24 - 26 | Noviembre 2021 | Madrid
XLVI Reunión de Estudios Regionales
International Conference on Regional Science
Ciudades llenas, territorios vacíos
Universidad Autónoma de Madrid

Extended abstract

EXTENDED ABSTRACT

Title: The role of labour discrimination to explain territorial inequalities

Authors and e-mails: Alberto Díaz Dapena (diazdalberto@uniovi.es)
María José Perez Villadoniga (mjpvilla@uniovi.es)

Department: Economics
University: University of Oviedo

Subject area: *9. Mercado de trabajo y territorio.*

Abstract: The existence of discrimination in the labour market has traditionally been the centre of many Economic theories. The main approaches identify wage differences with preferences of employees (or supervisors), differences of productivity or a higher difficulty identifying the productivity of a specific group. Despite the interest of this topic in the Economic field, there is little evidence about the consequences of this process over the location of these groups, as well as the distribution of the activity. However, the discriminated population could have incentives to stay together, even if the location is less dynamic, avoiding areas where firms do not usually hire workers from a specific group. This process could easily create virtuous and/or vicious circles for the different groups, as well as difficulties to change this behaviour, even in the long run. These processes could help to explain why some populations prefer to maintain their traditional location in poor areas even if there are parts of their country with higher salaries or better quality of life.

The resulting process creates a barrier that it is not impossible to surpass, but it describes an additional reason to understand why discrimination and segregation disappears so slowly. In addition, it could also allow us to understand why spatial patterns in the distribution of groups may arise or be maintained. This type of model would represent the connection between groups and territories. So, there are certain ways of working or interaction which could be highly consolidated in a location due to the location of a specific group. Some literature has already discussed this topic (see Cutler et al., 1999 or Topa, 2001, among many others) there is a lack of understanding about the spatial consequences of this process. Selod and Zenou (2006) could be considered as one of the most suitable models for this type of process. However, the focus of this model is built on the location of residence within a city.

This research develops an economic model to explain the incentives of discriminated and non-discriminated population in terms of location. The methodology tries to introduce the equations from well-known discrimination theories into a spatial

framework. The results seem to indicate that the initial distribution of population, barriers to agglomerate the activity (transport costs) as well as the behaviour of employees are key elements to determine the equilibrium of the model. As a general conclusion, it seems discrimination modifies the pattern of location. So, the discriminated group could suffer from lower incentives to move from rural - non agglomerated – areas to dynamic areas. When this pattern is found, it could easily create an additional barrier that avoids urban firms from trying to employ the discriminated group. This result should also help to explain why statistical discrimination does not easily disappear over time.

We begin the model defining the necessary assumptions from the basic core-periphery model in chapter 5 of Venables et al. (1999). It is our intention making our results as comparable as possible with this model. With this aim in mind, this section briefly summarizes this model in order to extend it to a discriminatory reality in the next section (for a further explanation see chapters 5-7 Venables et al., 1999). This model is based on the Dixit-Stiglitz model of monopolistic competition. Though the assumptions of this model, the core-periphery model summarizes the incentives of a dynamic sector to locate in a certain region through increasing returns, transport costs and mobility of workers.
In this model, they assumed that the economy only has two sectors, a manufacture sector, and an agricultural sector. However, in a more general terms, they could be considered as a dynamic sector and a traditional sector. The distribution of their resources is endogenous in the dynamic sector while it is exogenous in the traditional sector. The first one is a monopolistically competitive sector with increasing returns. The labour force in this sector can freely move between regions. On the other hand, the traditional sector is perfectly competitive and has a fixed number of workers in each region. Choosing units, the total workforce in the dynamic sector is defined by μ and the traditional sector by $(1-\mu)$.
Transport costs in the dynamic sector follow an iceberg form. So, from any good sent from one region to the other, only 1/T arrives. As in Venables et al. (1999) no cost is assumed for the traditional sector. Of course, this assumption can be dropped. In this case, its influence in the agglomeration process can be seen in chapter 7 of Venables et al. (1999). However, this assumption allows us to simplify the model. Given that the traditional sector is assumed to have constant returns and no transport costs, its salary is the same in both regions and can be use as numerary.

The core-periphery model divides the territory in two regions, where the agricultural sector is equally divided between two regions. λ would represent the proportion of the dynamic sector in region 1, $(1-\lambda)$ in region 2. A total of 8 equations (4 in each region) determines the equilibrium in the model. They represent the income, the price level, the nominal salary and the real salary in each region. With all of these assumptions, the income (Y_r) function in each r region can be written as in equation (1).

$$Y_1 = \mu\lambda w_1 + \frac{1-\mu}{2} \qquad Y_2 = \mu(1-\lambda)w_2 + \frac{1-\mu}{2} \qquad (1)$$

where income in region 1 is defined by the number of dynamic workers $\mu\lambda$ multiplied by its salary (w_1) and the number of traditional workers $\frac{1-\mu}{2}$ multiplied by its salary, the numerary.

The price function of products (G_r) from the dynamic sector in each region is expressed as in equation (2). This expression is derived from the model of Monopolistic Competition in Dixit and Stiglitz (1977).

$$G_1 = [\lambda {w_1}^{1-\sigma} + (1-\lambda)(w_2 T)^{1-\sigma}]^{1/1-\sigma} \quad G_2 = [\lambda (w_1 T)^{1-\sigma} + (1-\lambda){w_2}^{1-\sigma}]^{1/1-\sigma} \quad (2)$$

Where σ represents the elasticity of substitution between any two goods in the sector. This expression reduces the aggregate prices in a region if the products are manufactured in that region – or close neighbors in a context of additional regions.

Nominal wage in both regions is defined as in equation (3). In this equation the nominal wage is higher when the income is in the same region (or in close regions in a more general context). This equation represents the wage in which the firms obtain a null profit. From a spatial perspective, this equation shows that firms are able to pay high salaries when there is a good access to market.

$$w_1 = [Y_1 G_1^{\sigma-1} + Y_2 G_2^{\sigma-1} T^{1-\sigma}]^{1/\sigma} \qquad w_2 = [Y_1 G_1^{\sigma-1} T^{1-\sigma} + Y_2 G_2^{\sigma-1}]^{1/\sigma} \qquad (3)$$

Nominal wage in equation (3) is transformed to real wage as in equation (4) thanks to the price index of equation (2) .

$$\omega_1 = w_1 G_1^{-\mu} \qquad \omega_2 = w_2 G_2^{-\mu} \qquad (4)$$

This model was developed to understand the incentives of the activity to concentrate. As a result, all workers are considered as homogeneous. In order to study the interaction with discrimination, it needs to be enhanced with different groups and an explicit reason behind discrimination. Given that the core-periphery model already has 4 equations for each region, a higher level of complexity could easily create an incomprehensible model. So, it is our purpose to show, as simple as possible the implications of discrimination from a spatial perspective.

We propose a model of discrimination inspired in the statistical discrimination of Arrow (1973), in a context of the core-periphery model. According to this model, not all the workers are qualified or have the necessary experience to perform the task of a job. However, this information about the performance of a future worker is not available for the employer after a certain time in the firm. Given the lack of information, the employer expects that a worker will be suitable using the group as proxy. So, he expects that a worker from the discriminated group would perform the job required with a probability of P_D – and P_N in the non-discriminated group.

According to this model, the employee expects a return per worker of r. If a discriminated employee is suitable for the job, the employee would obtain the marginal productivity MP_s net his wage (w_D) with a probability of P_D – nothing otherwise. So, the expected return is defined as in equation (5):

$$r = (MP_s - w_D)P_D \qquad (5)$$

Firms would expect the same retribution in both groups. Of course, this equation already indicates that it is possible to find a non-discriminatory solution where the salaries and probabilities in both groups is the same. So, why an employer would perceive a different probability of return between groups? In this paper the reason behind a possible gap in the probabilities to obtain a return from workers of different groups is based on their spatial distribution.

This article proposes that employers would have more information depending on lack or abundance of each group in the territory. This assumption would indicate that a firm could perceive individuals from an uncommon group as a possible risk. This perception of risk does not have to be necessarily connected with the employer preferences. It could also be related to the integration of those individuals in the firm. One example of this type of problem can be found in Lang (1986). They propose that communication between groups could be more costly. So, a competitive market would tend to minimize those costs with segregation. However, cultural differences do not only have to be restricted to language. Individuals from each group could develop codes, routines… That are common within their group, but it is not prevalent in another group. For example, each group could easily have differences about formality between workers, time outside work, relationships outside of the job. Or it could vary how you can propose ideas to a superior, correct the behaviour of a co-worker, etc. Most of these interactions could be much easier when the other person shares your same codes while it could be seen as offensive, counter-productive or odd when they do not share the same code. As a result, employers could perceive workers from the most abundant group in the region as those with higher probabilities to fit in the firm.

This mechanism could be seen as the influence of the spatial distribution on the behaviour of firms. However, this behaviour could also interact with the distribution of the population. For example, workers could move to those regions where their group is more abundant. Consequently, both incentives must be modelled together to understand the consequences of these incentives.

References

Arrow, K.J., (1973) The theory of discrimination. In O. Ashenfelter & A. Rees (Eds.), *Discrimination in Labor Markets*, Princeton University Press.

Cutler, D.M., Glaeser, E.L., Vigdor, J.L., (1999) The Rise and Decline of the American Ghetto. *Journal of Political Economy*, 107(3), 455–506.

Dixit, A.K., Stiglitz, E.J., (1977) Monopolistic Competition and Optimum Product Diversity. *The American Economic Review*, 67(3), 297–308.

Lang, K., (1986) A Language Theory of Discrimination. *The Quarterly Journal of Economics*, 101(2), 363–382.

Selod, H., Zenou, Y., (2006) City structure, job search and labour discrimination: Theory and policy implications. *Economic Journal*, 116(514), 1057–1087. doi:10.1111/j.1468-0297.2006.01123.x.

Topa, G., (2001) Social interactions, local spillovers and unemployment. *Review of Economic Studies*, 68(2), 261–295. doi:10.1111/1467-937X.00169.

Venables, A., Fujita, M., Krugman, P., (1999) *The spatial economy: cities, regions, and international trade*, The MIT Press.

Keywords: *Discrimination, Geographic mobility, Core and periphery*
JEL codes: J61, J71, R12