

# Migration and work-related mobility between the different metropolitan areas in the central region of Mexico

## Migración y movilidad laboral entre las zonas metropolitanas de la región centro de México

José Aurelio Granados-Alcantar  
y Laura Myriam Franco-Sánchez

*Universidad Autónoma del Estado de Hidalgo, México*

### *Abstract*

The importance of work-related mobility in metropolitan areas has gained significant attention. Therefore, this study sought to gain insight into the nature of work-related everyday travel in the Central Region of Mexico and as into the role these commutes play in the intra-metropolitan migration process currently taking place in the region. In order to accomplish these objectives, microdata from the 2010 Mexican population and housing census were employed to construct the relations between migration and work-related mobility in the nine metropolitan areas of Mexico's Central Region.

*Key words:* intra-urban migration, work-related mobility, Central Region of Mexico.

### *Resumen*

En las áreas metropolitanas la movilidad cotidiana por motivos laborales adquiere una gran importancia. Por ello, este trabajo intentará conocer la importancia de los desplazamientos laborales en la Región Centro de México, así como la relación que tienen estos traslados con el proceso de migración intrametropolitana que experimenta la Región Centro de México. Para lograr el objetivo planteado se utilizará la información de los microdatos del XII Censo de Población y Vivienda de México 2010, con ella se construirán las relaciones entre migración y movilidad laboral en las nueve zonas metropolitanas de la región centro del país.

*Palabras clave:* Migración intraurbana, movilidad laboral, región centro de México.

## INTRODUCCIÓN

**W**ork-related mobility is an increasingly present phenomenon in the life of populations living in urban areas. Its increasing trend is mainly due to economic activity and city growth.

Three metropolitan transformations have contributed to this social processes: one, the expansion of the metropolitan phenomenon, which has in some cases acquired a regional dimension; two, a change in the city's internal structure, which is progressively moving from monocentric configurations characterized by a pronounced center-periphery gradient to multipolar configurations, and three, bearing in mind the existence of scattered areas far from the metropolitan core but strongly interconnected with the central area, a disruption in continuity as the defining element of the metropolitan space (Méndez, 2007) As a result, economic and population activities have been relocated, scattering labor markets and producing an authentic transformation in these metropolitan areas over the past few years.

Hence the structure of interrelated functional areas with high flows of work-related mobility. The need to undertake studies focused on such phenomena in Mexico is thus evident. Therefore, this study addressed work-related mobility in the Central Region of Mexico, a geographical space including nine metropolitan areas, very close to each other, whose economic activities and population's occupations follow heterogeneous patterns. Our aim was to explore answers to the following questions: How strong is the effect of work-related mobility between different metropolitan areas in the Central Region on the composition of the economically active population in each of the metropolitan areas in this geographical space? What is the relation of work-related mobility with the intra-metropolitan migration process taking place in the Central Region of Mexico? What are the socio-demographic factors affecting work-related mobility in the Central Region of Mexico? The basic idea is that intra-metropolitan migration is closely related with work-related mobility between different metropolitan areas.

In order to attempt an answer to those questions, this paper is organized in the following sections. The first section sets the context with a summarized analysis of the relation between mobility and migration. The second section deals with the concept of metropolitan area and describes the information used in the analysis. Next, the population of these metropolitan

areas and their internal migratory movements are studied. Another section studies work-related mobility; it highlights its relationship with migration, describes its most important characteristics, and addresses the most influential sociodemographic factors associated with work-related mobility in the Central Region of Mexico. Finally, the principal findings of this research are summarized in the conclusions.

## **MIGRATION AND WORK-RELATED MOBILITY**

In the beginnings of the urbanization process, the term ‘migration’ was limited to a geographic movement involving not only the place of residence, but also the rest of everyday environments, especially the workplace (Lewis, 1982). Nowadays, in a better consolidated urbanization process where metropolization initiatives play more relevant roles, migration can be a change of residence not necessarily involving a different work place. This kind of migration differs from the traditional change of residence, in which a significant change in an individual’s activities was also involved (Módenes, 1998). According to (Gilbert, 1992), migration processes have changed. Owing to higher availability of long-distance travel, the workforce has the options of keeping their residence far from their workplace and traveling to work every day or keeping their job in the city and moving outside.

The migratory movements underlying the current metropolization processes are driven by the desire to improve the quality and characteristics of households, and frequently take place without the interruption of everyday activities such as working, going to school, etc. This pattern is one of the stages of a migratory movement model termed “mobility transition” by Zelinsky (1971), which occurs at the most advanced levels of urban development and reflects the new role played by metropolises.

This stage is characterized by strong inter-urban migration, as well as increased relationships between economic activities and populations in metropolises close to each other, which is reflected by the increasing quantitative and qualitative importance of inter-metropolitan migration. Changed intra to inter Population from the metropolis expands to small and medium-sized cities near large urban cores; the metropolis is the main source of outbound population and the peripheral areas its main recipient. In that sense, the role of most of the municipalities located next or close to large national urban centers becomes evident: they are not only supposed to contain the demographic “excess” from the core, but also to be the *locus* of the almost inexorable urban expansion progression in the Region. The-

refores, we are not facing a simple population transference movement from one territory to another, but the inclusion of the peripheral areas into the constituting process of the metropolitan “big city” (Pinto, 2007). Grammont (2008), among other authors, highlights the importance of the temporary quality of migration, which enables individuals to return to their place of residence, and states that definitive migration to work in the city has stopped being a viable alternative. Nowadays, the ease of movement provided by the development and innovation of transportation options allows the population to travel longer distances, so everyday travel and temporary migration emerge as viable options (Grammont, 2008:37).

The purposes of these migratory movements are different from those of classic migration, which are work-related and involve different regions. New trends indicate that intra-metropolitan migration is driven by various residential urbanization processes, such as informal settlements, government housing projects, and high-end neighborhoods in historically poor or semirural locations. In this form of urbanization, the territory is settled in a scattered and expansive fashion over an extensive area (Molina, 2009). As a result, metropolitan movements have become polarized and changed: joining the historical outwards movement of poor people, wealthy families begin to move to the periphery, from whence they commute every day to work or go to school in the big city (Celade, 2006:13).

Along these migrations within metropolitan areas, everyday commutes for work, education, or leisure purposes acquire great relevance. We have previously stated the specific purposes of work-related mobility: some are related with production processes and the valuation of land for housing projects, while others respond to the access to economic activities. In the latter case, the divergence between places to live and places to work has created new and complex challenges. This configuration paints a picture similar to Villaça’s (1998) idea of an intra-urban environment conceived as a space for the circulation of individuals, especially the “bearers of the workforce good”, which stresses the issue of work-related mobility as an essential element to understand the existence of the metropolis itself.

Mobility varies within the metropolis according to the social group involved: those who have migrated and those who have not. Migration can result in increased work-related transportation if the increasing distance between workplaces and residences calls for those commutes. Moreover, there are different types of work-related mobility. Meil and Ayuso (2006) divide mobility in two main categories of individuals: the first covers two-way or circular mobility, including daily commuters, weekly commuters,

irregular or “vari-mobile” commuters, and temporary or seasonal commuters, while the second category considers individuals moving in a non-circular fashion, such as recent relocators, migrants, foreign delegates, or job nomads. Each type of mobility calls for a detailed characterization and thorough study of its effects (Meil & Ayuso, 2006:8). The analysis in this study considered only those participants who stated that their workplace was outside their metropolitan area of residence; the corresponding question was: In which municipality or borough is the business, company, or place where you worked last week?

## **METHOD**

The present study used the definition of metropolitan area (MA) coined by the ad-hoc work group created by the Secretaría de Desarrollo Social (SEDESOL), the Instituto Nacional de Estadística, Geografía e Informática (INEGI), and the Consejo Nacional de Población (CONAPO) in 2004. The MA is defined as a group of two or more municipalities where a city of 50,000 inhabitants or more is located; the city’s urban area, functions, or activities reach beyond the border of the municipality where the city originated, thus incorporating neighboring, predominantly urban municipalities to its system or direct area of influence and giving rise to a sustained and significant degree of socioeconomic integration; the definition includes municipalities relevant to urban planning and policy by virtue of their specific characteristics (Grupo Interinstitucional, 2012). Additionally, metropolitan areas are defined as municipalities containing a city of more than one million inhabitants, as well as cities of more than 250,000 inhabitants sharing conurbation processes with cities in the United States or America. Based on these criteria, the work group identified 59 metropolitan areas in Mexico in 2010 (Grupo Interinstitucional, 2012). The reference for the analysis in the present study are the nine metropolitan areas in the Central Region proposed by the cross-institutional work group.

Based on the information just described, we grouped the nine MAs in the Central Region (Mexico City, Puebla, Toluca, Cuernavaca, Cuautla, Apizaco –Tlaxcala, Pachuca, Tula, and Tulancingo) using microdata from the XII Mexican population and housing census. People who had changed residence from one MA in the region to another (inter-metropolitan migrants) were identified using the responses to the question in the census about the place of residence at a fixed previous date (five years before the census, in accordance with criteria by the United Nations). These data were

used to populate a migratory flow matrix so as to allow for an aggregate examination of residential changes.

A matrix of work-related commutes was built in order to outline interrelationships among labor markets and the different MAs in this region of the country; the data in the matrix was obtained from the following census question: In which municipality or borough is the business, company, or place where you worked last week? It should be made clear that we only considered for analysis individuals who stated that they carried out economic activities outside their metropolitan area of residence, and discard individuals commuting within the limits of one MA. We considered that these two categories should be analyzed separately, since the latter is a component of local everyday mobility among others (for education, leisure, shopping purposes) and is a determinant of territorial and urban planning in metropolitan areas.

It should be highlighted that the date between the migratory event and work-related mobility did not match, since migration date was set to five years before the census and mobility was set to one week before; therefore, a recent migrant, someone who moved five years or less before the census could have been working outside the MA and then found a job in the MA where they currently live; therefore, the census date does not reflect work-related mobility. Additionally, it might be the case that a person migrated before and/or after the migration date, and consequently, the person was not censused as a migrant; such mismatch between events could have originated different special situations that might have affected our analysis of the processes. However, these scenarios provide a general sketch of the relations between everyday work-related mobility and intra-metropolitan migration, the process examined in this paper. As stated before, this study considered only the people who commuted to a different municipality. There are nonetheless some advantages. In the first place, individual characteristics and mobility practices are perfectly synchronized, which makes it possible to avoid the greater difficulty of socioeconomic studies on migration: discrepancy between migration and census dates (Delaunay, 2013). Concerning everyday commutes, people are described at the time of the commute, their activity is strictly actual. Secondly, mobility can be thoroughly observed, as opposed to changes of residence, part of which is overlooked by censuses (Delaunay, 2013).

## **THE CENTRAL URBAN REGION**

According to Sobrino (2013), the urban region in the Center of Mexico concentrates the highest population and economic concentration in the country. The central node of the region is the Mexico City metropolitan area (MCMA), the largest in the country, where the largest number of economic and population activities in Mexico take place. There are other two metropolises of more than one million inhabitants (Puebla and Toluca), and eight medium-sized cities (Apizaco, Cuernavaca, Cuautla, Pachuca, San Martín Texmelucan, Tlaxcala, Tula, and Tulancingo).<sup>1</sup> In 2010, total population in the region was 29.1 million inhabitants, 25.9% of the country's total; its gross domestic product (GDP) was 355 billion dollars, or 32.6% of national GDP. Its GDP per inhabitant was 1.3 times larger than the national average (Sobrino, 2013:96).

Additionally, metropolitan areas concentrate 76.2% of the population in the Central Region, which account for 22.9% of primary GDP, 93% of manufacturing GDP, and 95.3% of the tertiary GDP in the region. The primary sector is losing (absolute and relative) importance to the secondary and especially the tertiary sectors, which are currently spearheading the economic dynamics in the Central Region. On the other hand, the secondary sector is acquiring a new geographic structure marked by the territorial dispersal of manufacturing plants throughout the small and medium sized cities in the region. The tertiary sector is differentiated: specialized services and commerce are located in metropolitan areas or high urban hierarchy nuclei, whereas low specialization services and commerce are found in low-hierarchy locations. Metropolitan spaces are the most economically dynamic in the region. Although the economic dynamics in the region are focused on the secondary and tertiary sectors, metropolitan areas, and especially their central municipalities, are the true protagonists of economic activities, which is reflected by their lion's share of secondary and tertiary GDP in the region. Due to the tertiary specialization taking place in the country as a whole and especially in the Central Region, this trend is not likely to change (Olvera y Galindo, 2013:423). On her part, Dominguez (2015) found that work opportunities increased significantly from 2005 to 2010 in the metropolitan areas of Cuautla, Querétaro, and Toluca; The author also reports that the MCMA concentrates most of specialized services, and highlights the direction of economic activities in other MAs in

<sup>1</sup> Since 2005, San Martín Texmelucan started to be considered part of the Puebla-Tlaxcala metropolitan area, and Tlaxcala and Apizaco were merged into one metropolitan area: Tlaxcala-Apizaco (Grupo Institucional, 2012).

the region: manufacturing industry, wholesale trade, retail sales, transportation, and educational, cultural, and sports services, among other non-specialized sectors (Domínguez: 49) (Figure 1).

Source: Self-elaboration with data from SEDESOL, CONAPO, and INEGI, 2010)

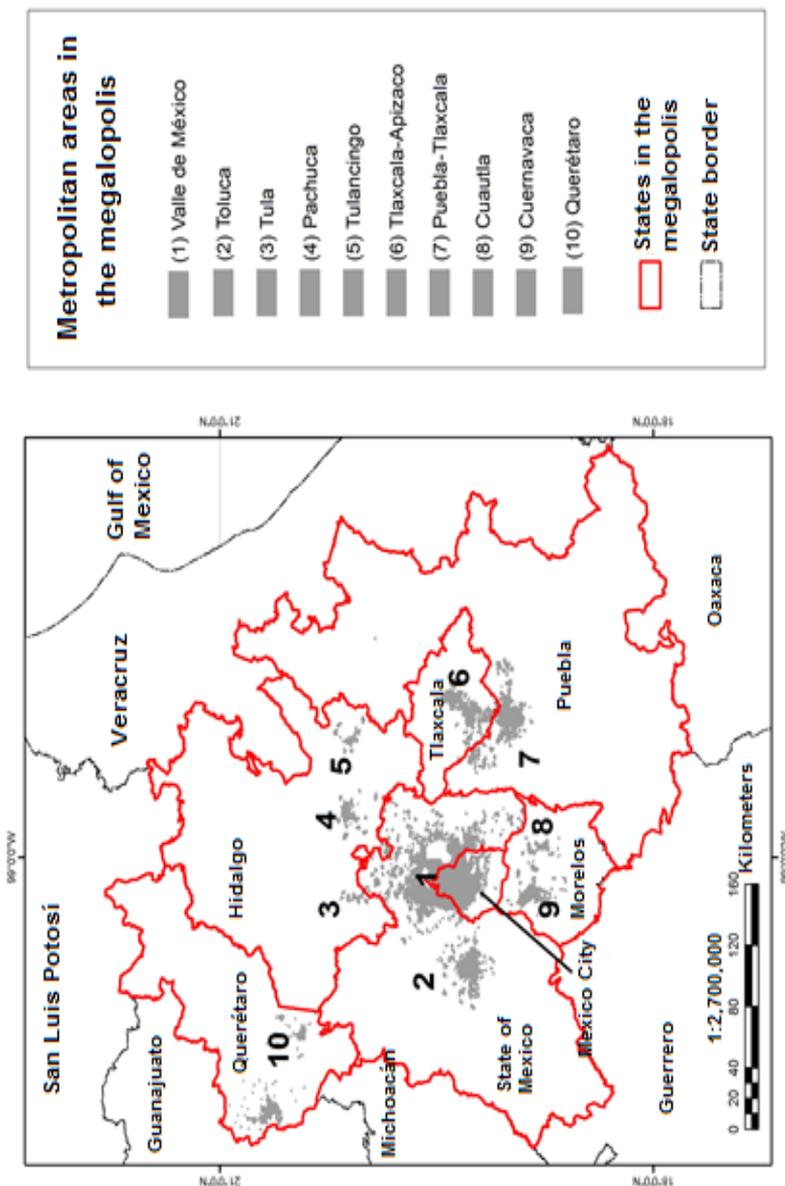


Figure 1: Metropolitan areas of the Central Region, 2010.

## **MIGRATION BETWEEN METROPOLITAN AREAS IN THE CENTRAL REGION OF MEXICO**

In 2010, the metropolitan areas in the Central Region of Mexico concentrated 25.9% of the country's total population. However, 42% of the immigrants in all the metropolitan areas of the country came from within the region, and 36% of total immigrants settled in a metropolitan area in the Central Region. These figures inform about the importance of migration for metropolitan areas in this and other regions of the country. More than 280,000 movements of people between metropolitan areas in the Central Region of Mexico were registered for the five-year reference period before the census; these movements represent people who changed their residence from one area to another. The MCMA is involved in most of the migrations within the studied area: more than 60% of such movements were from the MCMA to neighboring metropolitan areas. The migratory currents from and to the MCMA take heterogeneous forms. Metropolitan-metropolitan movements become foremost in this context, although metropolitan-urban, metropolitan-rural, and rural-rural were also registered in the region. These observations are not new. A population dispersion process caused by the intense departure of people from the MCMA to its neighboring metropolitan areas has been taking place since the 1980s;<sup>2</sup> for instance, more than 90% of recent migrants in the MA of Toluca come from the MCMA, and this flow of migrants from the MCMA represents 86% of newly-settled people in Pachuca, 85% in Cuernavaca, and approximately 60% in Tula, Cuautla, and Tulancingo. Nearly one half of immigrants in the Tlaxcala-Puebla MA are also from the MCMA. Oppositely, more than half of the people who moved out of the MAs of Toluca (62%) and Pachuca (53%) moved to the MCMA. Similarly, many people moving out of the MAs of Tula (47%), Tulancingo (43%), Puebla (42%), Cuautla (40%), Cuernavaca (39%), Apizaco (39%), and Tlaxcala (38%) moved to the MCMA (see the Central Region of Mexico metropolitan area migration matrix) (Table 1).

<sup>2</sup> As stated by Chavez and Guaderrama (2000), internal migration in Mexico showed higher territorial complexity in the 1980s and 1990s, mainly due to the large volume of population leaving the core of the great national metropolises. Therefore, for instance, numerous intra-metropolitan movements from the Federal District to the State of Mexico were registered in those decades, as well as movements between metropolitan areas, from Mexico City to the metropolitan areas surrounding the cities of Toluca, Cuernavaca, Cuautla, Querétaro, Puebla, and Pachuca, inter-regional migrations from the Federal District to states and cities in the border, and international migrations from the Federal District to the United States. Therefore, this territorial complexity is essentially associated with the massive emigration of people from the MCMA, and is the result of the city's deeply-rooted industrial crisis, the resulting socioeconomic degradation of its middle-class, and the increase in metropolitan poverty.

**Table 1:** Central Region of Mexico metropolitan area migration matrix, 2010

Metropolitan area	Valley of Mexico											Total
	México	Pachuca	Tulancingo	Tula	Toluca	Cuernavaca	Cuahtla	Puebla-Tlaxcala	Tlaxcala- Apizaco			
Valle de México	23 860	3 458	3 275	48 491	23 894	9 835	17 228	7 721	169 195			
Pachuca	6 036	649	308	895	122	13	490	223	9 423			
Tulancingo	2 182	1145	108	40	1	53	70	31	3 790			
Tula	2 213	477	79	56	296	36	136	0	3 724			
Toluca	21 248	422	75	155	763	619	1 161	224	26 424			
Cuernavaca	9 889	382	162	63	397	2 163	999	339	15 707			
Cuahtla	3 916	154	32	0	1 832		422	139	6 933			
Puebla-Tlaxcala	19 551	736	244	102	760	623	363	5 154	28 385			
Tlaxcala- Apizaco	2 685	194	66	165	76	27	3 484	7 064				
<b>Total</b>	<b>73 951</b>	<b>27 616</b>	<b>4 831</b>	<b>4 304</b>	<b>52 130</b>	<b>27 874</b>	<b>13 169</b>	<b>25 221</b>	<b>13 928</b>	<b>280 109</b>		

Source: Self-elaboration based on microdata from the 2010 national population and housing census (Mexico)

Finding out the reason for this migration patterns is important, since it can allow us to infer whether people are moving due to work-related reasons or their changes of residence are independent of the economy. The 2010 census failed to include questions to determine the reasons behind migration, but the 2000 census provides an insight into such reasons for each MA;<sup>3</sup> census data show that half of the changes of residence of metropolitan migrants are related with work, while the rest of the changes are due to different reasons. One of these reasons, which can be labeled as “residential”, has the goal of improving the person or family’s housing conditions. These types of migrations are relatively new in the national landscape and are part of the housing policy implemented by the federal government. Since 1996, members of the Instituto Nacional del Fomento a la Vivienda (INFONAVIT) can use their credit to buy property in any part of the country, not necessarily the place where they work. This possibility initiated a real estate expansion to areas located next to the MCMA, where real estate agents can find future clients, since the low cost per square meter in the neighboring areas is attractive to people from the MCMA, where such costs are high. These results are in line with the trend observed in metropolis in other Latin American countries, where residential projects around the cities are the main motivation behind population movements—migrants seek the condominium or cluster option offered by the private sector, the options provided by social interest programs, or down-right squatting in a colonization process of what used to be farming land, facilitated by real estate market liberalization policies. “New” internal migrations suggest the search for housing as one of the main factors behind population movements (Molina, 2009:7). A similar conclusion was drawn by Rodríguez (2008:69) in a study including four MAs in Brazil, Chile, and Mexico: there seems to be no labor-related motivation behind intrametropolitan migration, which allows for the assumption that changes of residence are not intended to live closer to workplaces, but probably to satisfy other well-being dimensions (space, convenience, safety, etc.).

3 The 2010 national census failed to include questions about the reasons behind migration; therefore, this study used the 2000 census as reference.

## WORK-RELATED MOBILITY BETWEEN METROPOLITAN AREAS IN THE CENTRAL REGION OF MEXICO

Results in Table 2 show that more than one million people were commuting beyond their metropolitan areas to carry out economic activities in 2010. In other words, these people have jobs outside the administrative border of the MA where they reside. This figure indicates that one in ten employed people in the MAs of the Central Region of Mexico makes a mandatory commute due to work outside their MA of residence. Results reveal a noticeable intensity of work-related travel in the Tlaxcala-Apizaco, Tula, Pachuca, Valley of Mexico, and Cuautla MAs, where more than 10% of the employed population commutes beyond the MA to work, whereas the Puebla-Tlaxcala and Cuernavaca MAs show lower commuting intensity.

**Table 2:** Economically active population and work-related mobility by metropolitan area in the Central Region of Mexico

Metropolitan Area	EAP		
	Employed individuals	Employed individuals with work-related mobility	Percentage of EAP with work-related mobility
Valley of Mexico	7 435 032	851 578	11.5
Pachuca	218 990	24 695	11.3
Tulancingo	95 115	9 282	9.8
Tula	78 308	9 844	12.6
Toluca	722 442	72 011	10.0
Cuernavaca	379 995	30 667	8.1
Cuautla	170 622	18 381	10.8
Puebla-Tlaxcala	1 069 160	76 018	7.1
Tlaxcala-Apizaco	199 632	31 865	16.0
	10 835 253	1 153 934	10.6

**Source:** Self-elaboration based on microdata from the 2010 national population and housing census (Mexico).

The large number of individuals who stated living in a MA and working outside their MA is the result of transformations in local labor markets. However, the destinations of the vast majority of these commutes are not economic cores in MAs, but municipalities outside the metropolises; as can be appreciated in Table 2, a little more than one million people had jobs in municipalities not part of a MA (see Table 2). In many cases, people travel to municipalities close to the MA; this kind of mobility is not limited to a few areas, but widespread throughout the Central Region territory.

This set of circumstances supports the idea that municipalities outside the metropolitan area have a connection with the life of the cities, in such a way that the city's area of influence goes beyond its physical demarcation. This is due to the dispersion of activities to small settlements, mostly rural areas near a MA, and is also associated with the residential processes taking place in the metropolis, which prompt individuals to choose living in a MA and working in a municipality outside. Similarly, this information provides evidence that municipalities near central metropolises are, in one way or another, interwoven with the functioning of the different MAs in Mexico's Central Region, and the resulting mobility assimilates new land into the territorial dynamics by means of relationship networks that have already modified the regional structure. The current configuration favors not only the links between the central city and the rest of the cities and MAs, but also the links between smaller cities and near rural areas; such links are expressed by the high degree of interaction resulting from the changes in the context of the metropolization of the Central Region. This leads to a picture some authors have called "new rurality", where territorial changes supported by modernity and its associated aspects—urbanization, flexible production, technological advances—are favored, which has completely modified population-territory interactions. These new territorial conditions bring rural environments increasingly closer to urban centers, multiply urban-rural functional relationships, and reach increasingly distant territories. Within this process, mobility has become a transformation mechanism in the life of rural people, since it has allowed them to release their workplace from their local spaces as an employment strategy to face the recession of agriculture, and it has also made it possible for them to satisfy other kinds of necessities, such as health services, shopping, education, or leisure activities (Ceron, 2015).

### **RELATIONSHIPS BETWEEN WORK-RELATED MOBILITY AND MIGRATIONS**

Everyday work-related mobility and migratory movements are frequently associated. According to Ajenjo and Sabater (2004), changes of residence increase work-related mobility. The relation is clearly positive: the more recent the arrival in the municipality, the higher the work-related mobility, both as the percentage of people working in a different municipality and the distance they travel. However, in the Central Region of Mexico, data point at a higher probability of working outside their MA among non-recent migrants, given that only 12.7% of people who changed their re-

sidence in this region of the country over the five years previous to the present study work outside the metropolitan area where they currently live. This percentage shows a very weak association between recent migration and work-related mobility: most of recent migrants work in the metropolitan areas where they moved. The data are consistent with findings by Rodríguez (2008) in four metropolitan areas in Latin America, according to which migrants from outside the city have less probabilities of being commuters than non-migrants, especially if they are from far away (Table 3). This state of affairs is reasonable because: a) moving from a long distance makes keeping the original job virtually unviable, so work must be sought in the MA, and b) working in the metropolis entails insertion costs when immigrants lack their own transportation means, which makes them appreciate closeness to the workplace above other considerations (Rodríguez, 2008:65).

**Table 3:** Migrants with and without work-related mobility in metropolitan areas in the Central Region of Mexico

Metropolitan area	Migrants			Total
	No mobility	%	With mobility	
Valley of Mexico	275761	89.7	31556	307317
Pachuca	20067	82.6	4225	24292
Tulancingo	6191	87.2	906	7097
Tula	4500	83.0	921	5421
Toluca	32907	78.5	9009	41916
Cuernavaca	30655	84.8	5512	36167
Cuatla	13495	87.2	1975	15470
Puebla-Tlaxcala	42340	87.8	5905	48245
Tlaxcala-Apizaco	11499	77.3	3382	14881
Total	437415	87.3	63391	500806

Source: Self-elaboration based on microdata from the 2010 national population and housing census (Mexico).

Accordingly, if recent migrants insert themselves in local labor markets, the specific production and economic sectors where these migrants find jobs in each MA should be explored. For instance, the relocation of industries from Mexico City to its neighboring areas taking place since the 1980s has contributed to the increase in manufacturing jobs in MAs such Toluca, Tulancingo, and Puebla, where more than 20% of recent migrants have taken up manufacturing activities. Other important sources of employment for migrants in the manufacturing sector are Tula and Tlaxcala (see Table 4). The attraction of migrant workforce for the construction sector was observed to be stronger in Cuautla, Cuernavaca, Tula, and Tulancingo, where one in every ten migrants has found a job in the sector; the attraction is lower in other areas (see Table 4).

Population increase in MAs has given rise to a higher demand of migrant employment in commercial sectors, especially retail commerce, the most important sub-sector as regards to its capacity to attract migrant workers throughout MAs in the country's Central Region. Undoubtedly, the easiness to initiate commercial activities in this sector plays an important role: scarce formal education is needed. Another important role for migrants to enter this subsector is played by the low initial investments needed to create a business. According to census data, an important percentage of recent migrants (43.3%) are self-employed. Despite the presence of large supermarkets, business chains, and national and international corporations, wholesale commerce is scarcely represented as a migrant employment source in this metropolis, and the same goes for private and public educational services. Agricultural and stockbreeding activities show a different trend; despite being inexistent in some of the studied MAs, these activities are important in some others such as Tula, Tulancingo, and Cuautla, where agriculture and livestock provide employment for more than 10% of the migrants (See Table 4).

Therefore, the predominant type of employment in these new MAs are activities associated with various population services, which in some cases are related with an improvement in collective well-being levels and produce somewhat qualified jobs (education, health care, culture, etc.), although in many other cases they barely cover basic needs and require scarce professional education, such as in the case of construction activities. In this context, migrants have conformed themselves to the existing labor offer in function of their personal characteristics (age, sex, civil state, etc.) more than their previous background, frequently unrelated with the offer. These migrants are part of what Gorz (1991, as cited in Mendez, 2008) identified

**Table 4:** Percentages of migrants in metropolitan areas in the Central Region of Mexico by activity sector

	MCMA	Pachuca MA	Tulancingo MA	Tula MA	Toluca MA	Cuernavaca MA	Cuautla MA	Tlaxcala MA	Tlaxcala MA
Agriculture and stockbreeding	0.7	1.4	10.0	10.8	0.8	1.7	11.1	3.9	4.0
Mining	0.1	0.0	0.0	2.7	0.0	0.0	0.4	0.9	0.2
Electricity, water, and gas	1.0	0.0	1.0	0.0	0.8	0.0	0.0	0.0	0.0
Construction	7.0	8.4	11.7	10.5	4.7	10.7	15.8	7.4	7.6
Manufacturing industry	12.4	9.4	21.9	17.4	24.4	12.3	12.2	20.2	16.4
Wholesale commerce	3.5	2.6	1.2	2.3	1.0	3.1	1.4	2.8	2.8
Retail commerce	17.9	21.6	21.0	18.5	17.5	17.0	20.1	19.6	21.4
Transportation	4.8	6.9	4.6	4.6	9.7	3.1	5.1	3.3	3.3
Mass media information	2.0	0.0	0.0	0.0	1.4	0.8	0.7	0.8	1.0
Insurance and financial services	1.7	1.7	0.0	0.0	3.2	0.9	0.2	1.4	1.1
Real estate and rental services	0.7	0.0	0.6	0.5	1.2	0.4	3.2	3.3	1.3
Professional, technical, and scientific services	5.8	1.2	3.1	3.0	4.1	4.4	1.2	3.7	3.9
Business support and waste management	3.9	6.0	0.0	4.7	4.0	3.8	1.2	1.8	2.4
Educational services	5.6	5.7	1.3	3.9	4.6	7.3	1.6	5.8	6.2
Health care and support services	3.5	3.4	1.3	2.5	3.8	3.4	1.6	2.6	3.9
Leisure services	1.4	0.7	0.8	1.2	0.3	5.2	1.3	1.4	1.2
Lodging and food preparation services	7.4	14.9	7.8	4.8	6.1	7.8	10.6	7.8	6.5
Other services except government	13.1	3.5	10.5	11.5	6.7	12.8	9.4	9.9	11.9
Government and government organization activities	1.8	5.7	2.2	0.0	4.9	4.1	2.9	2.7	4.7
Migrants	275 761	15 842	5 285	3 579	23 898	25 143	11 520	36 435	8 117

Source: Self-elaboration based on microdata from the 2010 national population and housing census (Mexico) extended questionnaire.

as the “new servers”, who readily work in manual production jobs (especially in construction), or mostly, providing proximity services, whose demand has substantially grown due to the population increase MAs have experienced over the past decades.

### **EXPLANATORY FACTORS OF WORK-RELATED MOBILITY OF MIGRANTS COMMUTING OUTSIDE THEIR METROPOLITAN AREA**

If migrants in the Central Region seldom commute outside their MA of residence, what are then the variables more significantly affecting work-related mobility? This question was answered by means of a logistic regression<sup>4</sup> analysis of microdata from the 2000 population and housing census. The census information points at certain personal characteristics, widely documented as determinants of work-related mobility: sex, age, education level, being a migrant, the individual’s position in their household, and work-related income.

According to the results obtained for the MAs in the Central Region, migrants are 37% less likely to commute every day due to work, which is opposite to reports from Spanish cities by Ajenjo and Sabater (2004) and supports the findings of the present study: work-related mobility is less common among recent migrants than among people who did not report having moved during the reference census period. Family heads are less likely to commute outside their MA in comparison with non-family heads. On the other hand, men are 49% more likely than women to commute outside the MA due to work, which is explained by the role men have as wage earners. Additionally, the different roles attributed to men and women involve different mobility models. Whereas women make shorter commutes, are more likely to walk or use public transportation to destinations closer to the domestic environment, men travel longer distances for purposes related with work (Mirrelles & Cebollada, 2009:202). So, men tend to commute more than women; the reason behind this difference is a result of an unequal sharing of family responsibilities; often, women are the ones who sacrifice their professional careers (Meil & Uso, 2006).

Each year of a person’s age decreases in almost 1% the probability of commuting outside the MA due to work. As shown by other studies, there

4 Aguayo (YEAR) recommends multivariate binary logistic regression (RL) analysis to predict a dichotomous variable and to evaluate its association with other (more than one) independent and control variables. Logistic regression attempts to express the probability that the studied event take place as a result of the influence of certain presumably relevant or influential variables (Aguayo, s/f: 2).

is a clear negative correlation between mobility and age, since the older a family or person are, the shorter the time they have left in their lives, and so their motivations to make long commutes tend to decrease (Galindo, 2010); young adults have been found to be more prone to take jobs involving high mobility at the beginning of their professional careers than older workers (younger people are also less likely to be married, to have a property, or to have begun a family, and they express more willingness to undertake geographical movements). However, starting at age 35, such willingness to commute starts to decrease due to the acquisition of family commitments and the achievement of professional stability.

Concerning education, each year of schooling increases by 4% the probability of work-related mobility. These data indicate that individuals with more education tend to travel due to work, and consequently, more educated people are usually willing to take better paying jobs outside their home MA. Similarly, Galindo (2010) reports a positive correlation between education level and mobility, which is explained by the fact that better qualifications open the access to a geographically wider labor market.

Everyday mobility seems to be associated with labor market dynamics and people's income level. Against initial or typical impressions, most commuters are not people in the informal sector and low-income people, but educated people with jobs in the formal sector (Rodríguez, 2008). Although income could come across as an important consideration when searching for a job outside the MA of residence, to improve one's economic situation, income has no effect on the decision to commute between the MA in the Central Region of Mexico; for instance, salaries of people who commute everyday are very similar to the salaries of those who have not migrated (Table 5).

**Table 5:** Factors affecting everyday work-related mobility in metropolitan areas in the Central Region of Mexico. 2010

Variables	B	Error Std.	Wald	Degrees of Freedom	Significance	Exp(B)
Migrant(1)	-.458	.020	548.847	1	.000	.632
Head(1)	-.111	.011	97.916	1	.000	.895
Sex(1)	.402	.011	1296.965	1	.000	1.495
Age	-.004	.000	93.238	1	.000	.996
Accumulated Schooling	.043	.001	1404.716	1	.000	1.044
Monthly income	.000	.000	83.805	1	.000	1.000
Constant	-2.351	.031	5721.747	1	.000	.095

**Source:** Self-elaboration based on microdata from the 2010 national population and housing census (Mexico) extended questionnaire.

## **CONCLUSIONS**

Little more than 10% of the economically active population in the metropolitan areas (MA) of the Central Region of Mexico commute beyond their MA of residence. This is not a trivial amount: it represents more than one million people in the region commuting every day. The MAs of highest work-related mobility are: Tlaxcala – Apizaco, MCMA, Pachuca, Tula, Cuautla, and Toluca, where one in every ten workers commutes outside their MA to work. These commutes are mainly from the MA to municipalities outside the metropolis, which suggests a connection between these external municipalities and the city's dynamics, and in turn, that the MA's area of influence reaches beyond its physical boundaries. This is a result of the dispersal of activities to small urban areas and rural villages near MAs, and is also associated with residential processes taking place in the metropolis, which motivate some individuals to prefer living in a MA and commuting to urban and rural spaces located between metropolises. Our analysis also demonstrates the scarce relationship between recent migration and work-related mobility: most of the migrants from other MAs find jobs in the local labor markets, which is reflected by the great diversity of jobs created in this region over the past years. Many of these jobs are, in any case, connected with activities responding to the demand of increasing populations. On this account, the information we analyzed is clear as to the weak relationship between recent migration and work-related mobility, since being a recent migrant decreases the probability of being a long-distance commuter.

Finally, it should not be forgotten that more than one million people in the Central Region of the country commute outside their geographical space of residence, side by side with people who commute within their MAs. This portrait should provide an idea of the vast challenges public administrations will have to face to enable citizens to commute and carry out their everyday activities.

**ANNEX**

Main questions in the 2010 population and housing census

In which state of the Mexican Republic did you live five years ago, in June 2005?

In this state.....1

In another state.....

WRITE THE STATE \_\_\_\_\_

In the United States of America.....3 } GO

In another country } TO

WRITE THE COUNTRY \_\_\_\_\_ } 24

In which municipality (borough) did you live (NAME) in June 2005?

In this municipality (borough)..... 1

In another municipality (borough)

WRITE THE MUNICIPALITY OR BOROUGH \_\_\_\_\_

In which municipality (borough) is the business, company, or place where you worked (NAME) the last week?

In this municipality (borough)..... 1

In another municipality (borough)

WRITE THE MUNICIPALITY OR BOROUGH \_\_\_\_\_

In which state or country?

In this state..... 3

In another state or country

WRITE THE STATE OR COUNTRY \_\_\_\_\_

Source: Source: Cuestionario Ampliado del Censo de Población y Vivienda 2010. [http://www.inegi.org.mx/est/contenidos/proyectos/ccpv/cpv2010/doc/cpv2010\\_cuest\\_ampliado\\_d.pdf](http://www.inegi.org.mx/est/contenidos/proyectos/ccpv/cpv2010/doc/cpv2010_cuest_ampliado_d.pdf)

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## CURRICULAR INFORMATION OF THE AUTHORS

### *José Aurelio Granados Alcantar*

Estudió la licenciatura en Economía en la Universidad Autónoma de Sinaloa, la Maestría en Demografía en el Colegio de la Frontera Norte y el Doctorado en Planeación Territorial y Desarrollo Regional en la Universidad de Barcelona, España. Trabaja en la Universidad Autónoma del Estado de Hidalgo (UAEH) como profesor investigador desde agosto del año 2000. Ha impartido cursos de docencia. Ha publicado ensayos en las revistas *Estudios Urbanos* del Colegio de México, *Investigaciones Geográficas* de la Universidad Nacional Autónoma de México, *Región y Sociedad* del Colegio de Sonora, *Papeles de Población* de la Universidad Autónoma del Estado de México y en la revista *Este País*. Desde el 2009 obtuvo el reconocimiento de Profesor Investigador con Perfil Deseable por parte del Programa Nacional del Profesor (PROMEP) y el Sistema Nacional de Investigadores (SNI) le otorgó el nivel I en ese mismo año. Actualmente es el Coordinador del Doctorado en Ciencias Sociales de la Universidad Autónoma del Estado de Hidalgo.

Dirección electrónica: [joseg@uaeh.edu.mx](mailto:joseg@uaeh.edu.mx)

### *Laura Myriam Franco Sánchez*

Es Doctora en Urbanismo por la Universidad Nacional Autónoma de México. Profesora investigadora de tiempo completo del área Académica de Sociología y Demografía de la Universidad Autónoma del Estado de Hidalgo y miembro del Sistema Nacional de Investigadores (SNI), Coordinadora de la Licenciatura en Planeación y Desarrollo Regional. Sus líneas de investigación son empleo y migración. Es coordinadora del libro *Cambios Sociales y Precariedad en el empleo* y autora de los libros.

Dirección electrónica: [myriam\\_franco@hotmail.com](mailto:myriam_franco@hotmail.com)