



Marshallian labour market pooling: Evidence from Italy[☆]

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ABSTRACT

This paper employs a unique Italian data source to take a comprehensive approach to labour market pooling. It jointly considers many different aspects of the agglomeration – labour market relationship, including turnover, learning, matching, and hold up. It also considers labour market pooling from the perspective of both workers and firms and across a range of industries. Overall, the paper finds some support for theories of labour market pooling, but the support is weak. Specifically, there is a general positive relationship of turnover to local population density, which is consistent with theories of agglomeration and uncertainty. There is also evidence of on-the-job learning that is consistent with theories of labour pooling, labour poaching, and hold up. In addition, the paper provides evidence consistent with agglomeration improving job matches. However, the labour market pooling gains that we measure are small in magnitude and seem unlikely to account for a substantial share of the agglomeration benefits accruing to Italian workers and firms.

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1. Introduction

As with most economic research on urban labour markets, this paper begins with Marshall (1890). His well-known taxonomy of the sources of external economies of scale includes knowledge spillovers, input sharing, and – most importantly for our purposes – labour market pooling. The latter refers to the advantages for workers and firms deriving from sharing a labour market that is territorially limited to a small area: the local labour market. For instance, in a thicker local labour market workers might be able to find a job faster. Similarly, firms might

fill vacancies faster. In addition, firms and workers are likely to find better matches in terms of skills and experience. Moreover, workers might acquire more knowledge through learning spillovers. At the same time, job opportunities in competing firms might discourage firms to invest in their workers' training.

This paper employs a unique Italian data source to take a comprehensive approach to labour market pooling. The paper looks across all industries from the perspectives of both workers and firms, and it considers many different aspects of labour market pooling, including turnover, matching, hold up and learning. To our knowledge,

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this is the first time that such variables are used in a study of the economic effects of agglomeration. Our main data sources are the 2006 Survey of Household Income and Wealth (SHIW) and the 2007 Survey on Industrial and Service Firms (SISF). These Bank of Italy Surveys are described in greater detail below. They are valuable for our purposes because they provide information on aspects of labour market pooling such as turnover, the suitability of a worker for his or her job, on-the-job learning, training, and so on. This type of information is not available from the standard administrative sources used by previous research on the subject. We match these data with data from the Italian National Institute of Statistics to assess the thickness of the labour market in which firms and workers operate and to control for other aspects of these locations.

In order to establish a context for our investigation of labour market pooling, we begin by estimating models of the urban wage premium and of the relationship between agglomeration and firm output per worker. Our results here are consistent with the pattern of results from other empirical works on agglomeration. There is consistent evidence of an urban wage premium. In addition, firm output per worker is positively related to population density.

The labour market pooling results that we find are, when taken as a whole, rather restrained in their support for the various sorts of labour market pooling that appear in the theoretical literature. There is a general positive relationship of turnover to density, which is consistent with theories of agglomeration and uncertainty. The paper also finds evidence of on-the-job learning that is consistent with theories of labour pooling, labour poaching, and hold up. In addition, the paper provides evidence consistent with agglomeration improving job matches. Overall, we find evidence of a variety of channels for labour market pooling.

There are several ways that one might interpret the modest magnitudes of our labour market pooling results. One possibility is that greater urban density improves the workings of local labour markets, but only modestly so. Another is that the weak relationship may, in some cases, reflect a complicated equilibrium relationship between labour pooling and density. For instance, we find a relatively weak relationship between a worker's self-reported appropriate experience for a job and density. This should arguably reflect the combination of two different effects: the influence of a thick market on the worker–job match (which would tend to find better fit with higher density) and the tendency of jobs requiring specialized skills to locate in thick markets (which would tend to have the opposite effect). Another possible interpretation of the modest coefficients is that labour market pooling operates differently across different industries. For instance, it is common to consider the relationship between agglomeration and turnover for the computer industry. If the relationship is strong in this sector but not in others, then estimating over all industries will produce aggregate coefficients that fail to capture the relationships at work in individual sectors. More generally, if agglomeration effects are particular to sectors or industries, imposing the specification that effects are the same across sectors can fail to uncover agglomeration effects. Unfortunately, our data do not allow us to say more about the sources of the small coefficients. We hope that further research will be able to shed more light on this issue. For now we offer the following conclusion. We find evidence consistent with a variety of local labour market pooling mechanisms. However, looking across industries, the effects we evidence are small and appear to account for only a small fraction of agglomeration economies.

The remainder of the paper is organized as follows. Section 2 discusses the relevant literature and how our analysis arises from it. Section 3 presents the details of the paper's data sources. Section 4 includes the results of the estimates of the agglomeration–wage and agglomeration–productivity relationship. Section 5 contains the estimates of the relationship between agglomeration and turnover, learning, matching, and other aspects of labour market pooling. Section 6 assesses the importance of our measures of labour market pooling in the agglomeration–wage and agglomeration–productivity relationship. Section 7 concludes.

2. Literature

Marshall's insights have motivated a long line of research on labour market pooling as a microfoundation for agglomeration economies. This section reviews the theoretical and empirical contributions of the literature and shows how our analysis arises from it.

Theoretical research on labour market pooling formalizes the elements of Marshall's analysis and also extends them in various directions. Helsley and Strange (1990) show how the matching of workers who are heterogeneous in their skills and firms who are heterogeneous in their labour demands can generate an agglomeration economy. Strange et al. (2006) demonstrate that the firms who face greater difficulty in matching will locate in thick markets. Krugman (1991) models the effects of shocks on workers and firms. Overman and Puga (2010) extend this approach to derive the specific prediction that industries facing stronger idiosyncratic shocks will exhibit a greater tendency to agglomerate and that agglomeration will be associated with worker turnover. Matouschek and Robert-Nicoud (2005), Combes and Duranton (2006), and Almazan et al. (2007) all consider the tension between the beneficial turnover considered by Marshall and the risks that firms and workers face that others – either their opposites or their rivals – will expropriate the value created by specific investments. In particular, a firm may be reluctant to train its workers if this training would provoke either opportunism by its employees or poaching by its rivals. More recent theoretical papers on labour pooling include Gerlach et al. (2009), who consider the interaction between labour pooling and innovation, and Picard and Wildasin (2011), who consider the interaction with input sharing. A survey of the larger microfoundations literature, including labour market pooling, can be found in Duranton and Puga (2004).

The empirical literature on labour market pooling is a part of the very large literature that considers agglomeration economies more generally. This literature has established a robust relationship between various sorts of agglomeration and productivity. Although much of this literature has focused on manufacturing industries, the relationship is also present in service sectors. Theories of agglomeration economies capturing all three of Marshall's microfoundations all predict this agglomeration–productivity relationship. As a result of this “Marshallian equivalence” (see Duranton and Puga (2004)), there remains a lot of uncertainty about the relative strengths of the various agglomeration forces. Looking at coagglomeration patterns across a range of industries, Ellison et al. (2010) find that firms drawing from the same sorts of labour pool tend to coagglomerate. Jofre-Monseny et al. (2011) carry out a similar exercise and also find evidence consistent with labour market pooling.¹

There is also a smaller but growing empirical literature that has looked specifically at labour market pooling. Papers in this literature have uncovered a number of instances where Marshallian labour market pooling seems to be at work. Fallick et al. (2006), for instance, show that mobility rates in California's computer clusters, including the Silicon Valley, are high. Freedman (2008) finds that agglomeration in the software publishing industry to be associated with more turnover in the sense that job durations are shorter and mobility is greater. Wheeler (2008) finds the agglomeration–turnover relationship to be strongest for young workers. Looking across us industries, Bleakley and Lin (2012) show that workers change occupation and industry less frequently when population density is greater. With regard to matching, Andersson et al. (2007) find evidence of stronger positive assortative matching in larger markets, while Di Addario (2011), using Italian data, finds a greater rate of transitions from unemployment to employment. Using Canadian survey data, Strange et al. (2006) show that skill-oriented firms tend to choose locations with concentrations of activity in their own industry rather than locations with concentrations of

¹ For further references, see the surveys by Rosenthal and Strange (2004), Glaeser and Gottlieb (2009), and Puga (2010).

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