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Wal-Mart's monopsony power in metro and non-metro labor markets

Alessandro Bonanno [a,*], Rigoberto A. Lopez [b,1]

[a] Department of Agricultural Economics and Rural Sociology, The Pennsylvania State University, 207-D Armsby Building, University Park, PA 16802-5600, United States
[b] Department of Agricultural and Resource Economics, University of Connecticut, W.B Young Building Room 319, 1376 Storrs Road, Unit # 4021, Storrs, CT 06269-4021, United States

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ABSTRACT

This paper measures the potential degree of monopsony power that Wal-Mart can exert over retail workers using a dominant-firm model and nationwide, county-level data, presenting for the first time a measure of the company's potential anti-competitive behavior and detailed spatial impacts on wages, particularly for metropolitan and non-metropolitan counties. Empirical results show that, at the national level, Wal-Mart's potential wage markdown below the competitive level amounts to less than 3% on average. However, the potential markdowns in non-metropolitan counties are three-fold those in metropolitan counties and are highest in non-metro areas of the south and central states but negligible in northeastern states.

1. Introduction

Wal-Mart, the largest retailer in the world, employs over 1.4 million people in the United States (Wal-Mart Stores Inc., 2010), making it the country's largest private employer. The growth of Wal-Mart in the last two decades, fueled by the company's low prices, has significantly altered the retailing employment landscape throughout the country. Meanwhile, the company has faced nationwide criticism for its wages and labor conditions, prompting numerous labor-practice lawsuits and local and state attempts to target and regulate its labor practices, particularly in metropolitan areas.[2]

Although previous empirical evidence univocally supports a pro-competitive, price disciplining effect of the company's presence in retail markets to the benefit of consumers (e.g., Basker, 2005a,b; Basker and Noel, 2009; Cleary and Lopez, 2011; Hausman and Leibtag, 2007), the evidence of the effect of the company's presence on retail wages is scant and mixed at best. Of the existing studies, some were conducted with limited (usually within a State) geographical samples, preventing generalization, others, national in scope, avoided assessing potential local or regional effects of Wal-Mart on wages.

State-specific studies find no evidence of Wal-Mart affecting retail wages: Ketchum and Hughes (1997) in Maine; Hicks and Wilburn (2001) in West Virginia; and Hicks (2007) in Pennsylvania. Nationwide, county-level studies find either no evidence or weak evidence of Wal-Mart's impact on wages. Neumark et al. (2008) find that while retail earnings per worker are unaffected when a new Wal-Mart opens, aggregate retail payroll declines by $1.1 to $1.7 million (approximately 1.5%) due to net employment losses. Dube et al. (2007) find that while a new Wal-Mart store reduces county-level average retail earnings by 0.5%, at the state level 10 new Wal-Mart stores cause a reduction of per-capita earnings by 0.5 to 2%, which they attribute to a reduction in labor market rents.

As illustrated in Fig. 1, there seems to be a negative correlation between Wal-Mart's presence and per-capita retail labor earnings.[3] Also as illustrated in Table 1, retail workers' earnings are lower in

* Corresponding author. Tel.: +1 814 863 8633; fax: +1 814 865 3746.
E-mail addresses: abonanno@psu.edu (A. Bonanno), rigoberto.lopez@uconn.edu (R.A. Lopez).
[1] Tel.: +1 860 486 1921; fax: +1 860 486 1932.

[2] In 2006 a Chicago city council ordinance successfully vetoed by the mayor, required stores with more than 90,000 square feet and companies grossing more than $1 billion annually to pay an hourly minimum wage of $10 and benefits worth at least $3. The Maryland State Assembly passed the Maryland Fair Share Health Act, which would have imposed tax burdens on companies paying low healthcare benefits, which was to affect only Wal-Mart, violating federal trade laws (Wagner, 2006). Wal-Mart also faces stiff criticism from public officials and labor unions: in February 2004, democratic Congressman George Miller presented a report to the House of Representatives highlighting the low-wage and union-free policies of the company and labor malpractices that Wal-Mart store managers allegedly engaged in (Miller, 2004).

[3] The relevant market is Retailing Industry (NAICS 44) excluding the Motor Vehicle and Parts Dealers (NAICS 441). The data used to obtain the measures reported in Fig. 1 are described in the Data and Estimation section.

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states where Wal-Mart's presence is greater, particularly in counties of the Southern and Midwestern United States. Does these negative relationships reflect the fact that Wal-Mart locates in area where wages are lower, with no effect on retail wages as Neumark et al. (2008) suggest or does it reflect some monopsony power as Dube et al. (2007) would suggest, or both?

Most of the previous studies have tried to measure the effects of Wal-Mart locations on changes in labor market conditions, isolating exogenous variation in store location using instrumental variable methods.[4] Both Dube et al. (2007) and Neumark et al. (2008) use instruments based on the distance of Wal-Mart stores from the company's headquarters in Benton county Arkansas, mirroring the company's expansion strategy in their sample period.[5] In these studies, the benchmark for comparison is earnings in counties where the company does not operate, which is not necessarily the competitive benchmark for counties where it does. Thus, the usefulness of existing studies can be limited in terms of public policy when conduct rather than location is the policy target. [6] In fact, the existing literature has side-stepped the issue of whether the *post*-entry equilibrium is the outcome of a perfectly competitive environment or if Wal-Mart is instead able to exert market power over workers. In a post-entry world, if Wal-Mart exerts monopsony power over workers and the other retailers are wage takers, one would observe equilibrium employment and wages lower than the competitive norm.

Also, previous studies find the company having different effects on retail earning (Dube et al., 2007) as well as other labor figures (Hicks, 2008a,b) across metro and non-metro areas. As the opposition to the company seems most vigorous in metropolitan areas (see for example the attempts to modify its wages in Chicago, as described in footnote 2), it is worthwhile to evaluate whether Wal-Mart's monopsony power over worker is more marked in urban versus rural areas.

This article contributes to the literature in two important ways. First, it is the first to provide a *measure* of Wal-Mart's potential anticompetitive behavior in the labor market. It does so by estimating a Buying Power Index (BPI) to quantify the potential wage markdown below competitive retail wages for all counties where Wal-Mart is present. Second, it provides insight into the comparative effects of Wal-Mart's presence on workers' earnings in metro and non-metro counties as well as across states and regions, thus presenting a detailed representation of potential local effects.

Empirical results indicate that the nationwide BPI ranges between 2.11 and 2.82%, a rather modest magnitude. However, the average BPI in non-metro counties is three-fold that in metro counties and it is the largest (5% or more) in non-metro counties in south central states while negligible in the northeast. Thus, this article reconciles the previous evidence where both insignificant and measurable Wal-Mart impacts on wage are observable, albeit depending on local labor conditions, the extent of Wal-Mart's presence, and the degree of urbanization (metro v. non-metro) of the county in question.

2. The model

The model that follows relies on the assumptions of no worker mobility across markets and homogenous labor, similar to most county-level studies of the effect of Wal-Mart on retail workers and wages (e.g. Basker, 2005a; Drewianka and Johnson, 2010; Dube et al., 2007; Neumark et al., 2008). These assumptions, although strict, are necessary due to the lack of firm-specific data on workers' heterogeneity and mobility at the local level. We also assume, for simplicity, that labor is the only variable input used to sell a bundle of goods at competitive prices and that minimum wages are not binding.

Consider a simple dominant firm model. The monopsonist, i.e., Wal-Mart, sets wages at the level where its marginal revenue product of labor ($MRPL_{WM}$) equals its marginal labor cost above the company's residual supply of labor (x^s_{WM}, obtained by subtracting the demand for labor from the total supply of labor). This results in both a wage rate w^* and an employment level $x_{WM}{}^*$ that are below the perfectly competitive ones ($w^{pc}$and x^{pc}_{WM}, respectively). In this conceptual framework, the location of Wal-Mart is given. The resulting equilibrium wages and employment if Wal-Mart was not present would be indicated by $x^d_{FR}=X^s_T$, which could result in a wage lower than the monopsony one set by the company and in a significantly lower demand for retail labor.

Let $X^s_T(w,Z^s_T)$ and $x^d_{FR}(w,Z^d_{FR})$ denote, respectively the total supply of, and the fringe demand for, labor, where Z^s_T and Z^d_{FR} are the respective vectors of shifters. Given the assumption of homogeneous labor, the residual supply of labor for Wal-Mart is then obtained by:

$$x^s_{WM}=X^s_T(w,Z^s_T)-x^d_{FR}\left(w,Z^d_{FR}\right)=x^s_{WM}\left(w,Z^s_T,Z^d_{FR}\right). \tag{1}$$

Wal-Mart maximizes profits setting wages as:

$$w^*=MRPL_{WM}\frac{\eta^s_{WM}}{1+\eta^s_{WM}}, \tag{2}$$

where η^s_{WM} is the wage elasticity of the residual labor supply to Wal-Mart ($\eta^s_{WM}=\partial\ln x^s_{WM}/\partial\ln w$). From Eq. (2), one can derive the classical measure of monopsony power in labor markets, what Pigou (1924, p. 754) defined as the "rate of exploitation" and Blair and Harrison (1993) refer to as the Buying Power Index (*BPI*), given by the inverse of the elasticity of the residual supply of labor:

$$BPI=\frac{MRPL_{WM}-w^*}{w^*}=\frac{1}{\eta^s_{WM}}. \tag{3}$$

Labor being homogeneous,[7] the supply of labor facing Wal-Mart cannot be directly observed, therefore, an alternative expression of the *BPI* is obtained combining Eqs. (1) and (3):

$$BPI=\frac{S_{WM}}{\eta^s_T-\eta^d_{FR}(1-S_{WM})}, \tag{4}$$

where $S_{WM}=x_{WM}/X_T$ is Wal-Mart's labor market share, $\eta^d_{FR}=\partial\ln x^d_{FR}/\partial\ln w$ is the elasticity of the fringe retailers' demand for labor, and $\eta^s_T=\partial\ln X^s_T/\partial\ln w$ is the elasticity of the total supply of

[4] Pioneer work by Basker (2005a) used nationwide, county-level aggregate number of *planned* store openings as an instrument for actual ones and progressive, company-assigned store numbers, to obtain a county-level planned number of store openings for every year in the 1977–98 period using local retail labor figures from the County Business Patterns database. Basker finds that one additional Wal-Mart leads to a gain of 50–100 retail jobs in the first five years, a modest loss of wholesale jobs, and a modest gain in restaurant employment with no spillover to neighboring counties. Drewianka and Johnson (2010) use instead an "event analysis" approach, which takes into account pre-existing local market dynamics to identify the effect of a Wal-Mart store opening through changes in other counties' and a county's own trends. Their findings indicate that Wal-Mart's presence slightly increases retail employment in the long run.

[5] The "hub-and-spoke" location/logistic strategy can be best described in Wal-Mart founder Sam Walton's words (Walton and Huey, 1992; pp 140 and 141): "We figured that we had to build our stores so that our distribution centers, or warehouses, could take care of them, but also those stores could be controlled. […] Each store had to be within a day's drive of a distribution center. So we would go as far as we could from a warehouse and put in a store. Then we would fill in the map of that territory, state by state, county seat by county seat, until we had saturated that market." This pattern is less evident after 1996, as the company diversified into food retailing, capitalizing on converting its pre-existing discount stores into supercenters (Bonanno, 2010).

[6] In spite of the implications of the company being able to pay input prices below the competitive levels and possibility of antitrust intervention against the company mentioned in several studies (Shils and Taylor, 1997; Lynn, 2006; Foer, 2007), no empirical work tests the company's conduct.

[7] Under the assumption of heterogeneous labor, one could use the approach developed by Baker and Bresnahan (1988). Even if this scenario would be more likely to represent a world in which Wal-Mart hires non-unionized workers and other firms are left to bargain wages with unions, the unavailability of information on wages offered by both groups inhibits the adoption of this approach.