Regional Science and Urban Economics 48 (2014) 168–179

Contents lists available at ScienceDirect

Regional Science and Urban Economics

journal homepage: www.elsevier.com/locate/regec

The urban wage growth premium: Sorting or learning?☆

Sabine D'Costa [a,*], Henry G. Overman [b,1]

[a] University of Westminster and Spatial Economics Research Centre, United Kingdom
[b] LSE, Spatial Economics Research Centre and What Works Centre for Local Economic Growth, United Kingdom

ARTICLE INFO

Article history:
Received 28 March 2013
Received in revised form 24 June 2014
Accepted 27 June 2014
Available online 5 July 2014

JEL classification:
R23
J31

Keywords:
Urban wage premium
Agglomeration
Cities
Wage growth
Worker mobility

ABSTRACT

This paper is concerned with the urban wage premium and addresses two central issues about which the field has not yet reached a consensus: first, the extent to which sorting of high ability individuals into urban areas explains the urban wage premium and second, whether workers receive this wage premium immediately, or through faster wage growth over time. Using a large panel of worker-level data from Britain, we first demonstrate the existence of an urban premium for wage levels, which increases in city size. We next provide evidence of a city size premium on wage growth, but show that this effect is driven purely by the increase in wage that occurs in the first year that a worker moves to a larger location. Controlling for sorting on the basis of unobservables we find no evidence of an urban wage growth premium. Experience in cities does have some impact on wage growth, however. Specifically, we show that workers who have at some point worked in a city experience faster wage growth than those who have never worked in a city.

1. Introduction

The urban economics literature provides ample evidence for the existence of an urban wage premium: wages are higher in large urban areas, by between 1% and 11% depending on the sample considered. See, for example, Carlsen at al. (2013), Combes et al. (2008), Di Addario and Patacchini (2008), Fu and Ross (2010), Glaeser and Maré (2001), Melo and Graham (2009), Mion and Naticchioni (2009) and Yankow (2006). Rosenthal and Strange (2004) and Puga (2010) provide reviews. Despite this research, the field has still not reached a consensus on three central issues: first, the extent to which sorting of high ability workers into urban areas can explain observed wage premiums, second, whether urban workers receive this wage premium immediately, or through faster wage growth over time, and third, which of the different agglomeration economies might generate this wage premium. This paper is primarily concerned with the first two of these questions.

To consider these issues we use individual-level data for a large panel of British workers for the period 1998 to 2008. We begin by documenting the existence of an urban wage premium which persists when we control for both observed and unobserved time invariant characteristics of workers (using the panel dimension of our data). We also provide evidence of an urban premium on wage growth, but show that this is driven purely by the increase in wage that occurs in the year that a worker moves from a rural to an urban area. When we exclude move years, we find no evidence of an urban premium for wage growth. If, as Glaeser and Maré (2001) and De la Roca and Puga (2014) argue, an urban wage *growth* premium is evidence of (or at least consistent with) faster human capital accumulation in cities, then for Britain either this mechanism is not at work or faster accumulation is for some reason *not* reflected in faster wage growth for current urban workers. Wheeler (2006) suggests that human capital accumulation as an explanation of an urban wage growth premium might be particularly important for younger workers. In the British context we find some evidence to support this hypothesis. When we restrict our sample to male workers who were 'young' (between 16 and 21) at the beginning of our time period we find some evidence of an urban wage growth premium, over and above that coming from the one-time effect of moving across locations of different sizes.

☆ This work contains statistical data from ONS which is Crown copyright and reproduced with the permission of the controller of HMSO and Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates. Copyright of the statistical results may not be assigned, and publishers of this data must have or obtain a licence from HMSO. The ONS data in these results are covered by the terms of the standard HMSO "click-use" licence. This work was supported by the Economic and Social Research Council [grant number ES/J021342/1].

* Corresponding author at: Westminster Business School, University of Westminster, 35 Marylebone Road, London NW1 5LS, United Kingdom. Tel.: +44 207 911 5000.
E-mail addresses: s.dcosta@westminster.ac.uk (S. D'Costa), h.g.overman@lse.ac.uk (H.G. Overman).
[1] London School of Economics, Houghton Street, London WC2A 2AE, United Kingdom.

http://dx.doi.org/10.1016/j.regsciurbeco.2014.06.006

We next turn to the issue of whether working in an urban area affects the extent to which wage growth occurs on the job ('within-job') or as a result of moving jobs ('between-job'). It is possible that the absence of an effect overall might hide opposing effects on these two different components (which some have argued might be useful in distinguishing between learning and matching explanations of the urban wage premium). Once again, however, when we control for unobserved characteristics of workers we find no evidence that working in a larger urban area has an effect on either of these two components of wage growth. Again, this contrasts with some of the existing literature for the US, although in this instance the problem appears more to be one of the interpretation of available estimates.[2]

Finally, we consider whether past city 'experience' (i.e. having worked in a city at some point) affects longer-term wage growth. In order to do this, we change our comparison group to those rural workers with no prior experience in cities. We find that in comparison to this group, all workers – those currently working in cities as well as rural workers with past experience in cities – enjoy a wage growth premium. This finding helps reconcile our results with papers emphasising the importance of learning in cities, although in contrast to De la Roca and Puga (2014) we find that both learning *and* sorting matter for understanding the effect of cities on wage growth.

The rest of the paper is structured as follows. The next section reviews related literature. Section 3 outlines our data and provides basic summary statistics. Section 4 provides evidence on the urban wage premium in Britain, while Section 5 considers wage growth. Section 6 then turns to the issue of between versus within-job moves, while Section 7 considers the long-term effects of urban experience. Section 8 presents robustness checks and Section 9 concludes.

2. Existing literature on the urban wage growth premium

As discussed in the Introduction a growing number of papers provide evidence of an urban wage premium (see references above). A number of explanations have been offered for the existence of this premium. According to the productivity hypothesis, market size may facilitate sharing, learning or matching (Duranton and Puga, 2004), increasing productivity in larger locations. Alternatively, according to the selection hypothesis, the direction of causality may be reversed: workers move to productive areas (for reasons that are nothing to do with size) so that productivity increases density (and not vice-versa). If wages are higher in larger cities because of better learning (Glaeser, 1999) or better matching (Zenou, 2009), this implies that not only wage levels, but also wage growth, may be higher in larger locations. Empirically identifying these effects (either static or dynamic) is difficult because once we allow for heterogeneous workers, it may be that higher ability workers self-select into larger locations driving a link between size and wages, assuming that higher ability workers are better paid (Combes et al., 2008) or see faster wage growth.

This paper is specifically concerned with wage growth, that is, with the dynamic aspects of the productivity and selection hypotheses which have received much less consideration in the literature. Wheeler (2006) estimates the impact of density on annual wage growth and on the within-job and the between-job components of annual wage growth. Using a sample of young male workers in the US he finds that wage growth is positively associated with labour market size, and that this is due to between-job wage growth rather than within-job growth. Of course, if more productive individuals select into larger labour markets, as indicated in Combes et al. (2008) and in De la Roca (2011), and these individuals have inherently faster wage growth than average then this, rather than any urban wage growth premium, could explain the higher wage growth in larger cities. If selection or spatial sorting explains the relationship between city size and wage growth, then including worker fixed effects in a panel data specification should make the effect of city size on wage growth disappear. Indeed, when Wheeler (2006) includes fixed effects he finds no significant effect of labour market size on either between-job or within-job wage growth. Our results when including fixed effects are consistent with this finding. Controlling for selection we find no evidence of an urban wage growth premium.

This finding stands in marked contrast to that of a recent paper by De la Roca and Puga (2014) who try to disentangle the static urban wage premium (from working in a city in a given year) from a dynamic urban wage premium (due to higher returns to experience in bigger cities). In contrast to much of the recent literature De la Roca and Puga (2014) find a central role for learning and little evidence of sorting on unobserved ability. We show how our results can be reconciled with theirs once we recognise that unobservable characteristics mean that some workers experience faster wage growth than others independent of location. Controlling for this re-establishes the central role of sorting on unobservables in explaining the urban wage growth premium for current urban workers.[3]

Conceptually, the key to reconciling the two sets of results is to distinguish between three possible sources of faster wage growth for workers who move to and work in cities. We refer to the first source as a 'mobility effect' which is the wage growth that arises because of the increase in wages that occurs at the moment a worker moves from a smaller to a bigger city. In static models, as pointed out by Glaeser and Maré (2001), this jump occurs because of the standard urban wage premium. In the full dynamic specification outlined by de la Roca and Puga (2014) workers experience an additional 'mobility effect' if past experience (learning) is better rewarded in urban locations. A second potential source of faster wage growth in bigger cities is a 'pure' wage growth effect which occurs if otherwise identical workers see faster wage growth in larger cities. Estimates of the size of both the mobility effect and the pure growth effect may be biased upwards by a selection effect. This occurs if more able workers self-select into cities on the basis of characteristics that are unobservable to the econometrician. The full dynamic specification estimated by De la Roca and Puga (2014) controls for the selection effect in terms of wage levels, but needs to impose additional assumptions to control for the selection effect in terms of wage growth (specifically that the effect of unobservables on wage growth is proportional to the effect of unobservables on wage levels). We show that the simplest way to deal with this second selection effect, which does not require us to impose this assumption, is to use panel data to estimate a fixed effects specification for wage growth, rather than wage levels. To control for the mobility effect, we simply drop data corresponding to the move year. We provide more details below.

Yankow (2006) adopts a different approach which allows him to separate the mobility effect from a growth effect, but that does not allow for sorting on unobservables. Using a sample of young US workers from the NLSY, he finds that workers moving into cities experience wage growth in the first year after the move that is 6 percentage points higher than workers remaining in non-urban areas. He also finds a symmetric effect for out of city migrants, who experience wage growth that is 6 percentage points lower than those staying in non-urban areas. In the medium-term out-city migrants have no significant difference in wage growth from non-urban workers. In contrast to these findings, when we consider the role for past experience controlling for selection on unobservables, we find that there are some long-run growth benefits to city experience. This helps reconcile our substantive findings with

[2] See Sections 2 and 6 for details.

[3] This distinction has some parallels with that made in the 'escalator region' literature associated with the work of Fielding (1989, 1992).This literature, which focuses on occupation or social classes, argues that more successful regions (the South East in the UK) attract a disproportionate share of young and qualified workers and act as 'escalators', providing upward social mobility for some of those attracted. Empirical work provides some descriptive evidence, but fails to deal with the question of selection on unobservables (in terms of either wage levels or growth).