**Low-skill employment in**

**Spanish Local Labour Markets**

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Both scholars and policy makers acknowledge the crucial influence of technological change on the transformations observed in the organization of employment over the last three decades. One widely debated phenomenon among others is the polarization of labour markets, that is, an increase in the demand for occupations at the top and at the bottom of the skill distribution accompanied by sluggish or negative growth of employment for middle-skill workers (Acemoglu & Autor, 2011). The widespread adoption of Information and Communication Technologies, in particular, has accelerated the substitution of workers in mid-skill ‘routine’ occupations (e.g. clerks and production workers) consisting of physical and cognitive activities that can be executed on the basis of codified instructions. On the other hand, computer capital exhibits strong complementarities with high-skills occupations that involve problem-solving and personal interaction (e.g. scientists, managers and professionals) (Autor et al., 2003). Lastly, a broad range of occupations requiring physical dexterity and adaptability are intensive in non-routine manual tasks and are not prone to substitution by machinery (e.g. truck drivers, security guards, waiters and cleaners). These jobs at the bottom end of the wage scale have survived automation and hold the lion share of employment growth (Autor & Dorn, 2013).

While these broad labour markets trends are common to several countries (Goos et al., 2014), the expectation is that they unfold in peculiar ways within specific institutional contexts. That is to say, there is no single top-down path to economic development, and the contribution of human capital to growth and competitiveness is contingent to the particular circumstances of the attendant local economy. Accordingly, there is demand for country-specific evidence that elucidates the extent to which the changes ascribed to technology are amplified or hampered by particular characteristics of local institutions.

The present paper enters this debate by proposing an empirical study of the evolution of employment in the Spanish local labour markets. It builds on and contributes to existing literature on job polarization by:

1. Disentangling the structural changes of employment in Spain;
2. Gauging how these effects play out across different geographical areas.

The empirical analysis is based on data of the Population and Housing Census Survey of Spain over three decades (1981-2011). Building on recent work on this topic (e.g. Autor et al, 2003; Autor et al, 2014), occupations are assigned to one of the three categories: non-routine manual jobs (NRM), routine jobs (ROU) and non-routine cognitive (NRC) jobs. We find evidence of employment polarization with positive changes in the employment share of NRM and NRC occupations accompanied by falling demand for ROU occupations. In particular, our results confirm substitution between workers and office machinery throughout the period. A key contribution of the paper is the detailed account of a significant (about 8%) growth of employment in service occupations between 1981 and 2011 which stands in in contrast with the decline of other low-skill occupations in construction, transportation, mechanics, farm, mining, production and craft which declined of about 9% over the same period. The growth of NRM employment is of interest for three reasons. First, this category accounts for the highest share of part-time jobs (as high as 50% of all NRM employees in 1991). Second, service jobs entail an average wage gap of about 50% compared to similarly low-educated occupations. Lastly, the educational distribution among NRM workers is similar to ROU workers.

When grafted onto the local dimension, we find that the increase in service occupation employment is relatively stronger in provinces with the highest shares of educated workers –that is with at least college education. We use OLS and first-stage-estimates to gauge the effect of cognitive, demographic and social characteristics of local labour markets on this phenomenon. We find that the share of ROU employment in the previous decade is a robust predictor of the growth of NRM jobs. We also observe that lagged unemployment levels have a negative association with low-skill service employment, which suggests the prominence of structural factors rather as opposed to a business cycle effect. Yet another striking result is that low-service job growth was higher among provinces with stronger HC creation capacity. These results are robust to the inclusion of instrumental variables that take into account the long-term pattern of industrial specialization of each local labour market.

We expect this analysis to be of interest for both scholars and policy makers on two counts. First, it frames the ongoing debate on human capital creation in the reality of the opportunities and the constraints of labour markets. Second, it adds novel empirical evidence to a burgeoning area of research.

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