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## WORKING PAPER SERIES

### **Relative Deprivation in the Labour 'Space'**

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# Relative Deprivation in the Labour 'Space'

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## Abstract

*The paper develops a concept, a measure and an index of relative labour deprivation based on theories of social justice, a labour participation model and an index of relative deprivation. The use of these tools is illustrated with household data on urban migration in Turkey. It is shown how they can be effective in providing policy recommendations in areas characterized by heterogeneous communities.*

JEL: C43, D63, I38, J21

Keywords: Labour participation, relative deprivation, Turkey

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# 1 Introduction

In labour economics, the problem of unemployment is regarded as a disequilibrium in the labour market determined by market inefficiencies. From the perspective of welfare economics unemployment is a form of deprivation from work associated with a multitude of human conditions such as poverty, social exclusion, social unrest, crime and morbidity. In both traditions, explaining labour status is essential to understand labour market functioning, welfare and social stability.

This paper builds on both the labour and welfare economics traditions to develop an alternative set of tools to study the labour force in heterogeneous communities with a potential for social instability. We borrow from existing theories of social justice to develop a concept of relative labour deprivation and we operationalise this concept constructing a measure and an index of relative labour deprivation. These tools are then applied to household data on urban migration in Turkey. It is shown how they can be effective in providing policy recommendations for deprived and heterogeneous communities.

## 2 From deprivation to relative labour deprivation

The concept of deprivation is a popular concept in all social sciences. We are not aware of a universal cross-disciplinary definition of the concept but deprivation generally depicts "a lack of" some status, commodities, abilities or capabilities. Deprivation could refer to the 'lack of' income, work, education, health, public services, human rights, living conditions, social relations, affections, senses and any other attribute that human beings are associated with. We can think of these different dimensions as different 'spaces' in the same spirit as Sen describes functioning spaces in his capabilities theory [Sen (1985)].<sup>2</sup> In our case, we are concerned with deprivation in the labour 'space'.

The concept of relative deprivation emerged first in a post-war study on the US army [Stouffer, Suchman, DeVinney, Star, and Williams (1949)] and was later formalized in a theory of social justice by Runciman (1966). Runciman defines the situation of relative deprivation when an individual: 1) Does not have X; 2) Sees some other person or persons as having X; 3) Wants X and 4) Sees it as feasible to have X.

The first criteria defines deprivation and is an objective criteria that can be measured. The second criteria introduces one concept of relativity, the reference group. Deprivation is relative

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<sup>2</sup>The concept of deprivation has been adopted by regional and small areas studies across social sciences. This branch of research emerged as a response to the need of identifying local areas at particular risk of poverty, social exclusion, diseases or crime and as a tool for local administrations to define local public policies and budget allocations [see for example Townsend (1979)]. This literature identifies *a priori* the types of functioning failures to observe and measures deprivation based on the sum of functioning failures associated with individuals and cumulated for local administrative areas such as districts or regions [see Lee, Murie, and Gordon (1995) for a review]. These are now standard tools used by local administrations in the UK and other countries and more recently introduced in EU institutions following the Amsterdam treaty in 1997 and the Lisbon agreements on poverty and social exclusion in 2000 [see Fahey, Whelan, and Maitre (2005) for a recent EU report that makes use of these instruments].

to the group of people who have what I don't have. Runciman dedicates several chapters of his book to explain how individuals may identify the reference group. In a nutshell, the reference group is identified by a mixture of objective criteria such as those who have what I don't have and by subjective criteria such as those who I consider as my similar, those people I feel I should compare myself with. The third criteria captures the will of individuals to have what they don't have. It is not sufficient to be deprived of X, it is also necessary for a person to want X to be relatively deprived. The fourth criteria states that relative deprivation occurs if it is feasible for me to have X. I'm relatively deprived if I can see that I can have X.

It is evident that the definition of relative deprivation proposed by Runciman in the 1960s is a mixture of subjective and objective criteria. While the objective criteria apply equally to all individuals, the subjective criteria depend from the nature and personal characteristics of individuals.

These subjective aspects are also central to Sen's capabilities theory developed more than a decade after Runciman book as a critique to orthodox theories of social justice [Sen (1985)]. Sen observed that both Bentham's and Rawl's theories of social justice focused on assets and neglected the importance of individual attributes. In assessing welfare, it is not sufficient to determine what I have and don't have, it is also important to know who I am and how I relate to having X or not having X. The concept of 'functioning' was developed by Sen to capture the fact that what matters is the relation between assets and individual attributes rather than assets alone.

In economics and distributional analysis, the concept of relative deprivation as described by Stouffer and Runciman has been operationalised with the development of a relative deprivation index first introduced by Yitzhaki (1979). The relation between relative deprivation and income inequality is what attracted Yitzhaki attention and further studies in this tradition by Hey and Lambert (1980), Kakwani (1984), Berrebi and Silber (1985), Chakavarty, Chattopadhyay, and Majumder (1995), Podder (1996), Chakravarty (1997) have largely worked in the direction of deepening our understanding of the relation between these two concepts. Various measures of relative deprivation using income and other functioning failures have been developed since and used to study the phenomenon in Europe and elsewhere [Muffels, Tsakloglou, and Mayes (2002), D'Ambrosio and Frick (2004), Bossert, D'Ambrosio, and Peragine (2004), Fahey, Whelan, and Maitre (2005), D'Ambrosio and Rodrigues (2005)].

The economics tradition of measuring relative deprivation has focused on objective aspects and on the income 'space'. According to Yitzhaki, relative deprivation can be measured as the sum of the distances between each individual income and all upper ranked incomes. This is clearly a simplification of the Runciman theory. For Yitzhaki, it is sufficient to know who "does not have X" and assume that those who don't have X want X (where X is income). There is no consideration of the issue of whether people really want X or think that it is feasible to have X. The indicators developed in the Yitzhaki tradition are not the expression of a *feeling*

of deprivation but of a deprivation *fact*.<sup>3</sup> Also, the reference group has been constrained by definition and *ex-ante* to the group of people with larger incomes with no consideration of the fact of whether people feel some affinities or not with such group. We could argue that the Yitzhaki literature focussed on the *objective* relative deprivation criteria put forward by Runciman and ignored the *subjective* relative deprivation criteria so central in both Runciman and Sen's theories.

For the study of relative deprivation the subjective aspects are important if not essential. It is not sufficient for me to occupy a lower rank relatively to other people in society to feel relatively deprived. It is also necessary to wish for a better position and believe that I can or should occupy a better position. This belief, in turn, depends from my personal characteristics relative to those who are better ranked than I am. This is rather natural. We tend to compare our rank first and foremost with those of the same profession, gender, age and education.

This is the more so if we look at the labour space and we wish to measure relative labour deprivation. Consider the extreme case of labour deprivation - lack of work - and three different situations. In the first situation, I choose to be jobless and not seek work (formally economically inactive). In the second situation I'm unemployed because I lack the educational background demanded by employers. In the third situation, I'm unemployed because I'm discriminated against. It is evident that my sense of labour deprivation is different in the three situations and will be increasingly greater moving from the first to the third scenario. I'm likely to be more frustrated, depressed or angry if I find myself in the third situation.

This is an important aspect that we want to capture in our relative deprivation index. We are assuming that individuals self-select the reference group not only in relation to those with a better labour status but also in relation to those with similar personal characteristics. My 'sense' of relative deprivation derives from the number of people located in a better position but also from the personal characteristics of these people relatively to my own's.

We define relative labour deprivation as the lack of a satisfactory labour market status where 'satisfactory' is determined relative to one own's position in the reference group and relative to one own's personal characteristics. In the next section, we develop a methodology to measure intensity and size of relative labour deprivation as defined in these terms.

### 3 Measuring relative labour deprivation

Indexes of deprivation used in various social sciences generally measure a set of functioning failures associated with individuals or households and rank these units according to the number of functioning failures. Indicators used could be in the form of dummy variables such as 'having a car', could be in categorical form such as 'education level' or could be in a more continuous form such as 'age' or 'income'. The aggregation of these heterogeneous indicators is achieved by

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<sup>3</sup>Runciman (1966) also used income to measure relative deprivation but used people's own estimates of income. In his own words, "For the purpose of addressing relative deprivation, however, people's estimates of their incomes are if anything more important than their actual income;" (p. 189).

standardization and a weighting procedure may also be applied depending from the importance attributed to each indicator. Weights are generally arbitrary but they can also be constructed with principal component analysis or other techniques. Once standardized and weighted, indicators are cumulated into one index of deprivation which is measured at the local level to compare population groups.<sup>4</sup>

Research in economics has focused instead on income understood as a measure of command over commodities. A lack of income is intended as a form of deprivation or functioning failure. As described by Yitzhaki (1979), suppose that the range of income is  $(0, y^*)$  with  $y^*$  equal to the highest income in society and  $y_i$  equal to the income of person  $i$  with  $0 \leq y_i \leq y^*$ . The degree of deprivation felt by individuals is proportional to the distance between the individual's income and all other incomes situated above in the income distribution ranked in ascending order.

Following Yitzhaki (1979), if the cumulative income distribution is defined as:

$$F(y) = \int_0^y f(z)dz \quad (1)$$

And the relative frequency of persons with income above  $y_i$  is:

$$1 - F(y) \quad (2)$$

The relative *deprivation function* can be defined as:

$$D(y_i) = \int_{y_i}^{y^*} [1 - F(z)]dz \quad (3)$$

And the relative *satisfaction function* is:

$$S(y_i) = \int_0^{y_i} [1 - F(z)]dz \quad (4)$$

Taken in discrete terms, the total *relative deprivation* for individual  $i$  can be written as:

$$D_i = \frac{1}{n} \sum_{j=i+1}^n (\bar{y}_j - \bar{y}_i) \quad (5)$$

Where  $y = \text{Income}$  with  $y = (y_1, \dots, y_n)$ ;  $\bar{y}$  = illfare ranked permutation of vector  $y$  (income vector sorted in ascending order) so that  $y = (\bar{y}_1 \leq \bar{y}_2 \leq \dots \leq \bar{y}_n)$ .

Aggregating this measure for a given population, we obtain the relative deprivation index which Yitzhaki (1979) showed to be equivalent to the absolute Gini index:

$$D = \frac{1}{n^2} \sum_{i=1}^n \sum_{j=i+1}^n (\bar{y}_j - \bar{y}_i) \quad (6)$$

The relative deprivation index  $D$  can be measured using a vector of income as described

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<sup>4</sup>Lee, Murie, and Gordon (1995) provides a comprehensive review of these indexes.

above or by aggregating functioning failures measured as dummies or as categorical indicators as described for the other indexes used in various social sciences.

If we try to apply this methodology to the study of relative deprivation in the labour 'space' we face the problem that we do not have categorical or continuous measures to calculate the index  $D$ . We do not dispose of a sufficient number of labour functioning failures indicators to construct a labour deprivation score for each individual. Unemployment is one possible indicator of functioning failure in the labour space but this cannot be added up to other possible labour deprivation indexes such as economic inactivity or youth unemployment because these indicators are mutually exclusive. Or, alternatively, we do not have a continuous measure of labour deprivation such as income. Wages are a continuous indicator of wage deprivation but apply only to those who work and cannot be used for the study of labour deprivation intended as deprivation from labour participation.

We can, however, obtain a measure of relative labour deprivation if we introduce the personal characteristics dimension in the relative deprivation index. Let  $gj_i$  be a binary variable that splits the labour force into two groups with  $gj_i = 1$  if the individual belongs to a 'good' labour market status and  $gj_i = 0$  if the individual belongs to a 'bad' labour market status. Let also  $X_i$  be a vector of personal characteristics of the individual  $i$ . As standard practice in labour participation models, we can regress  $gj$  on a number of explanatory factors limited in our case to personal characteristics such that:

$$gj_i = \alpha + \beta X_i + \varepsilon \quad (7)$$

with  $i = 1, 2, \dots, n$  and  $n = \text{Labour force}$

Once we find the best fit for the regression above, we can estimate the predicted probability of being in the good sector as:

$$p_i = \text{Pr}(gj = 1) \quad (8)$$

And the predicted probability of being in the bad sector as:

$$1 - p_i = 1 - [\text{Pr}(gj = 1)] \quad (9)$$

with  $0 \leq p_i \leq 1$

The predicted probability can then be used to construct an indicator of deprivation that considers individual personal characteristics relatively to one own's labour market status. For example, we can define individuals as 'Deprived' if their predicted probability of being in the good sector is  $p_i \geq 0.5$  but they are in fact in the bad sector. Vice-versa, we can define as 'Privileged' those individuals whose probability of being in the good sector is  $p_i < 0.5$  but who find themselves in the good sector. The rest of individuals can be classified as 'normal' including those who have a  $p_i \geq 0.5$  and are in the good sector and those who have a  $p_i < 0.5$  and are in the bad sector. In sum, we can classify people in the labour force into three mutually exclusive

categories as follows:

$$P = \{p_i < 0.5; g_j i = 1\} \quad (10)$$

$$N = \{p_i < 0.5; g_j i = 0\} \text{ or } \{p_i \geq 0; g_j i = 1\} \quad (11)$$

$$D = \{p_i \geq 0.5; g_j i = 0\} \quad (12)$$

with:  $P$  =Privileged;  $N$  =Normal and  $D$  = Deprived

Comparing the shares of respondents in the three categories by different population groups such as ethnic groups or administrative areas could give us indications on the relative deprivation position of the different groups.

This approach can be taken one step further by constructing a (semi) continuous indicator of relative deprivation based on the  $p_i$  value. If we measure the distance between  $p_i$  and the labour market status  $g_j i$  we are in fact measuring the 'intensity' ( $d'_i$ ) of deprivation or privilege for each individual:

$$d'_i = p_i - g_j i \quad (13)$$

with  $-1 \leq d'_i \leq 1$

Rescaling  $d'_i$  to make it positive and standardizing this measure in range  $[0; 1]$  we obtain:

$$d_i = \frac{(1 + d'_i) - \min(1 + d'_i)}{\max(1 + d'_i) - \min(1 + d'_i)} \quad (14)$$

with  $0 \leq d_i \leq 1$

The measure  $d_i$  is a useful measure in that it provides individual scores of deprivation comprised in the range  $[0; 1]$ . By simply reading  $d_i$  we have an indication of individual relative labour deprivation. 'Relative' in this case refers to the distance between actual labour status and labour market status predicted on the basis of personal characteristics.

This measure is also a convenient indicator to measure relative deprivation in the labour 'space' in the same fashion as income is used in the Yitzhaki-type formula of relative deprivation in the income 'space'. With one important difference. Income is a measure of non-deprivation, the higher is income the lower is individual deprivation. Vice-versa,  $d_i$  is a measure of deprivation, the larger is  $d_i$ , the more deprived a person is. If the cumulative distribution of  $d_i$  is:

$$F(d_i) = \int_0^{d_i} f(z) dz \quad (15)$$

The relative *deprivation function* is:



$$D(d_i) = \int_0^{d_i} F(z) dz \quad (16)$$

Which, in discrete terms and aggregated across the population, gives the Yitzhaki-type formula for relative labour deprivation:

$$Dd = \frac{1}{n^2} \sum_{i=1}^n \sum_{j=1}^i (\bar{d}_i - \bar{d}_j) \quad (17)$$

The  $Dd$  index puts together the two dimensions of relativity discussed in the previous section: labour deprivation relative to better ranked individuals and labour deprivation relatively to one own's characteristics.

In sum, the Yitzhaki-type relative deprivation index -  $D$  - measures deprivation relatively to upper ranks in the distribution; Our indicator -  $d$  - measures individual deprivation relatively to one own's personal characteristics vis-à-vis one own's labour market status; and our relative deprivation index -  $Dd$  - puts together the two ( $D$  and  $d$ ) into one index. The fact that  $d$  is estimated using a labour dummy -  $gj$  - makes our index a relative labour deprivation index but, in principle, the same methodology could be applied to other 'spaces' of deprivation where personal characteristics are relevant to the status of individuals.

We can also plot different relative deprivation curves illustrating what  $d_i$  and  $Dd$  capture in numbers. The Pen's parade of  $d_i$  can be considered as a labour deprivation curve that shows only one of the two concepts of relativity (sector participation relative to one own's characteristics). Alternatively, if we make use of  $D_i$  and following Kakwani (1984), we can construct a relative deprivation curve joining the two concepts of relativity described by plotting the cumulative proportion of the population against the distribution of individual deprivation scores as follows:

$$D_i^d = \frac{1}{n} \sum_{j=1}^i (\bar{d}_i - \bar{d}_j) \quad (18)$$

The additional information provided by these curves is that we can appreciate the relative position of the population groups that we wish to compare across the entire distributions. The  $d_i$  measure could also have alternative uses in distributional analysis. For example, we could calculate the Gini coefficient or plot the Lorenz curve for  $d_i$  and show inequality of deprivation across population groups. In the following sections, these measures and curves are applied to recent data from Turkey.

## 4 An application to urban migration in Turkey

Turkey is known to be a country of emigrants, with millions of its citizens having migrated to Europe and elsewhere over the past thirty years. Less known is the fact that Turkey also

experienced a massive flow of internal migration. Between 1975 and 2000, almost 35 millions people have changed residency within Turkey which was equivalent to about an average of one change of residency in two inhabitants. Significant migration flows have occurred from rural to urban areas, from urban to rural areas and also between urban areas [SIS (2002)].

The regions that showed the greatest displacement of people are the poorest regions, particularly the Anatolian regions in the East of the country. The conflict between the Turkish army and the Kurdish rebels between the 1980s and the 1990s played an important role in pushing people out of the Eastern regions already characterized by a higher level of poverty, higher unemployment, lower level of public services, harsher environmental conditions and lower level of education. This type of migration has been predominantly a rural-urban migration. Other flows of internal migration in Turkey have been mainly explained in terms of voluntary movements of people for work or family reasons and is generally characterized by better educated and wealthier individuals moving from urban to urban areas.

Eastern rural migrants have populated the peripheries of Turkey's large cities and constitute today a large reservoir of cheap low skilled labour as well as a large share of the urban unemployed. In many Turkish cities, they constitute a significant share of the population and they are predominantly from ethnic minorities, mostly Kurds but also Arabs and other Eastern ethnic minorities. The Turkish government is understandably concerned about the situation in urban areas which is potentially socially unstable for a combination of high unemployment, deep poverty and ethnic fragmentation.

## 4.1 Data

The data we use are taken from a EU survey on labour and migration conducted in June 2005 in one city, the Mersin Greater Municipality (MGM).<sup>5</sup> This is a city located in the South-East of Turkey and known for having received during recent decades a large influx of internal migrants from various parts of the country. The sample included 900 families representative of the city population and of the three municipalities that constitute the city - Akdeniz, Toroslar and Yenisehir. The sample frame has been constructed on the 2000 Turkish population census.<sup>6</sup> Based on a city household roster of 160,100 households addresses, we selected 900 households equivalent to 0.56% of the total.

Sample selection was carried out in two stages based on the smallest sampling unit we could use, the mahalle, which is the traditional neighborhood administration in Turkey. The Mersin Greater Municipality includes 68 mahalle distributed in the three municipalities. In the first stage, we calculated the share of households in each mahalle and these shares were replicated to determine the number of households to be interviewed in each mahalle. In the second stage, we conducted a random selection of households in each mahalle. The addresses of the randomly

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<sup>5</sup>The author of this article was responsible for leading the team that designed and implemented the survey. Any additional information on the survey can be requested directly to the author.

<sup>6</sup>We are grateful to the Turkish State Statistical Institute (SIS) who kindly provided the entire household roster for the Mersin province.

selected households were then checked on the maps of the municipalities to make sure that addresses would not be excessively clustered in some areas. This ensured that all mahalle would be represented in the final sample and that households would be evenly spatially distributed in each mahalle. Thus, in the data analysis, we took the mahalle unit as the Primary Sample Unit (PSU) which we used as clusters for the survey estimations. No strata were necessary for this study while all estimations have been conducted with population weights.

The questionnaire included four sections for a total of 38 questions as follows: 1. Households identification; 2. Household members personal characteristics; 3. Migration; 4. Labour market. It was administered by a team of thirty trained interviewers selected among local teachers and we made sure that the sample of interviewers would be representative of the population structure in terms of ethnic belonging. Interviewers were assigned to Mahalle according to needs such as language knowledge or residency of the interviewers. The survey took place during the third week of June 2005. This allowed to capture the greatest possible number of people at home as schools closed the week before and people did not leave for summer vacations as yet. Interviewers were also equipped with back-up addresses in case of non response or non existence of the household. This made sure that the final sample included a full set of 900 households. The final number of respondents was 3,901, an average of 4.3 persons per household. Questions have been addressed to the head of the household and to family members present at the interview.

## 4.2 Variables

For the purpose of this paper, the sample has been restricted to the labour force defined as individuals in age 15-55 either employed or unemployed and not in education. This restricted the sample to 1,166 individuals. The labour force was further split into two groups to construct the  $gj$  binary variable. We included in the 'good sector' category ( $gj = 1$ ) all those individuals who, at the time of the survey, were either employed full-time or employed part-time with no wish to improve their work status. All other people in the labour force were coded  $gj = 0$ . The questionnaire asked respondents whether they would have liked to improve their work situation. This question allowed us to divide the part-time workers into two groups, those who wished to improve their work situation and those who didn't. Given the highly precarious working situation for those who work part-time in a country like Turkey (including occasional and seasonal workers), we maintained in the good sector only those part-time workers with no wish to improve their work situation. As a consequence, the 'bad' sector includes the unemployed who, by definition, seek work and try to improve their work status and the employed part-time who wish to improve their work status. This classification was also instrumental in taking into account the third criteria of relative deprivation described by Runciman; The willingness to be in a better status.

The vector of personal characteristics used in the regressions included three variables - gender, age and education. These were used in different formats (dummies, continuous or categorical) and different estimation procedures were followed to reach the best possible fit for the estimation of the predicted values  $p$ .

Results are presented by migration groups and by municipality. Three migration groups were chosen - Eastern migrants, Western migrants and Non migrants. This classification reflected the historical migration of people from other parts of the country to Mersin. Eastern migrants are those who left the Eastern and Central Anatolian regions and Western migrants are all other migrants. This choice evidently self-selected ethnic minorities, rural and the poorest migrants in the Eastern group. This is intentional and useful to address the policy question of whether the urban peripheries populated by Eastern migrants are a potential factor of instability. Non migrants are all those who were born in Mersin.<sup>7</sup> Municipalities are the three municipalities that constitute the Mersin Greater Municipality (Akdeniz, Toroslar and Yenisehir). Results by municipality are also important as they can help the city of Mersin to allocate resources spatially.

### 4.3 Results

Table 1 reports the descriptive statistics for the labour force by migration group and municipality.<sup>8</sup> The table shows that Eastern migrants have the highest unemployment rate, close to 46%, and the lowest share of good sector participation with about 42%. Eastern migrants do not differ significantly from the other two migrant groups in terms of average age or female share but they show a much higher level of low education. About 70% of the Eastern migrants have either no education or primary education against 50% for the Western migrants and 54% for the non migrants. Thus, Eastern migrants are objectively 'deprived' in terms of education, unemployment and good job participation relatively to other groups.

The municipality with the highest unemployment rate, lowest education and lowest good sector participation is Akdeniz. It should be noticed that there is an association between migration origin and Mahalle of residence as migrants tend to cluster according to origin and social status. However, this clustering effect is taken into consideration by the fact that the mahalle are used as clusters in the estimations (for both tabulations and parametric estimations) and this effect is largely lost if we consider Municipalities (table 2). For example, Toroslar has a higher share of Eastern migrants but the difference with other municipalities is not very large and this municipality is not the most disadvantaged in terms of unemployment, education and good sector participation.

We then estimated the predicted probability  $p$  of being in the good sector  $gj$ . For this purpose, we used three regressors of personal characteristics (gender, age and education)<sup>9</sup> and tested several specification forms of the explanatory variables as well as different estimators. Table 3 reports the best fit we could reach.<sup>10</sup> All variables are significant with the expected sign.

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<sup>7</sup>This was the best classification we could reach to distinguish different type of migrants. The questionnaire did not contain questions on income and consumption and did not contain questions on ethnic belonging.

<sup>8</sup>Statistics reported also relate to the variables used in the regression to estimate  $p$ .

<sup>9</sup>The limit of three variables was determined by a) the questionnaire; b) what we thought were the characteristics that individuals use to compare themselves with others; and c) the fact that we could not use variables correlated with migration group belonging such as language knowledge.

<sup>10</sup>Several specifications of the equation were tested by changing the form of the regressors with various transformations (squared, log, continuous, categorical, dummies, etc). By best fit, it is meant that the regression

Coefficients for age is low as age is measured in years while the coefficient for education is fairly high considering that education is measured as an ordered categorical variable.<sup>11</sup>

Classifying individuals on the basis of the  $p$  value and relatively to individual sector status, we subdivided the sample into the three categories of 'privileged', 'normal' and 'deprived' groups as described in section three. Table 4 reports the results. It is shown that non migrants have the highest share of 'privileged' and the lowest share of 'deprived' individuals. Eastern and Western migrants do not differ significantly with the former only marginally disadvantaged vis-à-vis the latter. If we compare these results with the statistics presented in table 1, we find that non-migrants are still the least deprived group. However, the origin of migration, which was an important factor associated with unemployment and good sector participation in the descriptive statistics, seems to lose its explanatory power once we control for personal characteristics (as we do by using  $p$ ). This would suggest that Eastern migrants, as compared to Western migrants, are relatively more deprived because of factors such as low education, gender and age rather than non-observed factors such as discrimination. Instead, non-migrants seem to be a group which benefits from some sort of privilege. Gender, age and education being equal, they occupy better positions in the labour market.

For the municipalities, Toroslar is the one that emerges as the most deprived with a lower share of privileged and a much higher share of deprived individuals.

Next, we calculated  $d_i$  from the  $p$  values. Table 5 reports distributional measures for  $d_i$ . The mean value is higher for Eastern migrants as compared to the other two groups. On average, Eastern migrants have a higher deprivation score. However, this group also shows the lowest within group inequality shown by the lowest Gini index. Moreover, the inequality effect dominates the mean effect with the result that the relative labour deprivation index  $Dd$  (the absolute Gini index) is lower for the Eastern migrants. The difference across migration groups in this measure is not large but Eastern migrants show the lowest value.<sup>12</sup> It would seem that, once we add the Yitzhaki-type concept of relative deprivation (deprivation relatively to better ranked individuals), the relative position of migration groups changes with Eastern migrants emerging as the least deprived group. The sense of deprivation generated by rank is less strong among Eastern migrants than among other groups which is explained by lower inequality of  $d$  among Eastern migrants.

For Municipalities, Toroslar has the highest mean and Absolute Gini and the second highest Gini. Again, the relative position of each group is changed vis-à-vis descriptive statistics where Akdeniz emerged as the most deprived municipality.

These findings can be better appreciated looking at the Pens' parade of  $d_i$ , the relative deprivation curve of  $D_i^d$  and the Lorenz curve of  $d_i$  for each group considered (Figures 1, 2 and

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reported in table 3 resulted as the best specification in terms of the significance of each regressor, in terms of the F-statistics and in terms of the pseudo-R squared.

<sup>11</sup>Five educational categories were used: Illiterate (1), no formal education but literate (2), primary (3), secondary (4) and tertiary (5). The coefficient measures the average increase in probability of being in the good sector with increasing levels of education.

<sup>12</sup>Note that all measure in table 5 are calculated on  $d$ . The  $Dd$  index (absolute gini) calculated on  $d$  or on  $1 - d$  is the same while both the mean and the Gini coefficient are different.

3). The Pen's parade of  $d_i$  shows that the curve for Eastern migrants dominates the curves for the other two groups throughout the distribution crossing the other two curves only in the top range (it shows more deprivation in almost every part of the distribution). Vice-versa, the relative deprivation curve of  $D_i^d$  shows that the curve for Eastern migrants is dominated by the other two curves (it shows less deprivation and a lower inequality<sup>13</sup> in all parts of the distribution). The Lorenz curve of  $d_i$  shows that within group inequality is lower for Eastern migrants (as already shown by the Gini index) with the additional information that the curve for Eastern migrants dominates the other two curves throughout the distribution (it shows less inequality in all parts of the distribution).

For municipalities, Akdeniz and Toroslar show similar patterns but clearly different from Yenisehir. They dominate on Yenisehir in the Pen's parade throughout the distribution and are crossed by Yenisehir in the relative deprivation and Lorenz curves.

#### 4.4 Policy implications

In substance, the descriptive statistics shown indicate that Eastern migrants are objectively more deprived in terms of unemployment, education and good sector participation. Once we control for personal characteristics (gender, age, and education) Eastern migrants are still - on average - more deprived, although the difference with other groups has visibly diminished. However, when we control for both personal characteristics and upper ranks in the distribution, we find that Eastern migrants are, if anything, less deprived. This is explained by the fact that the inequality effect is stronger than the mean effect in determining the relative labour deprivation index (the absolute Gini index of  $d$ ).

For the Municipalities and on the basis of the absolute and relative deprivation measures used, Akdeniz and Toroslar are visibly more deprived than Yenisehir with exceptions in some parts of the distribution of the relative deprivation measures.

Based on the findings above, the overall 'sense' of relative labour deprivation experienced by Eastern migrants seems to be less important than the objective deprivation that they experience in terms of education and unemployment. These are useful indications for public policies. Active Labour Market Policies (ALMPs) should privilege adult education and job creation for Eastern migrants to address their objective deprivation. However, the sense of labour deprivation which we measured with the relative labour deprivation index is not higher for Eastern migrants than for other groups which suggests that financial resources are better employed in addressing objective rather than subjective deprivation.

Our findings also suggest that resources allocation should be biased in favour of the Akdeniz and Toroslar Municipalities which are the most disadvantaged in both objective and subjective terms. Policies for these two municipalities should combine ALMPs aimed at improving objective deprivation and policies aimed at reducing the subjective sense of relative labour deprivation such as improving social dialogue and social services.

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<sup>13</sup>The area under the curve is to be interpreted as the Gini coefficient [Kakwani (1984)].

## 5 Conclusion

The paper has drawn from two distinct bodies of literature in the labour and welfare economics traditions to devise a concept, measure and index of relative labour deprivation. We showed how these tools can be used in the context of heterogenous communities to derive policy recommendations.

The methodology proposed is closer to the original concept of relative deprivation of the sociological tradition and provides a convenient stratagem to overcome the problem of measuring relative deprivation in the labour 'space'. The methodology adopted is simple enough to be used by practitioners in the field and can be applied to other 'spaces' of the functionings domain where personal characteristics are relevant to the determination of one own's relative status.

## References

- Berrebi, Z. M. and J. Silber (1985). Income inequality indices and deprivation: A generalisation. *The Quarterly Journal of Economics* 100(3), 807–810.
- Bossert, W., C. D'Ambrosio, and V. Peragine (2004). Deprivation and social exclusion. *Cahier du Departement des Sciences Economique, Université de Montréal* (01).
- Chakavrrarty, S. R., N. Chattopadhyay, and A. Majumder (1995). Income inequality and relative deprivation. *Keio Economic Studies* 32, 1–15.
- Chakravarty, S. R. (1997). Relative deprivation and satisfaction orderings. *Keio Economic Studies* 34(2), 17–31.
- D'Ambrosio, C. and J. R. Frick (2004). Subjective well-being and relative deprivation: An empirical link. *DIW Discussion Papers* (449).
- D'Ambrosio, C. and R. I. Rodrigues (2005). Deprivation in the sao paulo districts: Evidence from 2000. In *Conference Proceedings, The Many Dimensions of Poverty, Brasilia 29-31 August 2005*.
- Fahey, T., T. Whelan, and B. Maitre (2005). First european quality of life survey: Income inequalities and deprivation. Technical report, European Foundation for the Improvement of Living and Working Conditions.
- Hey, J. D. and P. J. Lambert (1980). Relative deprivation and the gini coefficient: Comment. *The Quarterly Journal of Economics* 95(3), 567–573.
- Kakwani, N. (1984). The relative deprivation curve and its applications. *Journal of Business and Economic Statistics* 2(4), 384–394.
- Lee, P., A. Murie, and D. Gordon (1995). *Area Measures of Deprivation: A Study of Current Methods and Best Practices in the Identification of Poor Areas in Great Britain*. Birmingham: Centre for Urban and Regional Studies, University of Birmingham.

- Muffels, J. A., P. Tsakloglou, and D. G. Mayes (2002). *Social Exclusion in European Welfare States*. Globalisation and Welfare. Edward Elgar.
- Podder, N. (1996). Relative deprivation, envy and economic inequality. *Kyklos* 49(3), 353–376.
- Runciman, W. G. (1966). *Relative Deprivation and Social Justice*. Reports of the Institute of Community Studies. London, Boston and Henley: Routledge and Kegan Paul.
- Sen, A. (1985). *Commodities and Capabilities*. Amsterdam: Elsevier, North-Holland.
- SIS (2002). *Population Census 2000*. Ankara: State Institute of Statistics.
- Stouffer, S., E. Suchman, L. DeVinney, S. Star, and R. Williams (1949). The american soldier (1). adjustment during army life. *Princeton University Press*.
- Townsend, P. (1979). *Poverty in the United Kingdom. A Survey of Household Resources and Standards of Living*. Penguin Books.
- Yitzhaki, S. (1979). Relative deprivation and the gini coefficient. *The Quarterly Journal of Economics* 93(2), 321–324.



	Migration group				Municipality			
	East. migr.	West migr.	Non migr.	Total	Akdeniz	Toroslar	Yenisehir	Total
Observations	375	112	679	1166	465	405	296	1166
Population share	32.2	9.6	58.2	100.0	39.9	34.7	25.4	100.0
Unemployment rate	45.9	32.1	39.3	40.7	48.8	41.0	27.7	40.7
Good sector (gj) share	42.1	58.0	51.7	49.2	42.8	45.2	64.9	49.2
Females share	25.9	25.0	28.6	27.4	29.5	23.5	29.4	27.4
Average age	34.4	36.0	31.9	33.1	31.7	32.9	35.5	33.1
Education shares:								
No education	18.4	9.82	11.78	13.72	20	12.35	5.74	13.72
Primary	51.73	40.18	42.27	45.11	49.68	48.89	32.77	45.11
Secondary	22.93	37.5	34.61	31.13	24.95	34.07	36.82	31.13
Tertiary	6.93	12.5	11.34	10.03	5.38	4.69	24.66	10.03
Total	100	100	100	100	100	100	100	100

Table 1 Descriptive Statistics

	Eastern migrants	Western migrants	Non migrants	Total
Akdeniz	31.0	5.6	63.4	100.0
Toroslar	37.8	12.6	49.6	100.0
Yenisehir	26.4	11.8	61.8	100.0
Total	32.2	9.6	58.2	100.0

Table 2 Migrant Groups by Municipality

Dep.Var.: gj	Coef.	Std. Err.	t	P>t
Female (dummy)	-0.310	0.095	-3.270	0.002
Age (years)	0.029	0.004	6.740	0.000
Education (category)	0.321	0.075	4.300	0.000
Constant	-1.996	0.359	-5.570	0.000

Number of strata=1    Number of obs= 1166    Design df=63  
Number of PSU=64    Population size= 162908    F(3, 61)=24.61  
Prob > F=0.000

Table 3 Probit Regression for the Estimation of ( $p$ )

	<b>Privileged</b>	<b>Normal</b>	<b>Deprived</b>	<b>Total</b>
	p<0.5 & gj==1	Others	p>=0.5 & gj==0	
<b>Migration group</b>				
Eastern migrants	14.9	64.8	20.3	100.0
Western migrants	16.1	62.5	21.4	100.0
Non migrants	20.9	64.2	14.9	100.0
<b>Municipality</b>				
Akdeniz	21.3	64.9	13.8	100.0
Toroslar	16.3	61.0	22.7	100.0
Yenischir	17.2	67.6	15.2	100.0

Table 4 Relative Deprivation Shares

	<b>Obs.</b>	<b>Std.Dev.</b>	<b>Mean</b>	<b>Gini</b>	<b>Abs. Gini</b>
<b>Migration group</b>					
Eastern migrants	375	0.245	0.561	0.245	0.137
Western migrants	112	0.251	0.509	0.274	0.140
Non migrants	679	0.250	0.513	0.276	0.141
<b>Municipality</b>					
Akdeniz	465	0.247	0.540	0.258	0.139
Toroslar	405	0.256	0.547	0.263	0.144
Yenisehir	296	0.237	0.485	0.270	0.131

Table 5 Mean, Gini and Absolute Gini (*d*)

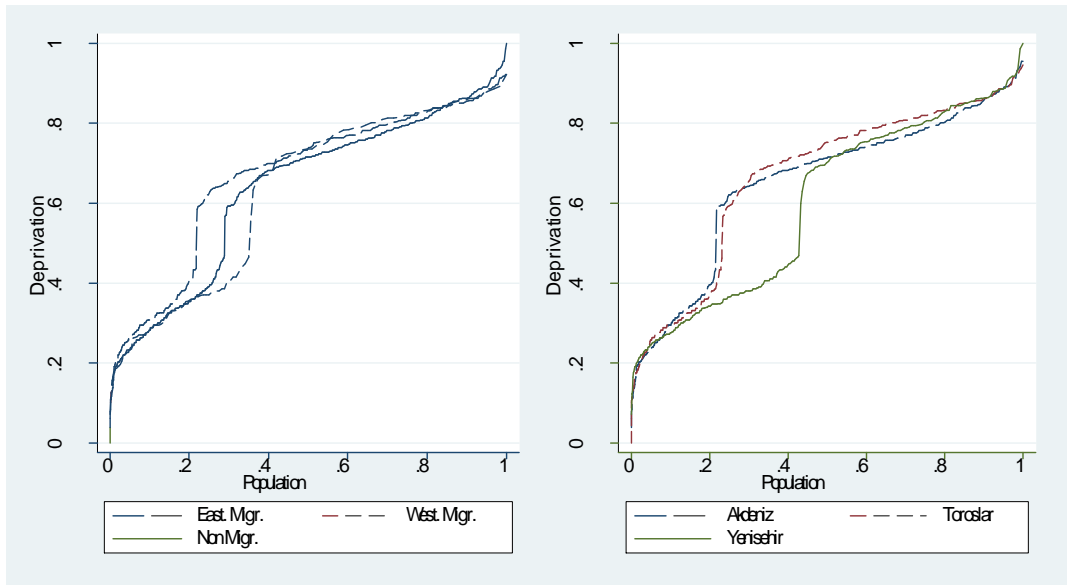


Figure 1 Pen's Parade (*d*)

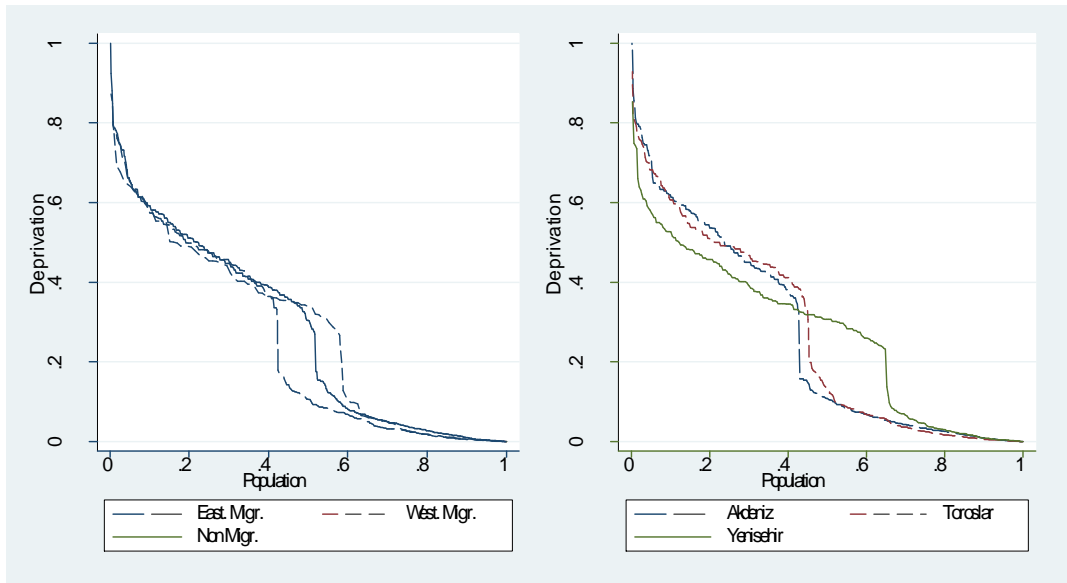


Figure 2 Relative Deprivation Curve

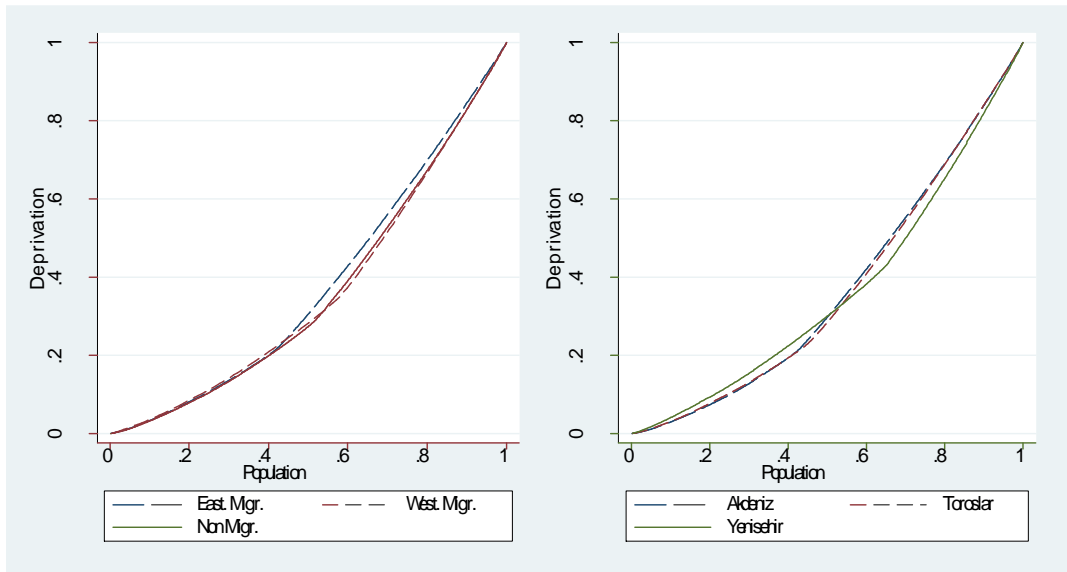


Figure 3 Lorenz Curve (d)