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Abstract

Since the 1990s, massive migration from the marginalized and unprivileged rural areas to small and big towns has been one of the most dramatic and noticeable demographic changes in Tunisia. Even though it has been the focus of abundant research over the recent decades, no study has focused on the earnings differentials between rural-urban migrants and rural stayers. This paper may be the first to investigate such differentials in the Tunisian context. It uses firstly the ELL's methodology to impute into the 2004 census data the per capita expenditures from the 2005 household survey. Then, a decomposition analysis of the welfare gap between migrants and non-migrants is performed using the Oxaca and Blinder's method. It also investigates the main determinants that drive such disparities in order to evaluate how economic and social-demographic factors contribute to the earning gap between the two groups. Our findings indicate that even though some migrants incur welfares losses, rural-urban migration increases on average the welfare of migrants. They show as well that the welfare gaps between migrants and non-migrants are mainly due to the differences in endowments. Education is found to exert the strongest influence on welfare differences and big cities, more specifically the Greater Tunis, is found to attract massively the skilled migrants and enjoy the benefit of agglomeration economies.

JEL Classification: R2

Keywords: Rural-Urban Migration; Income Disparity; Tunisia

ملخص

منذ التسعينات، كانت الهجرة الهائلة من المناطق الريفية المهمشة والمحرومة إلى المدن الصغيرة والكبيرة من أكثر التغيرات الديموغرافية دراماتيكية وإلحاحا في تونس. وعلى الرغم من أنه كان محور البحوث الوافرة على مدى العقود الأخيرة، لم تركز أي دراسة على الفروق في الدخل بين المهاجرين من الريف إلى الحضر ومن يقيمون في المناطق الريفية. وقد تكون هذه الورقة أول من يبحث عن هذه الفروق في السياق التونسي. وهي تستخدم أولا منهجية متعلمي اللغة الإنجليزية لإدراج بيانات نصيب الفرد من النفقات من مسح الأسر المعيشية لعام 2005 في بيانات تعداد السكان لعام 2004. ثم يتم تحليل الفجوة الاجتماعية بين المهاجرين وغير المهاجرين باستخدام طريقة أوكساكا وبليندر. كما أنها تحقق في المحددات الرئيسية التي تدفع هذه الفوارق من أجل تقييم الكيفية التي تسهم بها العوامل الاقتصادية والاجتماعية - الديموغرافية في الفجوة بين الفريقين. وتشير نتائجنا إلى أنه على الرغم من أن بعض المهاجرين يتكبدون خسائر، فإن الهجرة من الريف إلى الحضر تزيد من متوسط رفاه المهاجرين. وتظهر أيضا أن الفجوات في الرعاية الاجتماعية بين المهاجرين وغير المهاجرين ترجع أساسا إلى الاختلافات في الأوقاف. وقد وجد أن التعليم يمارس التأثير الأقوى على الاختلافات في مجال الرعاية الاجتماعية، كما أن المدن الكبرى، وعلى الأخص تونس الكبرى، تجتذب بشكل واسع المهاجرين المهرة وتتمتع بفوائد اقتصادات التكتل.

1. Introduction

Migration has appeared throughout human history, starting with the massive movements of the first human groups from their origins in East Africa to their present location around the world. According to the Shaw's (1975) classic definition, migration is defined as *"the relatively permanent movement of persons over a significant distance"*. People, all over the world, migrate for a range of various causes and migration processes accordingly became not homogeneous. Since the second half of the 20th century, migration caused by a variety of factors including economic, social and political factors has occurred at a variety of scales: intercontinental (between continents), intra-continental (between countries on a given continent), and interregional (within countries). One of the most significant migration patterns that this study addresses is rural to urban migration: the movement of people from the countryside to cities in search of better living conditions.

This type of migration occurred in more economically developed country (MEDC) since the 18th Century, as well as in less economically developed country (LEDC) since the latter half of the 19th Century. Massive rural-urban migration has either occurred or is occurring now, in most developing countries even though migration rates appear to have decreased in some countries. Chen et al. (1996) point out that internal migration accounted for 40.3 percent, 44.1 percent and 54.3 percent of urban population growth in developing countries over the 1960's, 1970's and 1980's, respectively. In Africa for instance, migration from rural areas to small towns and large cities accounted for no less than half of the overall urban growth during the 1960s and 1970s and about quarter of urban growth in the 1980s and 1990s (Brockerhoff, 1995). In Brazil, during the peak of its urbanization process, 20 million people at least, have migrated from rural to urban zones between the 1950s and the 1970s. Similarly, 20.5 million people in India, that represents 30 percent of national urban growth, have moved from rural to urban areas in the 1990s (Census of India, 2005).

As a result of the rapid economic growth for the two decades since the initiation of economic reforms in 1990s, Tunisia has been experiencing a rapid urbanization boosted by a massive flow of rural–urban migration. The official statistics reveals that urban population growth rate (%) in Tunisia has reached 3.83 percent between 1984 and 1994 to decline after to 1.83 percent in the second decade. While the rural population growth rate during the two decades' rate has not exceeded the 0.5 percent. Rural-urban migration is historically an inherent component of the urbanization and economic development processes in LEDC particularly in Tunisia and continues to be significant in scale. It's often considered as a labor market regulation and an intersectoral reallocation from agriculture to other sectors (industry and services). From a microeconomic view, it's often assumed that rural people migrate to urban cities and towns seeking better living conditions at least in the long term.

Giving these statistics showing an internal mobility of the Tunisian population and a large heterogeneity in migration patterns across different regions, it raises very interesting dilemmas: Do rural to urban migrants settled in small and large cities in Tunisia have an average well-being lower than rural and urban non-migrants? Do these differences in well-being, if they exist, differ across various regions? And finally, what could explain such differences between different mentioned groups? Adopting a post-hoc approach as a new perspective of rural-urban migration analysis, we aim in this study to decipher such disparities in welfare between rural to urban migrants and non-migrants in Tunisia.

In the current study, decomposition methods (Oaxaca-Blinder decomposition in mean, Oaxaca-Blinder decomposition based on Recentered Influence Function,...) are used to estimate and explain the well-being differences between rural-urban migrants and different non-migrants in developing countries, with a special focus on Tunisia. To attain such purpose, we model a decomposition analysis for all regions, consisting of littoral and inland regions. Within each

region, there are rural and urban areas. Under this spatial structure, we analyze the relation of rural urban welfare disparity and other factors determining rural-urban migration streams to discuss finally several policy implications.

The aim of the current study is then twofold: Firstly, to estimate the per capita household expenditure, as a proxy of welfare, for both migrants and non-migrants we use the Method of Elbers et al. (2003) which combines the detailed data from the 2005 household budget survey with the 2005 census data. Secondly, to compare the welfare (per capita expenditures) estimated of rural migrants with welfare of both rural and urban residents using a decomposition analysis. The aim of applying such standard decomposition method, in addition to the simple estimation of the gap in welfare between different groups, is to pinpoint the main reasons of such differences in well-being.

The remainder of the paper will be as follows: in the following section, we shed some light on the literature dealing with the linkages between internal migration and income disparity. Section 3 is devoted to an overview of the internal migration pattern in Tunisia. Section 4 presents the data and methods. Section 5 presents the empirical application and outlines the main findings and the final section concludes the study with some policy implications.

2. Literature Review

Rural-urban migration has been recognized in the literature as a response of individuals settled in poor rural areas to better economic and non-economic opportunities and an anticipation of improved economic welfare in urban areas (Mazumdar, 1987). In accordance with Mazumdar, factors that *push* individuals from rural areas to urban cities comprise mainly the hope that the pressure of population in sending areas has almost exhausted all margins of cultivation, so pushing hopeless people towards a new life in urban areas with a mere anticipation of subsistence living.

On the other side, the *pull* hypothesis highlights the attractiveness of the urban life and the rural-urban wage disparity. Particularly, in Todaro (1969) and Harris and Todaro (1970) type probabilistic models, rural population are pushing to migrate to urban cities with the anticipation of a higher wage than they obtain in agriculture, and are ready to bear the risks of unemployment, or lower wages and *underemployment* in the urban informal (traditional) sector. Todaro (1969) claimed that the migrant is ready to bear unemployment or lower wages in the urban informal sector provided that he anticipates graduating to the urban modern sector in the future. Some authors have extended these probabilistic migration models such as Gupta (1988, 1993, 1997), Basu (2000), Chaudhuri (2000), and Bhattacharya (2002).

Nevertheless, emphasizing exclusively on the rural-urban wage differentials, the Harris-Todaro-type migration models may ignore the cost-of-living disparities between rural and urban regions into consideration in migration decision. In this vein, Bell (1991) reveals that the existence of spatially non-mobile regional factors of production may induce disparities in regional household incomes. More regional heterogeneity may occur due to the presence of regional non-traded goods, which aggravates the disparities in cost of living across regions. Following Heady (1988), Bell pointed out that for an individual to be stable in equilibrium (i.e. no migration), it must be the case that his anticipated utility derived from settling in the rural areas is equal to the anticipated utility derived by going to the urban destination. Given that the household's income or the total expenditures and consumer prices in a region have direct effects on consumption decision, they also influence the household's anticipated utility from staying or moving. In accordance with Bell (1991), we claim in this study that disparities in income earned across regions are an influential factor in the migration decision. Yet, the income structure in Bell's model is rather easy, and ignores the disparities in income across regions that occur due to regional heterogeneity in factors production, such as land and capital resources.

Despite more than half century of intensive research in the field of rural-urban migration, few researchers have focused on assessment and comparison of migrant's and resident's well-being. Study conducted by Knight and Gunatilaka (2010), who are among the first to link the literature on migration and subjective well-being in developing countries, is probably the closest to the idea of our present research. Using happiness function as a proxy of subjective well-being for the decomposition analyses, Knight and Gunatilaka (2010) argue that some observed characteristics of migrant conditions make for unhappiness, and that their high aspirations linked to achievement, affected by their new reference groups, also make for unhappiness.

Jelili and Mzali (1998) were the first authors to model and test individual rural-urban migration decisions in Tunisia and the migration selectivity, taking into account the importance of human capital investment incentives and individual characteristics. Using micro level data from rural areas, they found that by purely statistical assessment the anticipated monetary gains effect is significantly different from zero, but that by economic considerations it is small. Similar to Nakosteen and Zimmer (1980), their finding maintains the notion that "*non-migrants in the rural population choose their status because they fail to perceive more favorable returns elsewhere*".

This study will mainly contribute both to the very large literature on rural-urban migration in developing countries and more specifically to the relatively little literature on internal migration in Tunisia. It does so from a new perspective by investigating the disparities in well-being between rural-urban migrants in one hand and rural (non-migrants) and urban residents in Tunisia in the other hand.

While adhering to the similar approach adopted by Jelili and Mzali (1998) and Knight and Gunatilaka (2010), the current study, to the best of our knowledge, differs from aforementioned studies in a number of ways. Albeit, Jelili and Mzali (1998) have estimated a model of return to rural-migration in Tunisia which accounts for self-selection of migrants, and Knight and Gunatilaka (2010) have estimated the disparities in happiness between rural migrant and residents, the socio-economic differences between different groups have never been explicitly modeled and directly estimated. Indeed, our particular interest in this study is the comparison of well-being among rural to urban migrants and rural non-migrants.

3. Overview of Rural-Urban Migration in Tunisia

In Tunisia, most of the rural households, almost 90.2 percent, declare that members of their direct family have moved to cities and urban areas, principally the siblings of rural young men (World Bank, 2014a). Rural-urban migration remains an important pathway for rural people, particularly for young men, to escape poverty and unemployment. The recent statistics on migration flows between rural areas and different cities mentioned in the report of the World Bank (2012) show that nearly one-quarter of male migrants have migrated to Greater Tunis (24.6 percent), to other cities (31.7 percent), and to overseas (15.3 percent), whereas just over one-quarter (28.4 percent) of male migrants from rural households has migrated to other rural areas (see Figure 1 for more details about destinations of rural migrants by gender). However, nearly few young women move to Grand Tunis (16.7 percent), other cities (32.2 percent), and to overseas (2.4 percent). While approximately 50 percent of all migrated female siblings have shifted to other rural areas. Despite the obvious gender disparities in destinations selection and in the purposes of migration of Tunisian rural migrants (Table 1), no study has focused on such disparities. In the current research project, we will attempt to shed some light on this topic to unravel the main causes of the differences in migration decisions (Figure 1).

Greater Tunis and coastal areas are invaded by migrants and remain the first destinations of the majority of rural migrants, while other regions in the inland part particularly in the North and Central West, are the top sending regions of internal migrants after Greater Tunis where the

migration balance is significantly the highest in the country (see Figure 2 and Table 2 for more details).

4. Data and Methodology

4.1 Data used

The two data sources used are: The National Survey on Household Budget, Consumption and Standard of Living (EBCNV) for 2005 and the General Census of Population and Housing for 2004 (GCPH). Both datasets were collected by the National Institute of Statistics. The 2005 EBCNV is recently harmonized by the Economic Research Forum and can be downloaded from its website.[1]

The 2005 EBCNV includes 12318 households (with 56947 individuals), of which 7632 are urban and 4685 are rural households. The 2005 survey was based initially on a random sample of 13392 households representing 0.61% of total households in the country (61 surveyed household for every 10000 households). It is a representative sample distributed across 1116 districts at the national level, in both urban and rural areas, for the twenty four governorates and for the seven economic regions of the country (Greater Tunis, North East, North West, Center East, Center West, South East and South West). The 13392 households were drawn using a two-stage stratified random sampling in each governorate. In the first stage a sample of primary stage units (district) is drawn with probability proportional to their size (PPS) in the number of households. In the second stage of selection, 12 households are selected per primary district (sampled district). The EBCNV survey follows the methodology of the World Bank's living standards measurement survey. It contains an integrated household questionnaire designed to collect information at both household and individual level on: household composition, dwelling characteristics, ownership of assets, head's characteristics, spouses' characteristics and detailed information about expenditure and food consumption patterns. Table 3 shows the geographical distribution of the EBCNV sample. The survey adopts the method of daily direct contact with households for a week, followed by two other visits after then days. During this period, all the expenditures spent by the households are collected. In addition, a follow-up is done during family occasions or religious holidays or other emergency events, to enable estimating the annual expenditure of the households.[2]

The second source of data in this paper is the General Census of Population and Housing 2004 (GCPH). It is the fifth GCPH in Tunisia, since the independence in 1956. The first GCPH was in 1966 and the last one is carried out in 2014 (for the 2014 census, the access to individual data is not yet possible). The 2004 GCPH is exhaustively and collects information from 9910872 individuals, 2185839 households and 2500830 housing using face to face interview. Censuses in Tunisia are carried out with a periodicity of 10 years, exception made for censuses of 1975 and 1984 whose completion dates were advanced by one year. The total household population of Tunisia is divided into 24 strata based on the administrative boundaries, corresponding to the 24 governorates. Each governorate is divided into districts, which is the smaller administrative unit that will be used as a Primary Stage Unit (PSU) for sampling in the National Survey on Household Budget, Consumption and Standard of Living. There are 31734 districts with on average 70 households per district. The range number of households per district is between 50 and 90 households. Out of 9.9 population 6.4 (64.87%) millions lived in urban areas while 3.5 million lived in rural areas. The urbanization rate was 32.06% for the Central-West region, while it reached 92.2% for the Greater Tunis and 72% for central East

[1]OAMDI (2014) Harmonized Household Income and Expenditure Surveys (HHIES), Version 2.0 of Licensed Data Files; EBCNV 2005-National Institute of Statistics (INS), Tunisia. Egypt: Economic Research Forum (ERF).

[2]Survey Methodology (original INS's methodology document in Arabic, translated by the Economic Research Forum).

(Table 4). Rural exodus reflects inequalities in economic development between rural and urban areas since, incomes are lower and employment opportunities fewer than in the latter.

The 2004 GCPH contains a wide range of information including educational attainments, labor activities, housing conditions and maternity history. In addition, it presents two modules on migration within the national census questionnaire: the first one on mobility, internal migration and immigration, the second one on international emigration (Anich et al. 2008).[3] For these modules, eight questions were adopted in the main census questionnaires: country of origin, year of arrival, reasons for move, relationship with the head of household, gender, year of migration, reason for migration and country of destination. Using the first module, we classify individuals as rural-to-urban migrants or non-migrants. A new variable related to the level of education before departure was introduced in the 2014 census.

The 2004 GCPH census, as a common practice throughout the world, does not include information of household consumption and income levels. The 2005 EBCNV, on the other hand, contains detailed information on consumption and expenditure. The wide coverage of topics by the census and the detailed information produced by the survey suggest a great potential for imputing per capita expenditure for census households based on information from the survey.

4.2 Research methodology

The conceptual framework and research methodology used in this study could be divided in two steps: the first one is founded on the Elbers, Lanjouw and Lanjouw's (2003) method - henceforth ELL (2003) - aiming to impute per capita household expenditures for all households of the population census in order to generate small area welfare measures. The second step is based on the Oaxaca-Blinder decomposition, at both the mean and quantiles, aiming to estimate disparities in well-being between rural-urban migrants and rural non-migrants.

4.2.1 ELL (2003)/World Bank method

The ELL's (2003) method analyses household survey data to impute per capita expenditure or income into the population census in order to generate small area welfare measures. The principle of the method is straightforward. This method has been used to construct poverty maps for many countries such as Colombia, Guatemala, Mozambique, Malawi, Nicaragua, Panama, Peru, South Africa, Morocco, Kenya, Bolivia, Bulgaria, China, Ecuador, Indonesia, Mexiso, Sri Lanka, Thailand, and Vietnam (see Henninger and Snel 2002 and Bedi et al. 2007).

At the first, welfare measures based on a household per capita expenditure or income (y_h), are estimated using household survey data. The consumption model must include explanatory variables (household and housing characteristics) that are available in both census and survey data. Formally, the consumption model (also referred to as Beta model) of the logarithm of per capita expenditure/consumption ($\ln y_{ch}$) is estimated in the survey data using the following equation (Eq.1):

$$\ln(y_{ch}) = x'_{ch}\beta + \eta_c + \varepsilon_{ch} \qquad \text{(Eq.1)}$$

Where ($\ln y_{ch}$) is the dependent variable (the logarithm of per capita expenditure of household h living in cluster c), x_{ch} the vector of explanatory variables that must be available in both the census and the survey, β the vector of regression coefficients, η_c the cluster-specific random effect and ε_{ch} the household-specific random effect assumed to be independent from each other, and independent from the cluster effect. The second step of ELL method consists in using the estimated coefficients of Beta model to predict expenditure or consumption for every

[3]Anich, R., Bisogno, E., & Chudinovskikh, O. (2008, May). Measuring Emigration at the Census: lessons Learned from Four Country Experiences. In *Joint UNECE/Eurostat Work Session on Migration Statistics* (Geneva, Switzerland, 3-5 March 2008). *Joint UNECE/Eurostat Meeting on Population and Housing Censuses Eleventh Meeting Geneva* (pp. 13-15).

household in the census. In this step Elbers et al. (2002, 2003) argue that it is necessary to explain the variation in the expenditure due to the cluster-specific effect (this effect can greatly reduce the precision of welfare estimates, if ignored). Given that the estimate of η_c for each cluster in the census dataset is not applicable Elbers et al. show that is possible to estimate the deviation of η_c ($\sigma^2_{\eta_c}$) by using the arithmetic expectation of ($\eta_c + \varepsilon_{ch}$) over cluster c (see Elbers et al. 2002, 2003 for more details on the estimate of variance of the distribution of the cluster effect).

The expenditure of a household in the census in predicted as follows:

$$\hat{y}_{ch} = \exp(x'_{ch}\hat{\beta} + \hat{\eta}_c + \hat{\varepsilon}_{ch}) \qquad \text{(Eq. 2)}$$

Where $\hat{\beta}$, $\hat{\eta}_c$ and $\hat{\varepsilon}_{ch}$ are the estimates for β, η_c and ε_{ch} respectively. The point estimates and standard errors of the welfare indicators are calculated by Monte Carlo simulations advocated by Elbers et al. (2002). In each simulation, a set of values for $\hat{\beta}$, $\hat{\eta}_c$ and $\hat{\varepsilon}_{ch}$ are drown from their estimated distributions (normal or student's t-distribution). The point estimate and the corresponding standard error are obtained by taking the average and standard deviation over the different simulated values. After estimating $\hat{y}_{ch}$, a set of poverty and inequality measures can be computed such as the Foster-Greer-Thorbeck measures (FGT), the generalized entropy class G(λ), the Atkinson class A(c), and the Gini index at different level of aggregation (cluster, region, ...).

4.2.2 Oaxaca-Blinder decomposition

After estimating $\hat{y}_{ch}$ at the first step by using the ELL method, the second step consists to analyse the welfare gap between rural-urban migrants and rural and rural residents. The question is as follows: does rural-urban migrant household settled in urban area of Tunisia has an average per capita expenditure or income higher than rural household? We attempt to compare the migrants with both rural and urban residents in terms of welfare, approximated by the per capita expenditure. The objective is to identify the welfare gap's determinants and to throw some light on the motivation of the migrants.

Various reasons, such as individual characteristics, discrimination between urban and rural labour market and other unobservable factors, can lead to the welfare gap between rural-urban migrants and non-migrants. To do such comparison between the different aforementioned groups (urban-rural migrant, urban and rural non-migrants) the Oaxaca-Blinder decomposition technique will be applied in our study. The decomposition proposed by Oaxaca (1973) and Blinder (1973) has been used in numerous studies worldwide. The method has been broadly applied to estimate the wage differentials between different groups (men/women, white/non-white, poor/non-poor). It decomposes the gap in the means of the outcome variable (per capita expenditure or welfare ratio) into two parts, one linked to group differences in the magnitudes of the determinants of welfare (difference in education level, in age,...) and the second linked to differences in the effects of these determinants (e.g., the effect of education on welfare ratio). For example, rural-urban migrants and urban and rural non-migrants, similarly educated could receive diverse rewards. Formally, we estimate at first the per capita expenditure or welfare equations for rural-urban migrants and non-migrants in rural areas and then we analyse the contribution of various sources to estimated welfare gap. We estimate the welfare equations for rural-urban migrants in urban areas (u) and non-migrants in rural areas (r) by ordinary least squares (OLS). The welfare equations are specified as follows:

$$\ln \widehat{w}_{iu} = \alpha_u + \beta_u X_{iu} + \mu_{iu} \qquad \text{(Eq. 3)}$$

$$\ln \widehat{w}_{ir} = \alpha_r + \beta_r X_{ir} + \mu_{ir} \qquad \text{(Eq. 3')}$$

Where i indexes individual, and $\ln \widehat{w}_{iu}$ and $\ln \widehat{w}_{ir}$ are the logarithm of welfare ratio of rural-urban migrant and non-migrant, respectively. The welfare ratio is the per capita expenditure

obtained from the ELL method divided by the poverty line ($\widehat{w}_{iu} = \frac{\hat{y}_{iu}}{z_u}$, and $\widehat{w}_{ir} = \frac{\hat{y}_{ir}}{z_r}$). We use the welfare ratio in order to take into account the difference in living cost between rural and urban areas. In fact, two individuals (rural-urban migrant and non-migrant) that have the same per capita expenditure, does not have the same level of well-being because the poverty line for the rural-urban migrant has changed (from z_r to z_u). The vector X consists of individual characteristics which include age, the square of age, marital status, categorical variables for education...The vectors β_u and β_r are the regression coefficients and μ_{iu} and μ_{ir} is the random error term for the welfare equations respectively.

The overall difference in average welfare between rural-urban migrant and rural non-migrant is as follows:

$$\overline{\ln \widehat{w}_u} - \overline{\ln \widehat{w}_r} = (\hat{\alpha}_u - \hat{\alpha}_r) + \hat{\beta}_u \overline{X_u} - \hat{\beta}_r \overline{X_r} \quad \text{(Eq.4)}$$

Where $\overline{X_u}$ and $\overline{X_r}$ are vector of explanatory variables evaluated at the means of the rural-urban migrant and non-migrant, respectively. The gap ($\overline{\ln \widehat{w}_u} - \overline{\ln \widehat{w}_r}$) in equation 4 could be expressed in either of two ways:

$$\overline{\ln \widehat{w}_u} - \overline{\ln \widehat{w}_r} = \underbrace{(\hat{\alpha}_u - \hat{\alpha}_r) + \overline{X_r}(\hat{\beta}_u - \hat{\beta}_r)}_{\text{Unexplained}} + \underbrace{\hat{\beta}_u(\overline{X_u} - \overline{X_r})}_{\text{Explained}}, \text{ or as} \quad \text{(Eq.5)}$$

$$\overline{\ln \widehat{w}_u} - \overline{\ln \widehat{w}_r} = \underbrace{(\hat{\alpha}_u - \hat{\alpha}_r) + \overline{X_u}(\hat{\beta}_u - \hat{\beta}_r)}_{\text{Unexplained}} + \underbrace{\hat{\beta}_r(\overline{X_u} - \overline{X_r})}_{\text{Explained}} \quad \text{(Eq.5')}$$

The first term in equation 5 (or equation 6) is what is usually called the "unexplained" effect in Oaxaca-Blinder decompositions, while the second component is a composition effect, which is also called the "explained" effect (by differences in covariates) in Oaxaca-Blinder decompositions.

Besides studying the contribution factors to the welfare inequality at the mean, we perform decomposition at different percentiles of the distribution using an Oaxaca-Blinder type decomposition approach based on Recentered Influence Function (RIF) regressions proposed by Firpo et al (2009). This method decomposes the welfare gap between rural-urban migrants and non-migrants at different points of the welfare distributions. Using unconditional quantile decomposition, the welfare inequality at the τth quantile can be decomposed as follows:

$$Q_\tau\left(F_{\ln \widehat{w}_u}\right) - Q_\tau\left(F_{\ln \widehat{w}_r}\right) = (\overline{X_u} - \overline{X_r})\hat{\beta}_{u,\tau} + \overline{X_r}(\hat{\beta}_{u,\tau} - \hat{\beta}_{r,\tau}) \quad \text{(Eq. 6)}$$

Where $Q_\tau\left(F_{\ln \widehat{w}_a}\right)$ is the τth quantile of distribution of log of welfare ($a = u, r$), and $\hat{\beta}_{a,\tau}$ is the estimate of unconditional quantile regression at the τth quantile for group type a ($a = u, r$). The first term ($(\overline{X_u} - \overline{X_r})\hat{\beta}_{u,\tau}$) represents the endowment effect, that is, the welfare gap at the τth quantile due to endowment differentials. The second term $\overline{X_r}(\hat{\beta}_{u,\tau} - \hat{\beta}_{r,\tau})$) measures the urban-rural migrants and non-migrants' welfare gap at the τth quantile due to the different returns (also known as discrimination effect). The estimation of equation 6 comprises two steps. The first step of decomposition requires estimation of the RIF regressions to generate unconditional quantile regression estimates for each group. The RIF of the dependent variable for each group can be estimated according to following equation (when the unconditional quantile regression is linear (Firpo et al. 2009):

$$\text{RIF}\left(\ln W_a; Q_\tau, F_{\ln W_a}\right) = Q_\tau + \frac{\tau - I(\ln W_a \leq Q_\tau)}{f_{\ln W_a}(Q_\tau)}, \text{ and} \quad \text{(Eq. 7)}$$

$$E\left[\text{RIF}\left(\ln W_a; Q_\tau, F_{\ln W_a} \middle| X\right)\right] = X\beta \quad \text{(Eq. 7')}$$

The second step decomposes the rural-urban migrants and non-migrants wage gap into explained and unexplained components across quantiles in a similar spirit as the Oaxaca-

Blinder decomposition under the linearity assumption between the RIF and explanatory variables (as presented by equation (6)).

A potential argument against decomposing welfare gaps between rural-urban migrants and rural non-migrants using Oaxaca-Blinder decomposition at both the mean and quantiles is that unobservable migrant characteristics may be correlated with rural to urban differences in welfare, and can explain even partially the migration decision. To overcome these possibilities, we use the two-step procedure proposed by Heckman (1979). We estimate at the first step a reduced form probit equation of the migration decision, and then we introduce the inverse Mills ratio obtained from the first step in each welfare equations (3 and 3').

5. Empirical Analysis and Discussion

5.1 Selection of explanatory variables

We start this step by comparing and examining both survey and census questionnaires in order to identify questions that were identical or similar conceptually. Ideally, data on the common variables between the survey and census are collected using the same questionnaires and from the same year. This assumption proposed by Tarozzi and Deaton (2009) and mentioned as an assumption on 'measurement of predictors' ensures the fact that the selected variables satisfy the following assumptions:

- Available in both the household survey and the census,
- Comparable between the household survey and the census (they are constructed in similar definitions and have similar distribution),
- Correlated with household expenditure and income.

In our case, it is true that the survey questionnaire and the census questionnaire are not the same but they include very similar questions.[4] In addition, the survey and census years are very close (2005 and 2004, respectively). Similar empirical studies estimate poverty mapping using different years of household surveys and population census. For example, Litvack (2007) estimated poverty for Morocco using a 1994 population census and a 1998 household survey. Another example is a study on Ecuador, in which poverty mapping combined a household survey in 1994 with a census in 1990. Cuong (2011) estimated poverty for Vietnam using data from the Vietnam Household Living Standard Survey 2003 and the 1999 Population and Housing Census. He showed that poverty estimates taking into account the time difference between the survey and the census are quite close to survey-based estimates, at least at the regional level.

For the 2005 survey we use the harmonized variables produced by the Economic Research Forum (ERF) that uses the international standard classifications in order to provide a more comprehensive set of variables and to avoid the loss of information.[5] Based on these harmonized variables, we try to do the same thing for the 2004 census data. The variables that turned out to be both conceptually and statistically comparable in both data were the following: Sociodemographic characteristics (sex, age, marital status, and education), labor characteristics (labor force participation, employment), housing characteristics (electricity access, water access, and toilet) and durable goods (car, telephone, television, refrigerator, and computer). Table A1 in the appendix presents the list of the comparable variables called "candidate variables", and Table A2 reports their basic statistics. The chi-square statistic that compares

[4] Both questionnaires are available in Arabic and French and can be found on INS's website. The survey questionnaire can be also downloaded from the Economic Research Forum's website.

[5] The harmonized data provided by the ERF are based on three international standard classifications: The classification of individual consumption according to purpose (COICOP), the international standard classification of occupations (ISCO), and the international standard industrial classification of all economic activities (ISIC) (see Data Harmonization Brief: Harmonized Household Income and Expenditure Surveys, Open Access Micro Data Initiative (OAMDI) for the Arab Countries, Iran and Turkey).

the survey frequencies to census frequencies is used to compare two categorical variables, while the Kolmogorov-Smirnov statistic (KStwo) is applied to measure the correlation between two continuous variables (Zhao and Lanjouw, 2009). The significance of the chi-square statistic indicates whether the survey and census categorical variables have similar frequency distributions. KStwo statistic tests the correlation between the cumulative probability distribution functions in the survey and the census data.

According to the results in Table A2, the distributions appear to be very close to each other and this is confirmed by the results of chi-square and Kolmogorov-Smirnov tests that we run on the hypothesis that the distributions of survey and census variables are equal. Hence, for all categorical variables used in the consumption model, the p-value of the chi-square statistic was less than 0.0001. For the continuous variables used in the model: age of the household's head (*headage*), log of the household's size (*lnhsize*) and the share of earners in the household (*shareearn*), the distance values between the survey and census variable are very small (0.095, 0.032 and 0.052 respectively) which suggest that the survey variables are representative of census ones.

5.2 Expenditure models

The second step consists to apply the regression equation to census data on the same household characteristics (retained variables from the first step presented in Table A2) in order to estimate the per capita expenditure for each household in the census. We use the stepwise selection multiple regression method (SWS-MLR) to identify the independent variables that best predicted the per capita expenditure. The SWS-MLR method deletes any variable that does not produce a significant F statistic for the model (see Zhao and Lanjouw 2001, for the other selected methods than can be used such as OLS, Forward selection, Backward selection and single step model selection).

Table A3 reports the initial estimate of (β) in equation (2) obtained from the SWS-MLR method and weighted with survey sampling weights. The proportion of deviance explained by the model is 0.61 which represents a good fit for a cross-section model, supported by a significant F-statistic of 348 (see Table A3). With consistent estimate of β, the residual from the consumption model are used as estimates of the overall disturbances (location or cluster and household components: $\hat{\eta}_c + \hat{\varepsilon}_{ch}$) in order to take into account the cluster effect components. The ratio ($\sigma^2_{\eta_c}/\sigma^2_{\mu_{ch}}$) ($\mu_{ch} = \eta_c + \varepsilon_{ch}$) represents the estimated share of the location or cluster component with respect to the total residual variability and it actually negligible (about 0.022).

5.3 Poverty and inequality estimates

Table A4 in the appendix, Figure 3, Figure 4 and Figure 5 show the imputed values of the average annual per capita expenditure, the poverty incidence (or headcount ration (P_0)) using extreme poverty line, the headcount ratio using poverty line and the Gini index using 100 simulations for the 24 governorates disaggregated at rural and urban areas. The imputed annual per capita expenditures are quite consistent with those obtained directly from the 2005 survey. Figure 3 and Figure 4 show that the coastal regions (Sfax, Nabeul, Ariana, Sousse, Monastir, Ben Arous, Manouba, Tunis) are better off in terms of percentage of individual below the poverty line. The three governorates of the Central West region (Sidi Bouzid, Kairouan and Kesserine) are the most affected by the extreme poverty. The extreme poverty rate is twice as high in rural areas than in urban areas (Figure 3). Figure 4 ranks governorates from low to high poverty rate for both rural and urban areas. Compared to Figure 3, the ranking is almost the same. The extremely poor governorates are also the poorest ones. The governorates of the Central West region always have the highest poverty rates. It is also interesting to note that among the non-coastal governorates, the average per capita expenditure of households living in Jendouba (more specifically those in the urban area) is much greater than of neighboring

governorates. Jendouba is respectively ranked third and eight among the less poor governorates, for urban and rural areas.

Figure 5 reports inequality indices across governorates as well as by urban-rural areas. Taking a look at the Gini index at rural and urban areas one can notice that the range of variation is almost the same (the Gini index ranges between 0.34 to 0.42 for urban area and from 0.33 to 0.4 for rural area). However, the ranking of governorates according to the Gini index is significantly different from rural to urban area. Arranged in ascending order of inequality, for example, Ariana presents the highest inequality level (0.42) in urban area, while it is ranked 10 amongst the 24 governorates for the rural area. The governorates of Sidi Bouzid, Kasserine, Gabes and Tataouine, which exhibit the highest level of poverty, have also the highest inequality levels for both areas. This implies that a large proportion of the income or consumption, even if it is weak, is owned by a few households. In contrast, the lowest inequality in some governorates such as Nabeul (0.35 in urban and 0.33 in rural) and Bizerte (0.34 and 0.33) implies that the income or consumption is generally owned by many households.

5.4 Decomposition results

Table 5 compares the imputed per capita expenditures of rural-urban migrants to those of rural and urban non-migrants by education level, profession, region, and marital status. Figure 4 plots the kernel density of the imputed per capita expenditure for both migrants and non-migrants (rural non-migrants and urban non-migrants). It also graphs the kernel density of rural to urban migrants and non-migrants' welfare (measured by the logarithm of the welfare ratio). The first graph of Figure 4 confirms the implication of Table 5 (column 4) that, in average, rural to urban migrants have larger per capita expenditure than rural non-migrants. However, the average of the per capita expenditure of rural to urban migrants remains lower than that of urban non-migrants (graph 4 of Figure 4 and column 5 of Table 5).

Per capita expenditure increase with education level, the gaps increase as education level becomes more important. This implies more educated persons have greater motivations to migrate. As clearly shown by column 4 of Table 5, the average ratio of the per capita expenditure of university educated migrants to that of rural non-migrants is equal to 1.764. Looking at the ratio, skilled migrants (such as senior technician) improved their per capita expenditure (1.941) much more than non-skilled workers such as artisan workers (1.761) and farmers (1.383). This because low skilled migrant farmers are less likely to obtain high skilled jobs in urban areas, which will negatively affect their per capita expenditures. This result supports the notion of human capital drain from rural to urban areas. Indeed, Todaro and Harris predict that the rural educated migrate to rural areas in greater numbers because they have an increased likelihood of finding job. A second interesting finding from Table 5 is that the gap between per capita expenditures is greater when migration is done from Western regions (North West, Central West and South West) to littoral zones (Greater Tunis and Central East). This viewpoint is supported by the paper of Amara and Jemmali (2016). According to their results, the largest out-migration flows are directed form lower income and deprived regions in the inland part of the country to economically and advantaged ones in the littoral part. They assume that if the unemployment rate differentials between coastal and non-coastal areas are higher enough, people still willing to migrate from regions with high unemployment to low-unemployment ones in search of better job opportunities.

Table A5 in the appendix shows the estimation results for the logarithm of welfare ratio equation. The first two columns show the results for rural to urban migration with and without section correction (by introducing the inverse Mills ratios from the reduced form probit equation). The second two columns show the results for rural non-migrants and the last two columns provide those for urban non-migrants. An important finding is the negative and statistically significant coefficient of the inverse Mills ratio variable in the rural to urban

regressions. The negative coefficient of the sample selection variable suggests that households or individuals with low living standards are more likely to migrate from rural to urban area in order to improve their welfare.

The results confirm the positive effects of education on welfare (no education is considered as reference modality): as the education level increases, the log-welfare ratio increases (the coefficient of 'university' variable is about 0.672 against 0.078 for 'primary' variable). Notice that, the effect of education level on log-welfare ratio is greater for urban non-migrants than for rural to urban migrants, implying than human capital return is higher in rural areas than in urban areas. This result is in line with a study done by Zhu (2002) on the impacts of income gaps on migration decisions in China. Zhu (2002) argues also that the higher is the education level, the stronger is the capacity to overcome migration obstacles and the lower is the migration cost.

The coefficient of 'gender' (men as reference modality) variable is negative and statistically significant, implying that urban to rural welfare gap is larger for women than for men. This result suggests a greater economic incentive for rural women to migrate to urban areas. As we consider Greater Tunis as a reference modality, we see that all rural to urban migrants to the five regions of Tunisia, other than Greater Tunis and central west, are more likely to improve their welfare ratio. One possible explanation is that the cost of living is much higher in urban area of Greater Tunis than those of other regions. Our results show also that single migrants are more likely to improve their welfare.

Table 6 provides the results of Oaxaca-Blinder decomposition at the mean of welfare gap between rural to urban migrants and rural non-migrants (the first two columns of the Table), as well as the gap between rural to urban migrants and the urban non-migrants (the last two columns of the Table). For each case, the Table shows two findings: the magnitude of the total urban to rural welfare gap, and the decompositions of the welfare gaps into the portions due to explained attributes and returns to observable attributes. The vector of regressors includes, age, age square/100, gender, size of the household, work status, marital status, regions, education level and the inverse of Mills ratio. The reference educational category is 'no education level' the reference for marital status is 'not married' and the reference for region variable is Greater Tunis. The total welfare gap between rural to urban migrants and rural non-migrants is estimated at 0.364. This gap is broken into the explained component (0.451 without selection correction and 0.542 with selection correction), representing 124% and 149% of the total gap respectively, and the unexplained component (-0.087 without selection correction and -0.178 with selection correction), which accounts for -24% and -49% of the total gap.

Table 6 reports more evidence on the origin of the explained and unexplained differences between welfare of migrants and non-migrants. We see that the main origins of the explained differences are the size of the household and the education level. More than 60% of differences between migrants and non-migrants' welfare is due to difference in education level. The last two columns of Table 6 suggest that if we use rural non-migrants as a benchmark, the total gap becomes negative and remains statistically significant, even if the value is close to zero (-0.02). This result indicates that, in average, the welfare of rural to urban migrants is so close to urban non-migrant's welfare.

As we have mentioned before, the Oaxaca-Blinder approach splits up the welfare gap at the average level. In order to investigate differential effects across the welfare distribution, we use the Recentered Influence Function regression (RIF) procedure proposed by Firpo et al (2009). Table 7 presents the results from the RIF decomposition for quantiles 0.10, 0.50 and 0.90, while Figure 5 plots the decomposition of welfare differentials measured in log points, as well as the distributions of characteristics and coefficients effects for τth = 0.05, 0.1, ...,0.95.

Looking at the first part of Figure 5, we can see that the welfare gaps between rural-urban migrants and rural non-migrants were smaller at the lowest 10% of the welfare distribution, and were greater as we move towards the top of the welfare distribution. The total differential increases from 0.264 at the 10th percentile to 0.427 at the 90th percentile (Table 7). The impact of characteristics (explained component) on welfare differentials between migrants and rural non-migrants was decreased from 0.558 (211% of the total gap) at the lowest 10% to 0.289 (68% of the total gap) at the 90th percentile, while the discrimination component increases with welfare (of -0.3 to 0.14 from the 10th to 90th percentile). Differences in education result in a decreasing gap in welfare ratio from 81.4% at the lowest 10% of the distribution to 34.2% at the 90th percentile. The three last columns of Table 7 show the quantile decomposition of welfare gap between rural-urban migrants and rural non-migrants. As we can see, the total differential is not statistically significant at the first 10% of the welfare distribution, and it is about -0.014 at the top of the welfare distribution, implying that rural to urban migrants have almost the same welfare ratio as the local residents in urban areas.

6. Conclusion and Policy Implications

In this paper, we have used at the first the ELL's methodology in order to estimate various measures of welfare for small administrative units in Tunisia, combining the 2004 census and 2005 survey data. The results show a notable variation between rural and urban areas with high concentration of poverty in non-coastal regions. In decomposing of gaps between rural to urban migrants and rural non-migrants, our results show that rural-urban migration increases on average the welfare of migrants. In addition, the education level exerts the strongest influence on welfare differences in migration which support the hypothesis that skilled are more mobile than unskilled ones and they are more likely to improve their per capita expenditure by moving to urban zones. We also showed that the coastal areas, more specifically Greater Tunis, attract the skilled workers more than the other coastal agglomerations.

In policies and regulations concerning internal migration particularly the rural-urban migration, migrants have commonly been considered as a homogeneous part of the population with identical needs, purposes and capacities aimed to escape poverty and unemployment to living with more fairness in the society. In the reality, migrants worldwide and particularly in Tunisia has had often heterogeneous features and different behaviors across various sending regions (see Table 1). A wide range of government policies and programs aimed to create a socially optimal distribution between population (migrants and residents) and resources are usually planned regardless the individual goals and specific features of migrants. Indeed, macro policies that don't take into account such heterogeneity, different anticipations of migrants and well-being disparity between various groups may not be in alignment or could yet conflict with migrants' requirements and purposes.

After estimating the economic well-being of different population groups and analyzing the well-being disparities between such groups (migrants and residents) we may find that any policy or strategy linked to migration should be founded on a better comprehension of the main socio-economic conditions that push rural population to migrate. Besides, policy makers should take into account the risks and impact of such rural-urban migration on unemployment and inequality in urban receiving areas.

In technical and practical terms, all stakeholders from small civil associations to different departments and national and international institutions should be involved in a closer coordination and cooperation to avoid the disadvantages of internal migration and maximize its benefits. In this respect, greater attention should be given to longitudinal, retrospective and prospective studies in order to enhance current knowledge on migration patterns, attitudes and behaviors among rural migrant and to deeply investigate the main drivers of rural-urban migration and its impact on economic development and poverty across different regions.

While, national surveys on migration have been conducted in several developing and developed countries, until now, few specific surveys dedicated to migration in Tunisia were conducted due, perhaps, to the shortage of funding and policy interests to do repeated surveys. Such surveys and specific studies, covering various types of population mobility, would undoubtedly provide more precious and important opportunities for scholars and policy makers to access to more detailed, exhaustive and accurate information not available in the current surveys and census data.

According to potential results, we shall recommend also a special focus on the contribution of migrants to home areas. Thus, the government should recognize the main requirements for support and, on this basis, develop and promote relevant initiatives (such as, facilitate transfer of remittances, and omit categorizing regulation, provide more interesting information on local investment opportunities, offers programs of training and practical sustain to return migrants and/or their families, etc.). This requires further research on the socioeconomic cost and benefits of migration, for the low-income migrants and non-migrants and for whole the society. Rising pressure on infrastructure and services in the receiving cities are in certain cases problematic and generates a lot of social troubles for the society. To alleviate the magnitude of such negative effects of migration, government policies could support more equilibrate and equitable regional development throughout public investment in infrastructure and services in rural areas, small towns and intermediate urban centers.

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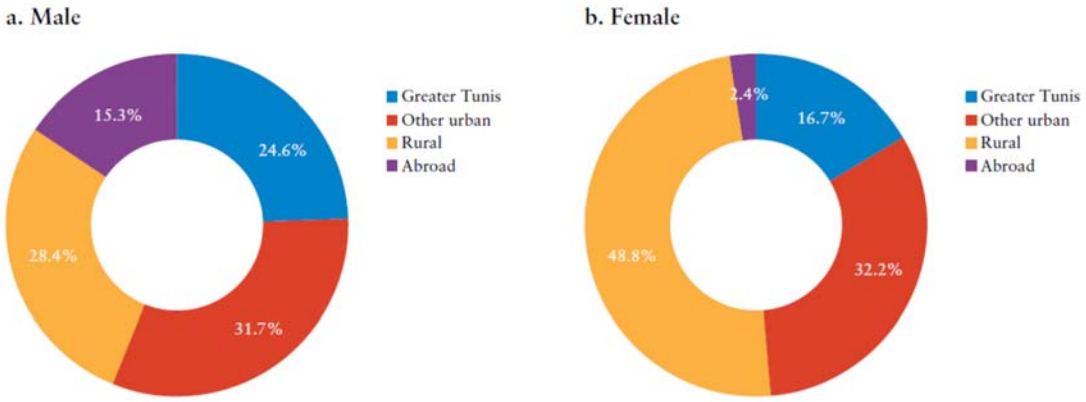
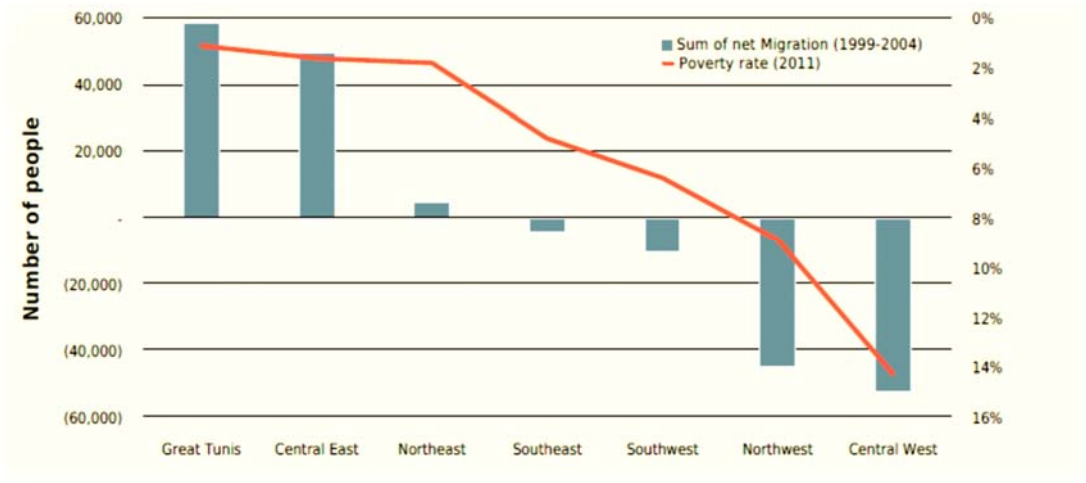
Figure 1: Destinations of Rural Migrants by Gender



Note: Figure refers to all current migrants who are siblings of rural youth.
Source: World Bank 2012

Figure 2: Tunisia's Net Internal Migration, 1999-2004



Source: Tunisia Urbanization Review, World Bank (2014c)

Figure 3: Headcount Index Across Areas and Governorates (using extreme poverty line)

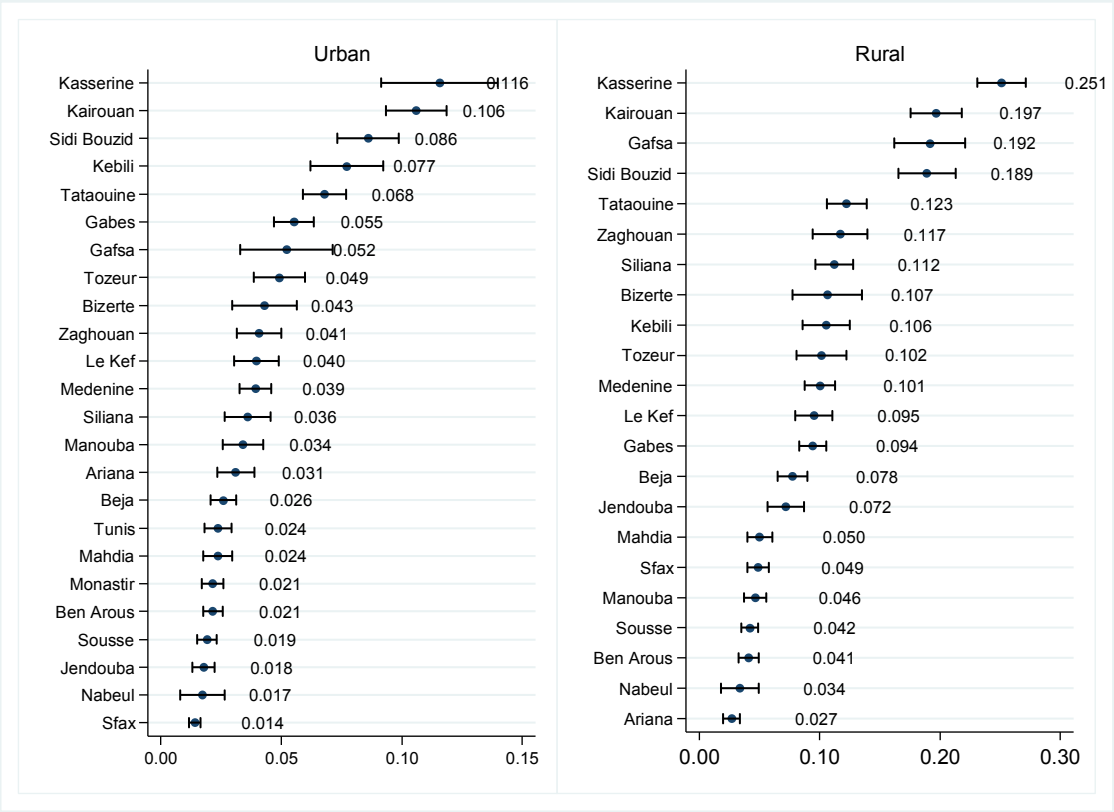


Figure 4: Headcount Index Across Areas and Governorates (using poverty line)

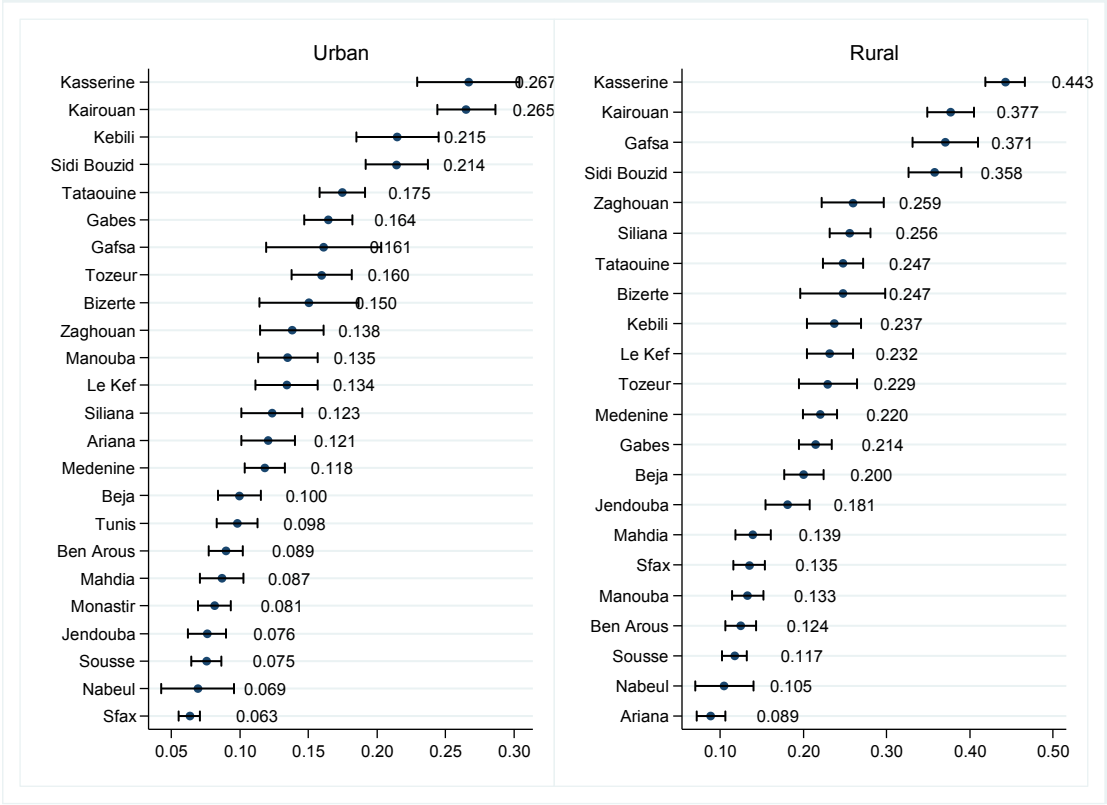
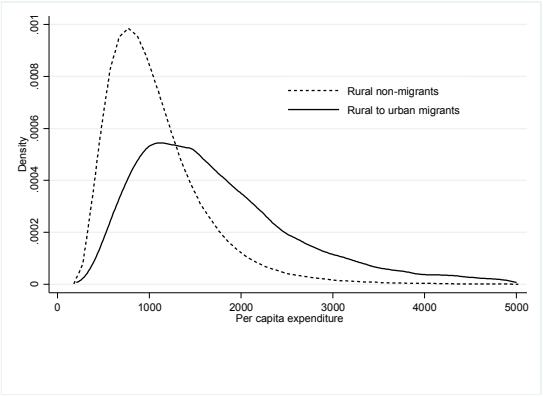
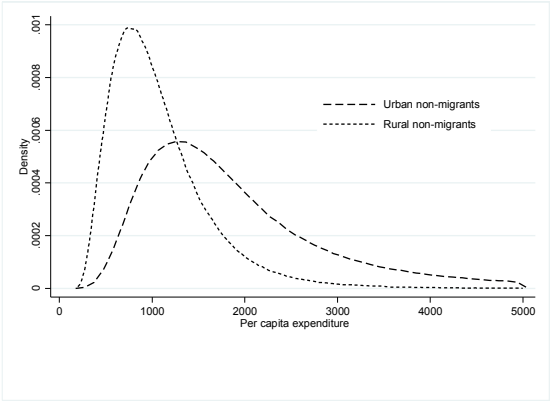
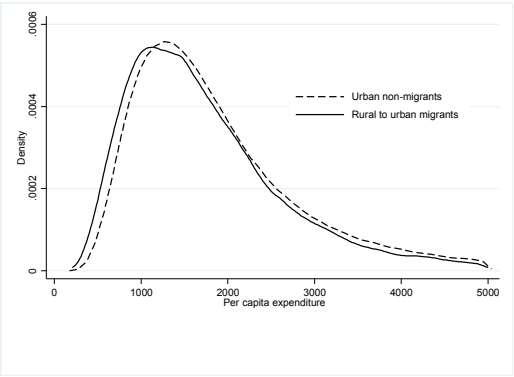


Figure 4a: Average per capita expenditure and log of welfare ratio for rural to urban migrants, rural non-migrants and urban non-migrants.







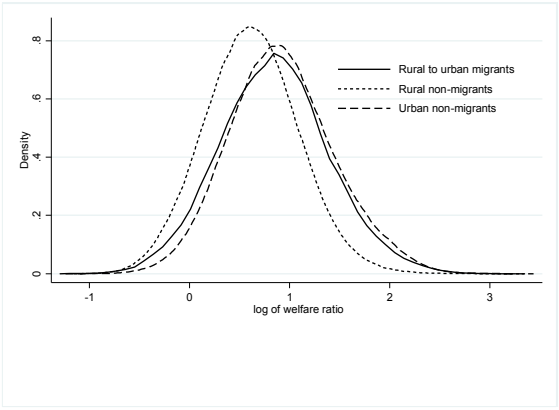


Figure 5: Gini Index Across Areas and Governorates

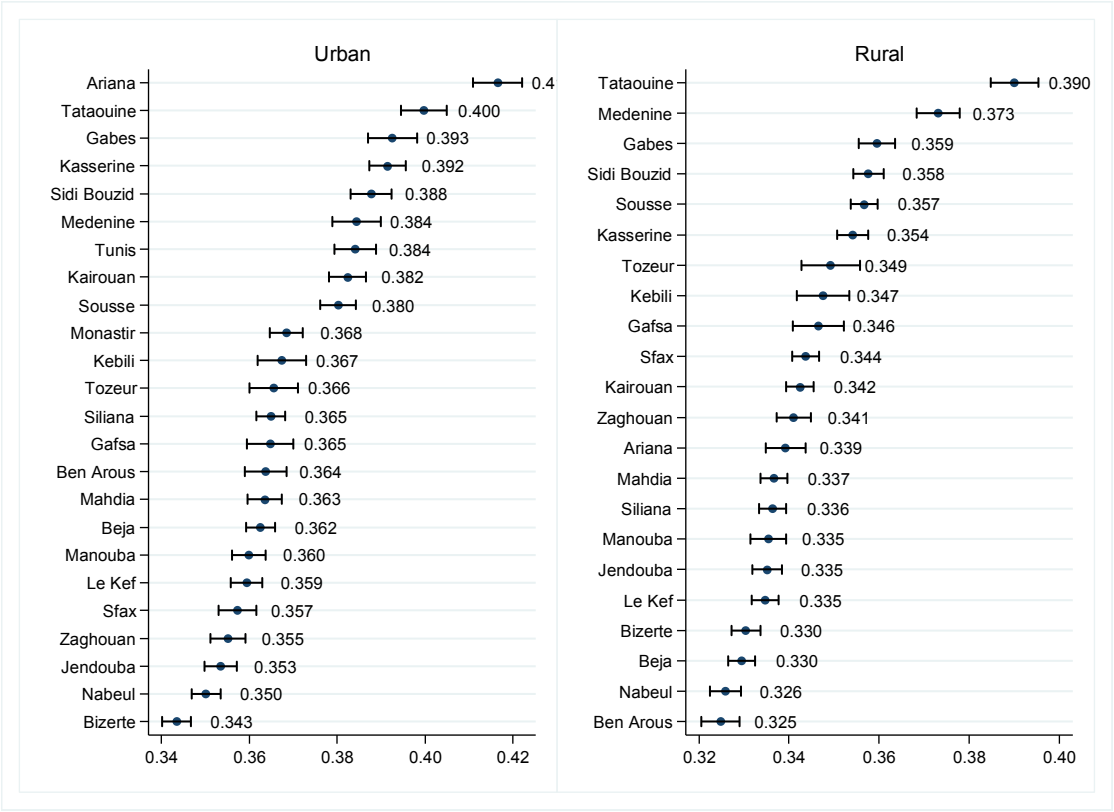


Figure 5a: Rural-urban Migrants and Non-Migrants Differential In Per Capita Expenditure by Quantiles

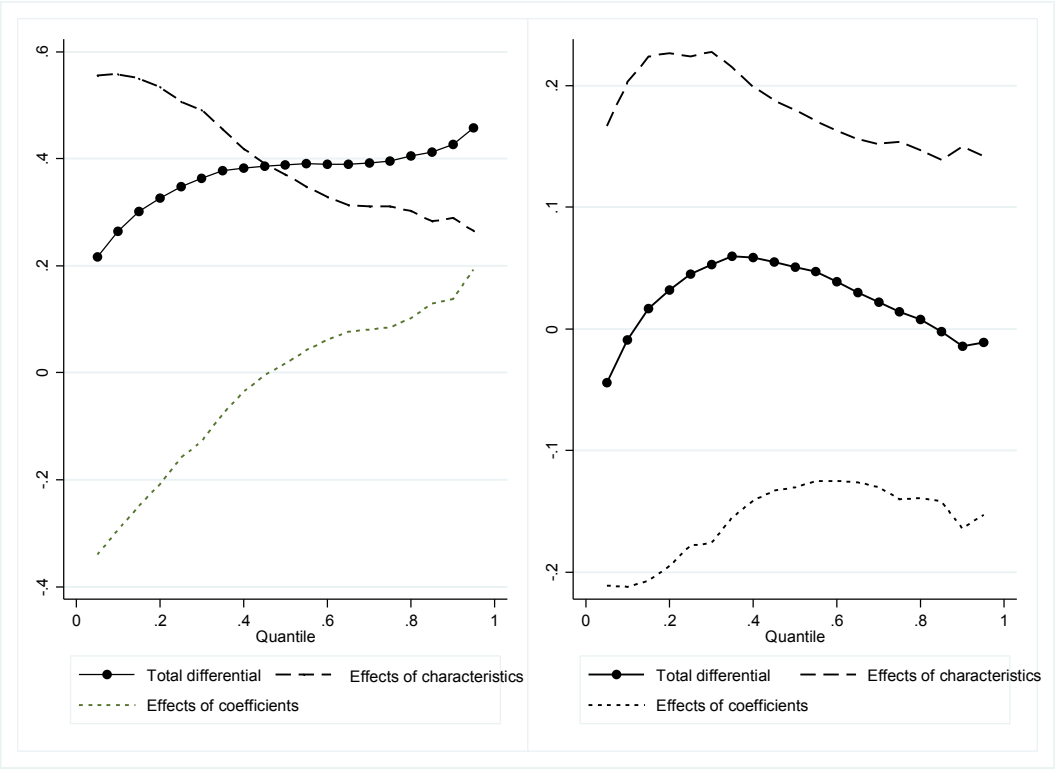


Table 1: Inter Governorate Migration by Main Cause (1999-2004)

	Percentage (%)		
Main cause	**Male**	**Female**	**Total**
Employment	37.10	14.00	26.40
House purchase	05.30	01.40	03.40
Marriage	03.00	14.30	08.30
Accompanying family	31.70	57.70	42.80
Education	13.30	09.30	11.40
Improvement of living conditions	06.50	02.70	04.80
Author	03.10	02.60	02.90

Source: The National Institute of Statistics-Tunisia

Table 2: Intensification of Migration Flows from the Inland to the Littoral Regions

	Balance 1987-1994	**Balance 1999-2004**	**Incoming 2004 (%)**	**Outgoing 2004 (%)**
Greater Tunis	47800	58500	45.05	31.89
Center East	18600	49600	23.98	12.82
North West	-35900	-45300	5.67	15.86
Center West	-23900	-52500	4.97	16.78
South West	-3600	-10300	3.64	5.96
South East	-2700	-4500	7.35	8.37
North East	-300	4500	9.33	8.32
Total	0	0	100	100

Source: The National Institute of Statistics-Tunisia

Table 3: Geographical Distribution of the EBCNV Sample

	Individual			**Household**		
	Total	**urban (%)**	**rural (%)**	**Total**	**urban (%)**	**rural (%)**
Greater Tunis	10702	84.83	15.17	2522	86.64	13.36
North East	7386	55.01	44.99	1679	57.83	42.17
North West	7170	34.32	65.68	1632	37.07	62.93
Central East	10607	70.19	29.81	2315	72.79	27.21
Central West	8466	32.20	67.80	1697	34.83	65.17
South East	6366	62.11	37.89	1210	64.63	35.37
South West	6247	61.20	38.80	1262	64.42	35.58
Total	56944	58.92	41.08	12318	61.96	38.03

Table 4: Distribution of Population, Household and Housing by Region (2004 Census)

	Individual			**Household**			**Housing**		
	Total	**urban (%)**	**rural (%)**	**Total**	**urban (%)**	**rural (%)**	**Total**	**urban (%)**	**rural (%)**
Greater Tunis	2247792	92.20	7.80	533996	93.28	6.72	593015	93.58	6.42
North East	1378981	60.72	39.28	316199	63.93	36.07	359183	67.01	32.99
North West	1213884	37.05	62.95	269016	39.71	60.29	290278	41.66	58.34
Center East	2233112	71.66	28.34	503248	74.60	25.40	597855	75.64	24.36
Center West	1353993	32.06	67.94	264142	34.65	65.35	297878	34.63	65.37
South East	918657	71.07	28.93	186278	72.84	27.16	236610	70.85	29.15
South West	564453	67.79	32.21	112960	69.86	30.14	126011	68.59	31.41
Total	9910872	64.87	35.13	2185839	68.10	31.90	2500830	69.02	30.98

Table 5: Descriptive Statistics of Per Capita Expenditure for Rural-Urban Migrants, Rural Non-Migrants and Urban Non-Migrants

	average per capita expenditure rural-urban migrants (1)	average per capita expenditure rural-non migrants (2)	average per capita expenditure urban-non migrants (3)	Ratio (rural-urban Migrants/rural-non Migrants)	Ratio (rural-urban Migrants/rural-non Migrants)
Per capita Expenditure	1564	955	1667	1.638	0.938
Education					
No education	1338 (895)	940 (452)	1480 (760)	1.423	0.904
Primary school	1585 (859)	1086 (512)	1622 (794)	1.459	0.977
Secondary school	1948 (1008)	1248 (650)	2123 (1137)	1.561	0.918
University	2897 (1514)	1642 (1032)	3267 (1812)	1.764	0.887
Region					
Greater Tunis	1935 (1293)	1294 (660)	2177 (1400)	1.495	0.889
North East	1780 (961)	1142 (578)	1817 (989)	1.559	0.980
North West	1760 (1054)	1078 (512)	1725 (931)	1.633	1.020
Central East	2031 (1076)	1306 (640)	2240 (1225)	1.555	0.907
Central West	1475 (978)	836 (412)	1395 (808)	1.764	1.057
South East	1765 (1156)	1148 (587)	1824 (1003)	1.537	0.968
South West	1638 (1055)	955 (496)	1476 (829)	1.715	1.110
Profession					
cad.sup.dirigean	2594 (1666)	1543 (896)	2753 (1673)	1.681	0.942
profess.tech.sci	3921 (1816)	2020 (1301)	3883 (1928)	1.941	1.010
profess.cad.moy.	2715 (1367)	1827 (962)	2777 (1404)	1.486	0.978
employes bureau	2460 (1262)	1582 (787)	2528 (1303)	1.555	0.973
vendeur.pers.ser	2062 (1070)	1347 (673)	1981 (1011)	1.531	1.040
exp.ouv.agricol	1483 (937)	1071 (548)	1629 (919)	1.385	0.910
artisan.ouv.man.	1731 (845)	1165 (562)	1750 (863)	1.486	0.989
ouv.cond.machin	1850 (805)	1310 (596)	1804 (828)	1.412	1.025
ouv.emp.nn.quali	1790 (1178)	1005 (476)	1525 (821)	1.781	1.174
Marital Status					
Single	2042 (1206)	1142 (569)	2011 (1179)	1.788	1.015
Married	1654 (1019)	1012 (548)	1938 (1213)	1.634	0.853
Widowed	1608 (852)	1295 (610)	2185 (1220)	1.242	0.736
Divorced	1837 (1292)	1327 (779)	2357 (1668)	1.384	0.779

Table 6: Decomposition in Mean of the Welfare Differentials Between Rural To Urban Migrants and Rural Non-Migrants and Between Rural To Urban Migrants and Urban Non-Migrants

	Rural to urban migration/ Rural non-migrants		Rural to urban migration/ Urban non-migrants	
	Without selection correction	**With selection correction**	**Without selection correction**	**With selection correction**
Overall				
group_1	0.955*** (0.003)	0.955*** (0.003)	0.935*** (0.001)	0.936*** (0.001)
group_2	0.591*** (0.001)	0.591*** (0.001)	0.955*** (0.003)	0.955*** (0.003)
Total welfare gap	0.364*** (0.003)	0.364*** (0.003)	-0.020*** (0.003)	-0.019*** (0.003)
Explained attributes	0.451*** (0.003)	0.542*** (0.003)	-0.176*** (0.004)	-0.174*** (0.004)
Unexplained	-0.087*** (0.003)	-0.178*** (0.003)	0.156*** (0.004)	0.155*** (0.004)
Explained attributes				
Demog	-0.135*** (0.001)	-0.144*** (0.001)	0.126*** (0.004)	0.081*** (0.007)
Education	0.223*** (0.002)	0.215*** (0.002)	-0.047*** (0.001)	-0.047*** (0.001)
Statut	0.066*** (0.001)	0.067*** (0.001)	-0.055*** (0.003)	-0.056*** (0.003)
Region	0.067*** (0.001)	0.063*** (0.001)	-0.008*** (0.001)	-0.008*** (0.001)
Hhsize	0.232*** (0.001)	0.230*** (0.001)	-0.196*** (0.003)	-0.196*** (0.003)
Work	-0.002*** (0.001)	-0.002*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
IMR		0.113*** (0.001)		0.048*** (0.006)
Unexplained				
demog	0.192*** (0.031)	0.171*** (0.031)	0.135*** (0.032)	0.094*** (0.036)
education	-0.108*** (0.010)	-0.099*** (0.006)	0.134*** (0.006)	0.135*** (0.006)
statut	0.003 (0.004)	0.004 (0.004)	-0.004 (0.007)	0.003 (0.007)
region	0.114*** (0.005)	0.101*** (0.005)	-0.001 (0.004)	-0.001 (0.004)
hhsize	-0.052*** (0.004)	-0.053*** (0.004)	0.060*** (0.006)	0.059*** (0.006)
work	0.200*** (0.005)	0.199*** (0.005)	-0.184*** (0.005)	-0.181*** (0.005)
IMR		0.032*** (0.005)		-0.206** (0.087)
cons	-0.435*** (0.030)	-0.533*** (0.030)	0.016 (0.028)	0.252*** (0.075)
# observations	563008	559863	1034401	1028192
Group 1 : Migrants	34567	34424	34567	993768
Group 2 : Non-migrants	528441	525439	999834	34424

Note: Demographic: age, age-square/100, sex; Education: primary, secondary, university, undeclared (uneducated as reference modality); Marital Status: married, widowed, divorced (single as reference modality); Region: Northeast, Northwest, Central East, Central West, Southeast, Southwest (Greater Tunis as reference modality); IMR: inverse of Mills ratio. Variables used in probit model: age, gender, distance to primary school, distance to school, distance to college, distance to health centers, can read and write. Group 1 corresponds to rural to urban migrants and group 2 refers to rural non-migrants in the first two columns and to rural non-migrants for the last two columns.

Table 7: Quantile Decomposition of The Welfare Differentials Between Rural to Urban Migrants and Rural Non-Migrants and Between Rural to Urban Migrants and Urban Non-Migrants

	Rural to urban migration/ Rural non-migrants			Rural to urban migration/ Urban non-migrants		
	10th	**50th**	**90th**	**10th**	**50th**	**90th**
Overall						
group_1	0.238***	0.959***	1.656***	0.238***	0.959***	1.656***
group_2	-0.026***	0.571***	1.229***	0.248***	0.909***	1.670***
Total welfare gap	0.264***	0.388***	0.427***	-0.009*	0.051***	-0.014**
Explained attributes	0.558***	0.371***	0.289***	0.203***	0.180***	0.150***
Unexplained	-0.293***	0.017***	0.138***	-0.212***	-0.130***	-0.164***
Explained attributes						
Demog	-0.153***	-0.096***	-0.119***	-0.164***	-0.101***	-0.129***
Education	0.215***	0.154***	0.146***	0.038***	0.045***	0.063***
Statut	-0.022***	0.083***	0.109***	-0.024***	0.072***	0.098***
Region	0.022***	0.013***	0.001	0.005***	0.010***	0.008***
Hhsize	0.499***	0.224***	0.166***	0.350***	0.157***	0.116***
Work	-0.005***	-0.007***	-0.014***	-0.002***	-0.003***	-0.007***
Unexplained						
demog	-0.139**	0.323***	0.249***	-0.454***	0.035	-0.126*
education	0.125***	-0.078***	-0.189***	0.091***	-0.181***	-0.290***
statut	-0.035**	-0.050***	0.129***	0.041***	-0.032***	0.030*
region	0.172***	0.193***	0.119***	0.014*	0.005	-0.016*
hhsize	-0.437***	0.024**	0.009	-0.399***	0.020**	0.108***
work	0.106***	0.167***	0.394***	0.120***	0.156***	0.324***
cons	-0.085	-0.562***	-0.574***	0.376***	-0.133***	-0.194***
# observations	562998	562998	562998	1034368	1034368	1034368
Group 1: Migrants	34567	34567	34567	34567	34567	34567
Group 2: Non-migrants	528431	528431	528431	999801	999801	999801

Appendix

Table A1: Descriptive Statistics of Candidate Variable Pairs (2005 survey and 2004 census)

Variable	Label	Type	2005 Survey Mean (st.d) [min-max]	2004 Census Mean (st.d) [min-max]
nbage0_5	# member of household under 5 years	Integer	0.443 (0.732) [0-5]	0.450 (0.737) [0-12]
nbagem6_14	# member of household between 6 and 14 year (male)	Integer	0.398 (0.680) [0-4]	0.399 (0.697) [0-9]
nbagef6_14	# member of household between 6 and 14 year (female)	Integer	0.407 (0.712) [0-5]	0.383 (0.699) [0- 8]
nbagem15_24	# member of household between 15 and 24 year (male)	Integer	0.452 (0.763) [0-6]	0.487 (0.830) [0-12]
nbagef15_24	# member of household between 15 and 24 year (female)	Integer	0.478 (0.786) [0-6]	0.480 (0.802) [0-14]
nbagem25_60	# member of household between 25 and 60 year (male)	Integer	0.891 (0.666) [0-5]	0.987 (0.717) [0-20]
nbagef25_60	# member of household between 25 and 60 year (female)	Integer	1.060 (0.660) [0-7]	1.023 (0.671) [0-15]
nbagem61	# member of household more than 60 years (male)	Integer	0.253 (0.440) [0-3]	0.206 (0.410) [0-11]
nbagef61	# member of household more than 60 years (female)	Integer	0.242 (0.438) [0-3]	0.206 (0.416) [0-11]
Hsize	Size of the household	Integer	4.623 (2.073) [1-25]	4.619 (2.097) [1-25]
Headage	age of the household's head	Continuous	53.139 (14.506) [18-98]	49.868 (14.609) [18-104]
Shareearn	share of earners in the household	Continuous	0.320 (0.225) [0-1]	0.323 (0.252) [0-1]
Headalph	1 if the household's head can read & write	Binary	0.609 (0.488)	0.674 (0.469)
Headedn	1 if the household's head has no education level	Binary	0.308 (0.462)	0.323 (0.467)
Headedp	1 if the household's head has primary level	Binary	0.324 (0.468)	0.343 (0.475)
Headeds	1 if the household's head has secondary level	Binary	0.237 (0.425)	0.241 (0.427)
Headedu	1 if the household's head has university level	Binary	0.074 (0.262)	0.091 (0.287)
Headc	1 if household's head never married	Binary	0.023 (0.151)	0.058 (0.234)
Headm	1 if household's head married monogamous	Binary	0.829 (0.376)	0.827 (0.378)
Headd	1 if household's head divorced/separated	Binary	0.017 (0.131)	0.016 (0.126)
Headw	1 if household's head employed	Binary	0.660 (0.474)	0.675 (0.468)
Dwltyp	Type of dwelling	categorical		
	House	Binary	0.601 (0.490)	0.553 (0.497)
	Villa	Binary	0.349 (0.477)	0.358 (0.479)
	Apartment	Binary	0.043 (0.203)	0.056 (0.231)
	Others	Binary	0.007 (0.082)	0.033 (0.177)
Dwlten	Tenure of dwelling	categorical		
	Rented	Binary	0.086 (0.280)	0.154 (0.361)
	Owned	Binary	0.867 (0.340)	0.773 (0.419)
	Provided free	Binary	0.047 (0.213)	0.072 (0.259)
Elect	1 if house electrified	Binary	0.990 (0.105)	0.981 (0.136)
Scook	Source of energy for cooking	categorical		
	Electricity	Binary	0.012 (0.108)	0.001 (0.019)
	Gaz	Binary	0.982 (0.132)	0.986 (0.117)
	Kerosene	Binary	0.002 (0.049)	0.001 (0.034)
	Wood & Coal	Binary	0.004 (0.060)	0.013 (0.111)
Wat	Water facilities	categorical		
	Piped supply	Binary	0.831 (0.375)	0.830 (0.376)
	Public tap	Binary	0.017 (0.128)	0.015 (0.122)
	Well	Binary	0.040 (0.195)	0.032 (0.177)
	Others	Binary	0.016 (0.127)	0.123 (0.328)
Car	1 if household has car	Binary	0.180 (0.384)	0.203 (0.402)
Mbcycle	1 if household has mbcycle	Binary	0.152 (0.359)	0.266 (0.442)
telv	1 if household has television	Binary	0.918 (0.274)	0.884 (0.320)
radio	1 if household has radio	Binary	0.777 (0.417)	0.753 (0.431)
satd_rec	1 if household has satd_rec	Binary	0.577 (0.494)	0.452 (0.500)
telph	1 if household has telphone	Binary	0.688 (0.463)	0.590 (0.492)
computer	1 if household has computer	Binary	0.086 (0.281)	0.067 (0.250)
internet	1 if household has internet	Binary	0.015 (0.120)	0.075 (0.263)
Refrg	1 if household has refrg	Binary	0.861 (0.346)	0.810 (0.392)
wash	1 if household has wash	Binary	0.385 (0.487)	0.337 (0.473)
Dshwsh	1 if household has dshwsh	Binary	0.023 (0.150)	0.017 (0.129)
Cond	1 if household has cond	Binary	0.090 (0.286)	0.057 (0.232)

Table A2: Comparing Variables in Survey and Census (Chi-square and KStwo Statistics)

Variable	Chi Square Statistic	Prob	Kolmogorov-Smirnov (KStwo) statistic	Distance
nbage0_5	1553	<0.001		
nbagem6_14	2388	<0.001		
nbagef6_14	929	<0.001		
nbagem15_24	9477	<0.001		
nbagef15_24	2339	<0.001		
nbagef25_60	5303	<0.001		
nbagem61	11032	<0.001		
nbagef61	6627	<0.001		
Hsize			0.000	0.032
Headage			0.000	0.095
Shareearn			0.000	0.052
Headalph	9616	<0.001		
Headedn	1036	<0.001		
Headedp	1701	<0.001		
Headeds	64	<0.001		
Headedu	3933	<0.001		
Headc	33747	<0.001		
Headm	33	<0.001		
Headd	111	<0.001		
Headw	1508	<0.001		
Dwltyp	40642	<0.001		
Dwlten	48863	<0.001		
Elect	7951	<0.001		
Scook	39830	<0.001		
Wat	49646	<0.001		
Car	798	<0.001		
Mbcycle	86549	<0.001		
telv	24564	<0.001		
Region	959	<0.001		
satd_rec	90808	<0.001		
telph	63012	<0.001		
computer	15822	<0.001		
internet	75560	<0.001		
Refrg	37765	<0.001		
wash	38986	<0.001		
Dshwsh	4382	<0.001		
Cond	26956	<0.001		

Table A3: Survey Estimation: Consumption Model or Beta Model (Dependent Variable: Log of Per Capita Expenditure)

Variable	Coefficient	Std. Err.	t-Student	|Prob|>t	Label
Intercept	5.727	0.122	46.938	0.000	Intercept
Car_2	-0.268	0.013	-20.17	0.000	Dummy for Car = 2
Computer_1	0.196	0.020	10.038	0.000	Dummy for Computer = 1
Cond_1	0.248	0.019	13.265	0.000	Dummy for Cond = 1
Dshwsh_1	0.175	0.030	5.764	0.000	Dummy for Dshwsh = 1
Dwlten_1	0.122	0.026	4.625	0.000	Dummy for Dwlten = 1
Dwlten_2	0.040	0.022	1.833	0.067	Dummy for Dwlten = 2
Dwltyp_1	-0.106	0.011	-9.300	0.000	Dummy for Dwltyp = 1
Dwltyp_3	0.059	0.024	2.488	0.013	Dummy for Dwltyp = 3
Dwltyp_4	-0.213	0.056	-3.789	0.000	Dummy for Dwltyp = 4
Headage	0.003	0.001	4.635	0.000	headage
Headalph_1	0.053	0.015	3.472	0.001	Dummy for Headalpha = 1
Headpeap_2	0.025	0.017	1.404	0.160	Dummy for Headedp = 2
Headeds_1	0.095	0.020	4.794	0.000	Dummy for Headeds = 1
Headedu_1	0.290	0.028	10.291	0.000	Dummy for Headedu = 1
Headm_2	0.132	0.015	8.593	0.000	Dummy for Headm = 2
Headw_2	0.055	0.013	4.365	0.000	Dummy for Headw = 2
Hsize	-0.041	0.005	-8.261	0.000	hsize
Internet_1	0.055	0.040	1.373	0.170	Dummy for Internet = 1
Mbcycle_1	0.068	0.013	5.094	0.000	Dummy for Mbcycle = 1
Nbage0_5_0	0.279	0.041	6.752	0.000	Dummy for Nnage0_5 = 0
Nbage0_5_1	0.141	0.039	3.565	0.000	Dummy for Nbage0_5 = 1
Nbage0_5_2	0.056	0.039	1.431	0.153	Dummy for Nbage0_5 = 2
Nbagef15_24_0	0.052	0.013	3.946	0.000	Dummy for Nbagef15_24 = 0
Nbagef15_24_2	-0.027	0.018	-1.500	0.134	Dummy for Nbagef15_24 = 2
Nbagef15_24_5	-0.239	0.170	-1.404	0.160	Dummy for Nbagef15_24 = 5
Nbagef25_60_0	0.180	0.018	10.187	0.000	Dummy for Nbagef25_60 = 0
Nbagef25_60_3	-0.041	0.029	-1.407	0.159	Dummy for Nbagef25_60 = 3
Nbagef61_0	0.170	0.078	2.165	0.030	Dummy for Nbagef61 = 0
Nbagef61_1	0.110	0.078	1.419	0.156	Dummy for Nbagef61 = 1
Nbagef6_14_0	0.220	0.021	10.618	0.000	Dummy for Nbagef6_14 = 0
Nbagef6_14_1	0.085	0.020	4.254	0.000	Dummy for Nbagef6_14 = 1
Nbagef6_14_3	-0.146	0.041	-3.548	0.000	Dummy for Nbagef6_14 = 3
Nbagem15_24_0	0.061	0.013	4.685	0.000	Dummy for Nbagem15_24 = 0
Nbagem15_24_3	-0.057	0.033	-1.703	0.089	Dummy for Nbagem15_24 = 3
Nbagem61_1	-0.070	0.016	-4.455	0.000	Dummy for Nbagem61 = 1
Nbagem61_3	0.572	0.280	2.041	0.041	Dummy for Nbagem61 = 3
Nbagem6_14_0	0.246	0.021	12.017	0.000	Dummy for Nbagem6_14 = 0
Nbagem6_14_1	0.140	0.019	7.227	0.000	Dummy for Nbagem6_14 = 1
Refreg_1	0.186	0.016	11.688	0.000	Dummy for Refrg = 1
Reg_1	0.084	0.019	4.479	0.000	Dummy for Reg = 1
Reg_2	0.038	0.020	1.885	0.059	Dummy for Reg = 2
Reg_3	0.089	0.020	4.413	0.000	Dummy for Reg = 3
Reg_4	0.185	0.019	9.958	0.000	Dummy for Reg = 4
Reg_5	-0.037	0.020	-1.884	0.060	Dummy for Reg = 5
Reg_6	0.138	0.022	6.428	0.000	Dummy for Reg = 6
Satd_reg_1	0.145	0.012	12.291	0.000	Dummy for Satd_reg = 1
Scook_1	0.051	0.042	1.223	0.221	Dummy for Scook = 1
Scook_4	-0.148	0.075	-1.973	0.049	Dummy for Scook = 4
Shareearn	0.4227	0.024	17.828	0.000	shareearn
Telph_1	0.213	0.012	18.205	0.000	Dummy for Telph = 1
Telv_1	0.114	0.019	5.984	0.000	Dummy for Telv = 1
Wash_1	0.152	0.012	12.603	0.000	Dummy for Wash = 1
Wat_1	0.054	0.016	3.440	0.001	Dummy for Wat = 1
Wat_2	-0.086	0.036	-2.388	0.017	Dummy for Wat = 2
Wat_3	0.047	0.026	1.840	0.066	Dummy for Wat = 3
Number of Observations					12200
F statistic					347.597
Adjusted R-squared					0.610
MSE					0.211
Minimum LHS variable					4.447
Maximum LHS variable					10.904
Minimum LHS in real term					85.392
Maximum LHS in real term					54417

Minimum residual from Y=X*B	-1.681
Maximum residual from Y=X*B	3.092
MSE of Beta model:	0.211
Locational Effect	
Locational Effect	Yes
Minimum locational effect	-0.265
Maximum locational effect	0.122
Sigma Eta	0.068
Ratio of Var(eta) over MSE(beta) : $(\sigma^2_{\eta_c} / \sigma^2_{\mu_{ch}})$	0.022

Table A4: Imputed Per Capita Expenditure and Per Capita Expenditure from 2005 Survey

Governorate	Urban			Rural		
	Per capita expenditure (INS 2005)	Imputed per capita expenditure	Population Share (%)	Per capita expenditure (INS 2005)	Imputed per capita expenditure	Population Share (%)
Tunis	2667 (2322)	2506 (1681)	14.83			
Ariana	3671 (4940)	2643 (1987)	05.84	1598 (1818)	1506 (862)	01.13
Ben Arous	2485 (2142)	2363 (1415)	06.99	1390 (794)	1287 (704)	01.42
Manouba	2421 (2537)	1880 (1160)	03.87	1622 (1691)	1293 (708)	02.51
Nabeul	2419 (1985)	2143 (1221)	07.01	1632 (1299)	1378 (697)	06.43
Zaghouan	1776 (1185)	1723 (1009)	00.96	1157 (821)	1034 (563)	02.87
Bizerte	1603 (1159)	1716 (948)	04.95	998 (784)	1023 (524)	05.84
Beja	2076 (1485)	1923 (1122)	01.95	1329 (971)	1107 (554)	05.23
Jendouba	2443 (2401)	2035 (1142)	01.80	1263 (738)	1184 (582)	08.76
EL Kef	1662 (1381)	1739 (1024)	02.00	1198 (844)	1068 (574)	03.71
Siliana	1912 (1361)	1847 (1118)	01.35	1325 (959)	1048 (544)	04.36
Sousse	2709 (2440)	2553 (1565)	06.81	1657 (1356)	1499 (886)	03.26
Monastir	2608 (3443)	2216 (1329)	07.20			
Mahdia	2339 (2036)	2124 (1186)	02.66	1554 (1047)	1319 (641)	06.11
Sfax	2535 (2170)	2501 (1322)	08.48	1414 (945)	1349 (699)	08.96
Kairouan	1858 (1675)	1585 (956)	02.75	1034 (858)	870 (434)	10.63
Kasserine	1840 (1615)	1496 (988)	02.58	1030 (1524)	828 (467)	07.15
Sidi Bouzid	1806 (1731)	1641 (1057)	01.52	905 (716)	942 (514)	08.63
Gabes	2314 (2159)	2040 (1250)	03.70	1468 (1758)	1193 (633)	03.23
Medenine	2307 (2945)	2060 (1240)	05.26	1484 (1821)	1232 (728)	02.89
Tataouine	2284 (2376)	1923 (1265)	01.40	1599 (1530)	1265 (775)	01.60
Gafsa	2098 (1749)	1696 (1078)	03.76	952 (608)	915 (538)	02.49
Tozeur	1987 (2062)	1691 (1071)	01.09	1195 (823)	1152 (677)	00.84
Kebili	1433 (1042)	1536 (971)	01.24	1280 (1115)	1133 (633)	01.93

Table A5: Log Welfare Ratio Regression for Rural-Urban Migrants, Rural Non-Migrants and Urban Non-Migrants

	rural to urban migrants		Rural non-migrants		Urban non-migrants	
	without Selection Correction	With Selection Correction	without Selection Correction	With Selection Correction	without Selection Correction	With Selection Correction
Age	0.005***	0.004***	-0.007***	-0.007***	0.003***	-0.001***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Age-square/100	0.007***	0.008***	0.025***	0.025***	0.016***	0.018***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Gender	-0.046***	-0.042***	-0.051***	-0.047***	-0.011***	-0.010***
	(0.006)	(0.006)	(0.002)	(0.002)	(0.002)	(0.002)
Hhsize	-0.121***	-0.121***	-0.101***	-0.100***	-0.106***	-0.108***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Work	0.369***	0.370***	0.101***	0.101***	0.125***	0.122***
	(0.006)	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)
Primary	0.086***	0.079***	0.160***	0.145***	0.181***	0.173***
	(0.007)	(0.008)	(0.001)	(0.001)	(0.001)	(0.001)
Secondary	0.318***	0.307***	0.441***	0.420***	0.506***	0.496***
	(0.008)	(0.008)	(0.002)	(0.002)	(0.001)	(0.001)
University	0.684***	0.672***	0.917***	0.889***	1.010***	1.000***
	(0.009)	(0.009)	(0.004)	(0.004)	(0.002)	(0.002)
Married	-0.159***	-0.158***	-0.161***	-0.162***	-0.162***	-0.156***
	(0.007)	(0.007)	(0.002)	(0.002)	(0.002)	(0.002)
Widowed	-0.016	-0.016	-0.073***	-0.074***	-0.021***	-0.015***
	(0.017)	(0.017)	(0.003)	(0.003)	(0.002)	(0.002)
Divorced	-0.084***	-0.085***	-0.120***	-0.122***	-0.118***	-0.113***
	(0.019)	(0.019)	(0.005)	(0.005)	(0.003)	(0.003)
Northeast	0.059***	0.063***	-0.086***	-0.069***	0.047***	0.046***
	(0.008)	(0.008)	(0.003)	(0.003)	(0.001)	(0.001)
Northwest	0.118***	0.111***	-0.137***	-0.118***	0.036***	0.035***
	(0.008)	(0.008)	(0.002)	(0.002)	(0.002)	(0.002)
Central East	0.132***	0.135***	0.084***	0.103***	0.192***	0.190***
	(0.006)	(0.007)	(0.002)	(0.002)	(0.001)	(0.001)
Central West	-0.074***	-0.082***	-0.293***	-0.273***	-0.156***	-0.157***
	(0.008)	(0.008)	(0.002)	(0.002)	(0.002)	(0.002)
Southeast	0.144***	0.145***	-0.011***	-0.004	0.133***	0.131***
	(0.008)	(0.008)	(0.003)	(0.003)	(0.001)	(0.002)
Southwest	0.013	0.014***	-0.208***	-0.211***	-0.022***	-0.023***
	(0.011)	(0.011)	(0.003)	(0.003)	(0.002)	(0.001)
Inverse Mills Ratio		-0.039***		-0.064***		0.173***
		(0.004)		(0.001)		(0.004)
Constant	0.536***	0.592***	0.970***	1.125***	0.552***	0.271***
	(0.027)	(0.028)	(0.009)	(0.009)	(0.007)	(0.010)
adjusted R squared	0.434	0.436	0.459	0.4648	0.480	0.481
# observations	34567	34424	528441	525439	999834	993768