaining job polarization, namely the routinization hypothesis (Autor, Levy and Murnane, 2003) conceptualizes each occupation as a set of tasks. Based on their relationship with computer capital, tasks are initially divided into routine (procedural and rule-based activities) and non-routine

(interpersonal adaptability). Routine tasks are disaggregated into cognitive (simple problem solving) and manual (physical capacity). Similarly, non-routine tasks consist of the analytic (higher mental capacity), interactive (interpersonal skills) and manual ones (requiring situational adaptability).

The routinization hypothesis contends on a non-monotone impact of technology on each occupation, dependent on the particular tasks it involves. Computer capital is assumed to substitute for employees performing routine tasks, thus decreasing labor demand in routine-intensive occupations (middle skilled and paid jobs such as bookkeeping). In contrast, IC technology increases labor productivity in non-routine analytic and interactive tasks, thus increasing their relative demand. Such tasks are typical in high-paying occupations requiring analytical capability (i.e.: science, engineering). Finally, non-routine manual-intensive jobs (i.e.: low-paid cleaning and janitorial occupations) involve language recognition and in-person interaction therefore the routinization hypothesis does not clearly predict their employment dynamics. However our theoretical framework suggests that the majority of the displaced labor from routine jobs self-select into non-routine manual occupations, since only a fraction of them possesses the required human capital to elevate to abstract jobs (Goos et al., 2014). Therefore, the employment shares of low-paid, non-routine manual occupations also increases, leading to job polarization.

Building on the above empirical literature, we first establish polarization as the main employment trend in the Dutch national labor market. However, the novelty of our analysis lies in investigating the pervasiveness of polarization in the sub-national level. Our research addresses the shortage in the analysis of Dutch regional labor markets. More importantly, we trace the main sub-national sources of polarization among economic and social indicators. Our research generates valuable insight to labor market agents (academics, policy-makers etc.) as to the individual motivation mechanisms of polarization and the exact impact on regional labor markets. Such insight facilitates the design and implementation of locally-specific, socially beneficial and economically efficient labor market policies.

Methodology

In descriptive statistics analysis, we verify the regional pervasiveness of job polarization by computing employment changes in low-, middle- and high paying occupations.

Regression Analysis

In regression analysis, we utilize both a wage- and a skill-distribution of regional employment. Wage-based regression analysis splits the job distribution into two intervals and estimates a different slope for each one (segmented regression), thus providing robust evidence of different dynamics between low- and high-paying jobs. In the skill-based analysis, we sort occupations according to their inherent skills (following the routinization hypothesis) and establish a causal effect between the relative skill intensity and the employment dynamics of each occupation.

Panel Analysis

An additional novelty of our research lies in identifying regionally-specific causes of job polarization. by investigating the impact of a wide range of regional economic and demographic conditions (trade exposure, industrial composition, labor force education etc.) on occupational employment growth.

Results

Descriptive statistics and wage-based regression analysis document the pervasiveness of job polarization in the Dutch regional labor markets while skill-based analysis confirms the routinization hypothesis as its main source, consistently leading to polarization. The panel analysis output will disclose their exact impact of relevant economic and demographic conditions on job polarization. In turn this will pinpoint the necessary policy instruments for locally-specific interventions towards more efficient local labor markets.

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