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Indigenous Urbanization in Bolivia:

A Logit Analysis of Between-Group Differences in Migration Drivers

by

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Abstract: Bolivia's urbanization rates have accelerated through the latter half of the 20th century, with over 70 percent of the country's population living in urban centers today. Despite having the highest share of indigenous people in Latin America, Bolivia's indigenous population is often wrongfully excluded from popular discourse on the rural-urban migration trend. However, more than half of the country's indigenous citizens reside in urban areas. This thesis conducts a logistics regression to understand the drivers of indigenous rural-urban migration in Bolivia and how they relate to the country's non-indigenous migrants. Using a dataset of 35.754 observations from Bolivia's 2019 household survey, the odds of migration are estimated based on individual- and household-level demographic and economic characteristics. The findings suggest that being indigenous is a significant determinant of rural-urban migration, doubling the odds that an individual migrates. Moreover, contrary to non-indigenous rural-urban migration, indigenous migration is mainly driven by economic factors (personal and household incomes) rather than demographic factors (age, education, or gender). Overall, the findings of this research challenge the common perception of indigenous people as living in traditional, isolated, rural communities and placing a lower value on economic incentives while highlighting the need to incorporate indigenous perspectives in national migration policies. Adding to the findings of this thesis, future research exploring the underlying economic factors influencing indigenous migration may contribute to a better understanding of the core needs and desires of indigenous communities in search of urban spaces.

Keywords: Indigenous, Urbanization, Rural-Urban Migration, Spatial Inequality, Bolivia

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1 Introduction

Rapid urbanization trends throughout the 20th century have made Latin America one of the most urbanized regions in the world, with over 80 percent of the overall population currently residing in urban settings (World Bank, 2021). But while the vast majority of the population lives in urban areas, the common perception wrongfully excludes Latin America's indigenous people from this urbanization trend (Stephens, 2015). Yet, national census data obtained since 2001 show that indigenous people represent a significant share of rural-urban migrants in many Latin American countries, despite their invisibility in most national studies predating the early 2000s (Jokisch & McSweeney, 2007). This especially holds for the Plurinational State of Bolivia (hereafter referred to as Bolivia), whose indigenous population accounts for over 60 percent of the total population, making it the country with the highest share of indigenous people in Latin America (World Bank, 2015)[1]. Over the past decades, Bolivia has witnessed a mass migration of indigenous people from rural into urban areas, with almost half of Bolivia's indigenous population residing in urban areas by 2012 (United Nations Democracy Fund, n.d.; World Bank, 2015). While a general urbanization trend accelerated in Bolivia during the second half of the 20th century, records of indigenous participation within the rural-urban migration movement suggest that especially smaller indigenous groups only joined the trend throughout the past 30 years (Jokisch & McSweeney, 2007).

[1] Official statistics estimate Bolivia's indigenous population to account for 41 to 62 percent of the total population. Discrepancies arise out of measurement difficulties, as census questionnaires assess being indigenous based on self-identification and speaking indigenous languages, which can result in different estimates (World Bank, 2015)

The discovery of the involvement of indigenous people in urbanization processes has been accompanied by a growing interest in the causes and consequences of indigenous rural-urban migration by scholars and policymakers over the past two decades (Jokisch & McSweeney, 2015). Several ethnographic studies have surfaced that explore the migration factors of selected indigenous groups in various Latin American countries, pointing to possible differences in the patterns and characteristics of indigenous migrants compared to non-indigenous migrants (Campbell, 2015; Jokisch & McSweeney, 2007; Peluso, 2015). A number of studies provide first indications suggesting that the underlying drivers of urbanization might differ between indigenous and non-indigenous rural-urban migrants. For example, researchers suggest that household- and community-level factors tend to play a more prominent role in influencing the migration decision of indigenous individuals than of non-indigenous individuals (Davis, Sellers, Gray, & Bilsborrow, 2017; Fierros-González & Mora-Rivera, 2020; Lunde, Patrinos & Skoufias, 2007). Similarly, indigenous migration is viewed as a lifecycle strategy aimed at creating links between rural and urban spheres to ensure the cultural survival of indigenous groups, while non-indigenous migration is considered to be predominantly an economic livelihood strategy (Campbell, 2015; Davis et al., 2017; Jokisch & McSweeney, 2015). Despite these first indicators of potential differences in migration drivers between indigenous and non-indigenous migrants, knowledge about whether these observations can be traced back to fundamentally different motives for rural-urban migration is sparse. Therefore, this thesis poses the following research question:

What are the key demographic and economic determinants of rural-urban migration for indigenous migrants, and to what extent do they differ from migration drivers for non-indigenous migrants?

Identifying possible differences in the underlying motives of migration between indigenous and non-indigenous migrant groups is essential, as this might uncover deeply rooted differences in the adaptation of indigenous groups to the increasingly globalized world. At the same time, diverging motivations might point towards inequalities or unique needs of indigenous groups that policymakers must be aware of and address.

Moreover, shedding light on ongoing urbanization processes and urban economic integration of indigenous people in Latin America is a critical contemporary challenge arising from the recently accelerating urbanization trend, as indigenous people face numerous challenges in the cities (World Bank, 2017). The needs of urban indigenous populations are often overlooked

due to a lack of awareness of their presence and attention to their specific needs from local authorities (Stephens, 2015). They face social exclusion, are discriminated against in urban labor markets and are significantly more likely to live in vulnerable circumstances than non-indigenous urban dwellers (World Bank, 2015). Migration to urban areas often also disrupts the social safety nets of indigenous groups, increasing their vulnerabilities in the cities (World Bank, 2015). Despite these disadvantages in the urban sphere, thousands of indigenous people continue to migrate into urban areas, highlighting the importance of understanding the underlying motives for migration.

Although the research question of this thesis bears relevance to explaining indigenous urbanization phenomena across the whole region, this study draws on evidence from the Plurinational State of Bolivia. With 36 recognized ethnic groups and a share of 60 percent of its population that identifies as belonging to an indigenous group, the country's demographics provide a particularly well-fitting basis to investigate which role indigeneity plays in the urbanization process (International Working Group for Indigenous Affairs, 2021). In addition, previous work analyzing urbanization patterns has predominantly focused on urbanization patterns for particular indigenous groups in unique contexts, such as the Ecuadorian Amazonas region or Mexico's Guerrero's Mountain Region (Davis et al., 2017; Fierros-González & Mora-Rivera, 2020). Household survey data in Bolivia, however, allows for a more comprehensive investigation of migration drivers based on a national cross-sectional dataset containing information on both indigenous and non-indigenous individuals. Therefore, this paper contributes to the existing research by conducting a comparative analysis in a combined investigation of the underlying drivers of urbanization for indigenous and non-indigenous migrants.

Moreover, a large pool of work on indigenous migration draws on ethnographic studies, with only a limited number of quantitative studies discussing the issue of indigenous migration (Campbell, 2015; Davis et al., 2017; Fierros-González & Mora-Rivera, 2020). Although qualitative studies can provide detailed accounts of relevant individuals or groups, they do not allow for the generalization of results, the analysis of larger samples, or comparisons over time and space (Davis et al., 2017). In addition, Del Popolo, Oyarce, Ribotta, and Rodríguez (2007) highlight that few studies have attempted to disentangle the role of migrant selectivity for indigenous populations in particular. In contrast, migrant selectivity is well documented for non-indigenous migrants. Therefore, this study contributes to the existing but scarce academic

literature on indigenous migration in Latin America by providing quantitative and comparative results regarding the underlying factors of indigenous urbanization and the processes of migrant selectivity that are at play.

This thesis continues as follows: Section two introduces key historical and contemporary migration patterns of indigenous Bolivians and provides background information on urbanization processes within the country. The third section outlines traditional theoretical frameworks relevant to determining drivers of rural-urban migration. This review of migration theories is complemented by discussing the relevance of conventional approaches in the context of indigenous migration in Bolivia, highlighting areas where migration drivers may diverge between indigenous and non-indigenous migrants. Section four introduces the multinomial logit model and discusses the rationale behind estimating the odds of migration based on individual and household-level characteristics. Section five presents the main results, showing that indigeneity is a strong predictor of rural-urban migration. The unusual findings of interactions between individual and household level predictors with indigenous identity are contextualized in the discussion. The final section concludes that in comparison to non-indigenous rural-urban migration, indigenous migration is mainly driven by economic rather than demographic factors, challenging the common and outdated perception of indigenous communities as isolated and predominantly rural.

2 Background

Before presenting the urbanization patterns of indigenous and non-indigenous migrants in Bolivia, it is crucial to define the term urbanization to avoid ambiguity. The term urbanization is widely used to describe the relative growth in a country's urban population compared to the share of people living in rural areas (Tacoli, McGranahan & Satterthwaite, 2015). Sources of relative urban population growth include the formation of new, densely populated urban centers, rural-urban migration, or cross-border immigration (Tacoli et al., 2015). Rural-urban migration is one of the most common factors in urbanization and the critical measure of interest for this thesis. Thus, within this thesis, urbanization is defined as internal migration movements from rural to urban areas, excluding phenomena of the formation of urban spaces in rural (indigenous) territories from the definition. Urbanization and rural-urban migration will henceforth be used interchangeably. This section provides a short outline of Bolivia's accelerating urbanization trends since the 1970s and an overview of the main migration patterns and trends of the country's indigenous population.

2.1 Contemporary and Historical Urbanization and Migration Trends

2.1.1 Urbanization Trends and Drivers

Urbanization within Bolivia and other Latin American countries is a relatively recent phenomenon, with most major cities emerging in the 20th century (Del Popolo et al., 2007). Before the 1970s, Bolivia's population was predominantly located in rural areas. However, throughout the second half of the 20th century, urbanization trends have reversed population patterns within just 25 years, as shown in Figure 1.

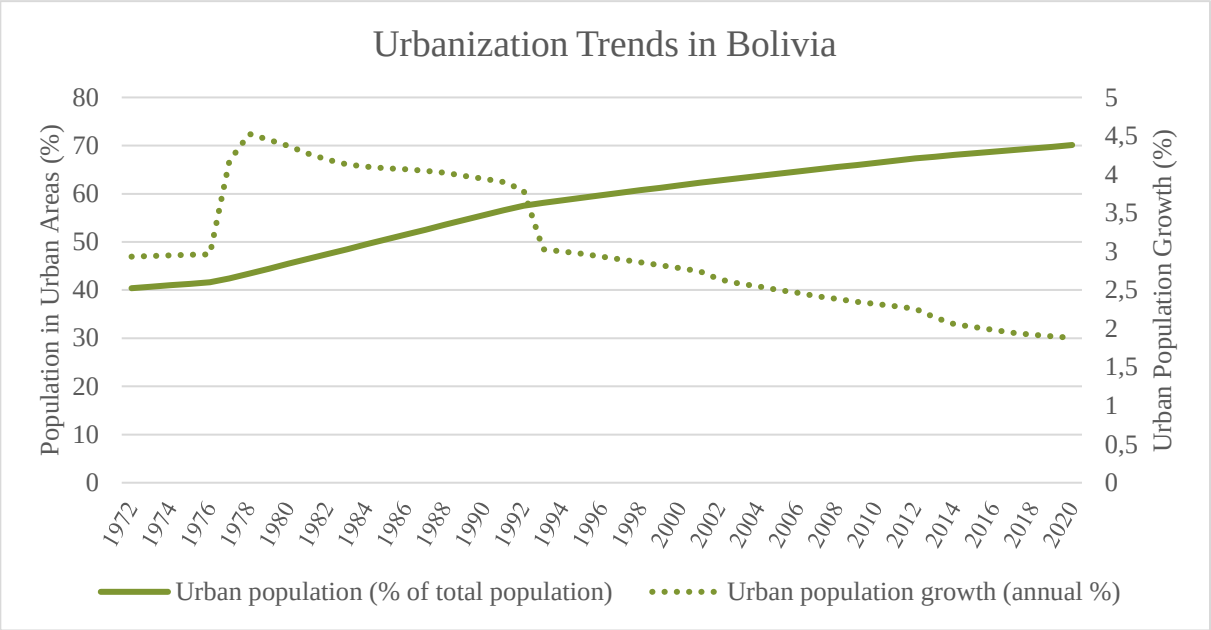

Figure 1: Urbanization Trends in Bolivia. Author's own creation using data from: World Bank, 2022

Whereas in 1972, Bolivia's rural population accounted for roughly 60 percent of the total population, by 1997, over 60 percent of the country's population were living in urban areas (Heins, 2011; World Bank, 2022). Bolivia's urbanization trend accelerated, especially within the late 1970s and early 1980s, when extreme droughts and economic crises caused many rural workers to lose their jobs and drove out the rural population (Heins, 2011). A decade later, in 1994, the Popular Participation Law was passed to reduce rural outflow. As a result, urbanization population growth rates declined again to an annual growth rate of roughly three percent (Andersen, 2002; World Bank, 2022). To date, over 70 percent of the country's overall population resides in urban areas. Based on a 1999 MECOVI5[2] survey in Bolivia, the primary reasons for migration were family reasons (50,1 percent), education (25,6 percent), and the

[2] Programa al Mejoramiento de Encuestas y Mediciones de Condiciones de Vida, MECOVI is part of the "Program for the Improvement of Surveys and Measurement of Living Conditions in Latin America and the Caribbean" conducted by the World Bank, the Inter-American Development Bank and CEPAL since 1996 (Heins, 2011)

search for employment (18,2 percent). Secondary reasons for migration were factors such as health and civil safety (Andersen, 2002; Heins, 2011).

This general overview of urbanization patterns in Bolivia throughout the past 70 years provides a valuable starting point to grasp the underlying dynamics. Nevertheless, these general figures do not allow for gaining differentiated insights into the movements and characteristics of indigenous migrants, which make up the majority of rural-urban migrants in Bolivia. For example, in 2001, over two-thirds of internal migrants were indigenous people (Heins, 2011). A possible reason why the share of indigenous people is comparatively large might be the historical clustering of indigenous communities in rural areas, where they face higher poverty rates and lower access to basic services than in urban areas (Heins, 2011; Horn, 2018a: 46; World Bank, 2015). After the arrival of European colonizers in Latin America, indigenous groups were pushed out of urban centers into the rural hinterlands, where many communities subsequently settled (Alexiades & Peluso, 2015; Del Popolo & Jaspers, 2014). A move back to urban areas might signify a re-claiming of space by indigenous groups, as well as an escape from precarious rural living conditions. To understand why indigeneity may play a role in the migrant selection and how indigenous migrants may differ from non-indigenous migrants, it is essential to take a closer look at the historical migration patterns of indigenous Bolivians.

2.1.2 Indigenous Migration Trends

Although a general trend of modern-day urbanization in Bolivia is a relatively recent phenomenon of the 20th century, throughout its history of human inhabitation, the region covering contemporary Bolivia has contained different forms of urban settlements (Horn, 2018a: 46). The existence of urban centers can be traced back centuries in the country's history to the large civilizations built under Incan rule. As highlighted by Rodríguez Vignoli (2002), the Incas and Aztecs established powerful urban centers to concentrate power and resources in pre-colonial Latin America. Moreover, migration patterns and high territorial mobility are engrained in indigenous cultures and traditions, although basic settlement patterns in pre-colonial times were predominantly rural, with major cities and urbanization trends only emerging throughout the 20th century (Del Popolo et al., 2007; Heins, 2011). Frequent migration was a common tool of indigenous groups searching for new crops, food, or lands (Aylwin, 2002). Historians further document evidence of seasonal migration of indigenous groups as part of their way of life, characterizing them as a mixture of hunter-gatherer and

agricultural societies (Bilsborrow & Lu, 2011: 156; Del Popolo, Oyarce, & Pizarro, 2009). With the arrival of Spanish Colonizers, indigenous cycles of migration and urbanization were interrupted through the massive depopulation and dispersal that followed European military conquest and the spread of European diseases (Alexiades & Peluso, 2015; Del Popolo & Jaspers, 2014). Previously established urban agglomerations were destroyed by European colonizers, who constructed their own cities and drove indigenous residents into the rural hinterlands (Horn, 2018a: 46). These demographic and cultural shocks defined indigenous settlement and migration patterns in the following decades (Bilsborrow & Lu, 2011: 156).

Although researchers found sporadic instances of rural-urban migration of larger indigenous groups in the 19th century, the vast majority of indigenous people in Bolivia resided in the countryside, with estimations of roughly 95 percent of the indigenous population living in rural areas by 1950 (Del Popolo et al., 2007; Horn, 2018a: 46; Jokisch & McSweeney, 2007). Recorded movements prior to the start of the urbanization trend predominantly correspond to migration events of the Aymara and Quechua peoples, Bolivia's largest indigenous groups, which account for 40,6 and 49,5 percent of the indigenous population, respectively (Jokisch & McSweeney, 2007). Starting in the 1950s, researchers have divided indigenous urbanization trends into three main phases: the modernization phase between the 1950s and 1970s, the neo-liberalist era between the 1980s and 2000s, and the post-neoliberal phase under indigenous president Evo Morales since the early 2000s (Horn, 2018a: 47-50).

As the initial stage of rural-urban migration kickstarted in the mid-20th century, significant numbers of indigenous people, mainly Aymara and Quechua, relocated into lowland rural areas in search of employment (Minority Rights, 2022). At the same time, as a consequence of agrarian reforms and rural restructuring throughout the 1950s, the share of indigenous people residing in urban areas increased from five percent in 1950 to almost 30 percent by 1976 (Guss, 2006: 259; Heins, 2011; Horn, 2018a: 47-50). Bolivia experienced significant economic crises and consequent political instability throughout the following period of neo-liberal reforms. As conditions worsened in the agricultural sector, urbanization rates in the lowlands doubled from roughly 20 percent in the 1970s to over 40 percent by 2001 (Horn, 2018a: 49). Moreover, especially since the early 2000s, coinciding with the presidency of indigenous leader Evo Morales, indigenous urbanization rates have accelerated. Additionally, modifications in the methodology and classification of indigeneity used when collecting census data since the early 2000s have started closing the data gap between indigenous and non-indigenous populations,

increasing the available information on indigenous movements and the characteristics of migrants with respect to belonging to an indigenous group (Jokisch & McSweeney, 2007). Based on this, census data estimators indicate that by 2012, almost half of the country's indigenous population resided in urban areas, creating a strong presence of indigenous groups in major Bolivian cities such as La Paz (predominantly Aymara peoples) and Cochabamba (predominantly Quechua peoples) (Jokisch & McSweeney, 2007; World Bank, 2015).

Although this study discusses indigenous migration as one phenomenon, it is important to acknowledge the heterogeneity between indigenous groups and the unique characteristics of social organization, culture, settlement patterns, and resulting migration trajectories (Gigler, 2009). For example, larger indigenous highland groups' demographic histories and migration trends within Bolivia are better documented than those of smaller, more scattered groups that originate from the lowland regions (Arps & McSweeney, 2005). Nevertheless, census data from the past two decades show that lowland indigenous peoples have been part of Bolivia's urbanization trend (Jokisch & McSweeney, 2007). However, as lowland groups only account for less than ten percent of Bolivia's indigenous population, the number of rural-urban migrants remains relatively low. This makes it challenging to empirically analyze differences between indigenous and non-indigenous migrants with respect to different indigenous groups (International Working Group for Indigenous Affairs, 2021). Such an undertaking may be relevant in the context of a follow-up study.

While this section has introduced some of the key migration trends in general and specifically concerning indigenous people in Bolivia, the following section provides a theoretical rationale for investigating the migration drivers for indigenous and non-indigenous migrants. More specifically, questions such as what typical drivers for migration are according to traditional theories, how they can be applied to the indigenous context, and which factors influence migrant selectivity guide the review of the existing theories.

3 Applied Theoretical Perspectives: Combining Traditional Migration Theory with Indigenous Experiences

Migration is a complex phenomenon, and the decision to migrate is simultaneously determined by interlinked aspects, including economic, safety and security, environmental, social, cultural, demographic, psychological, and political factors (de Haas, 2011; Fierros-González & Mora-Rivera, 2020; Kainth, 2010). To analyze whether the forces driving rural-urban migrant flows differ between indigenous and non-indigenous individuals within Bolivia, it is crucial to consider the theoretical underpinnings explaining migration motives. The purpose of this section is to review the main approaches, discuss their relevance to indigenous migration in Bolivia, and combine them in an analytical framework to serve as the basis for the empirical analysis. As migration flows of indigenous people are often viewed as different from non-indigenous groups when it comes to patterns and motives for migration, a discussion of the relevance of traditional migration theories for this case study is essential (Campbell, 2015; McSweeney & Jokisch, 2007; Peluso, 2015).

3.1 Migration Drivers and Migrant Selectivity: A Push-and-Pull Perspective

One of the most common frameworks to conceptualize factors that impact an individual's decision to migrate is the push-and-pull factor framework which postulates that various positive and negative triggers simultaneously influence the migration decision (Lee, 1966). For example, negative triggers at the point of origin, such as conflict, violence, or unemployment, push migrants away from their homes. In contrast, positive stimuli, such as improved living standards, an attractive labor market, and higher educational opportunities, pull migrants to the destination point (Lee, 1966; Simpson, 2017). The core areas of migration factors within the push-pull dynamic include but are not limited to demographic characteristics, economic factors,

political factors, socio-cultural factors, and environmental factors (Kainth, 2010). However, due to the focus of this study on the personal characteristics of migrants, the main aspects of interest include demographic factors such as age, gender, education, and economic factors, including income and poverty status.

The push-and-pull factor framework is widely used to analyze migration rationale; however, researchers working in the area of indigenous movements and mobility have criticized the framework's applicability to the analysis of indigenous migration (de Haas, 2011; Del Popolo et al., 2007; Jokisch & McSweeney, 2015). For example, Jokisch & McSweney (2015) point out that a push-pull framework fails to capture the specific cultural, economic, and historical context in which indigenous migration occurs. The main reason for this is that researchers find that belonging to an indigenous group in itself is a factor of migrant selectivity, meaning that the likelihood of migration is generally influenced by whether an individual belongs to an indigenous group or not (Del Popolo et al., 2007). This is because several factors stand in connection with an indigenous identity, which generally reduces the likelihood of an indigenous individual migrating, according to previous research. These factors include, among others, the unique role of valuing the ethnic community, the closer kinship ties that exist within indigenous communities, the greater attachment to the ancestral territories, and the social sanctions connected to land and community abandonment, which are all connected to discouraging out-migration (Del Popolo et al., 2007; Patrinos & Skoufias, 2007). Thus, being indigenous adds a context-specific layer to the push-and-pull factor framework, suggesting that there might be a combined effect of negative and positive triggers and being indigenous on the propensity to migrate.

Within the underlying dynamics of the push-and-pull factors framework, several theories have surfaced that discuss one or more aspects influencing the migration decision, such as demographic characteristics or occupational factors on both the individual and household levels. Considering factors that impact both the individual and the household level is especially important in the context of indigenous migration because of the close kinship and community ties that define indigenous interactions, as mentioned in the previous paragraph (Del Popolo et al., 2007; Patrinos & Skoufias, 2007). Thus, especially for indigenous people, the decision to migrate is likely one that is not solely dictated by individual considerations. Similarly, several migration theories challenge the neo-liberal idea of rural-urban migration as an individual income-maximization strategy and refer to the close connection between individual decisions and household-level attributes also in the context of non-indigenous migration (Bloom & Stark,

1985; Ellis, 2000; Fierros-González & Mora-Rivera, 2020). The remainder of this section discusses how these factors can generally impact the decision to migrate. However, it is important to highlight that, similar to the push-pull framework, an additional layer of migrant selection through being indigenous must be added to all theoretical angles.

3.2 Individual-Level Migration Drivers

3.2.1 Economic Drivers

One of the most influential neoclassical models explaining migration is the two-sector or "Lewis" model introduced by Arthur Lewis (1954), which focuses on migration for employment and income purposes. The model assumes that an economy is divided into two sectors, the rural agricultural sector, and the modern urban sector. The model proposes that industrial wages are higher than agricultural wages in such an economy, attracting rural workers to migrate into urban areas due to the wage surplus (Lewis, 1954). Thus, migration under the Lewis model results from a decision reached by individual workers seeking to maximize their labor incomes. Similarly, the Harris and Todaro (1970) model builds on this neoclassical theory, further incorporating risk and unemployment as determinants in the migration decision. In the Harris-Todaro model, when deciding to migrate, rural workers account for the possibility that they will not be formally employed in the urban economy due to urban unemployment. Thus, workers base their decision to migrate to urban areas on the expected real income difference rather than simply the differences in rural and urban wages (Harris & Todaro, 1970).

Both neoclassical models place economic and labor motives at the core of the decision to migrate, largely disregarding social, cultural, demographic, or political factors in the migration decision (de Haas, 2011). However, this strong focus on employment and income does not necessarily reflect the drivers for indigenous migration. As previously mentioned, in contrast to non-indigenous communities, kinship relationships and community ties are valued higher than economic opportunities among indigenous communities (Lunde et al., 2007). Thus, less importance is attributed to active labor force participation in the capitalist economy, as indigenous communities desire to work at their own pace and primarily participate in commercial labor with the specific objective of short-term cash generation (Patrinos & Skoufias, 2007). In placing community well-being over individual well-being, indigenous

cultures differ from non-indigenous cultures, especially in conceptualizations of development and economic reasoning. This suggests that theories focusing primarily on the economic motives of migration must be applied carefully to the indigenous context (Patrinos & Skoufias, 2007).

Yet, this limitation in the applicability of neoclassical migration models should not lead to the dismissal of their overall relevance as guidance. While considering that migration decisions of indigenous people are embedded in the hierarchical constraints of community and household, a move into urban areas may nonetheless have economic motives if the pursuit of such economic opportunities is viewed as beneficial for the remaining non-migrant community. In fact, remittances from urban indigenous migrants can benefit indigenous communities in various ways, including their use to sustain homeland environments or their use as funding for educational opportunities (Arps & McSweeney, 2005). Moreover, the pursuit of economic opportunities and urban employment is viewed as an important factor attracting indigenous people to move into the cities (Stephens, 2015; World Bank, 2015). In line with this reasoning, Jokisch and McSweeney (2007) present a synthesis of selected studies and field observations focusing on lowland indigenous groups in ten Latin American countries, which suggests that while employment opportunities may not have been the core driver of urbanization, they are a non-negligible factor in the migration decision.

In contrast, Davis et al. (2017) find that greater employment opportunities in urban centers were not associated with rural-urban migration for Ecuadorian Amazonian indigenous groups. Instead, several demographic characteristics influenced the migration decision, such as indigenous group membership, gender, family relationships, and educational attainment (Davis et al., 2017). Based on the inconclusive observations of previous studies and the theoretical background and its applicability presented above, it is crucial to investigate the role of economic drivers in the migration decision for indigenous people in Bolivia. Moreover, belonging to an indigenous group appears to be an additional factor of migrant selectivity that influences the effect that economic push and pull factors have on an individual's decision to migrate. Consequently, an important question remains whether there is a crossover effect between being indigenous and economic push and pull factors that affects the migration decision differently for indigenous and non-indigenous people.

3.2.2 Demographic Drivers

Although economic factors have long been viewed as the most important drivers of migration, a vast body of literature has emerged that points toward several demographic factors that influence the decision to migrate, such as educational attainment, family relations, gender, and age (Bell, Bernard, Charles-Edwards, Rowe, Ueffing, 2017). These personal demographic characteristics impact the likelihood that an individual migrates, depending on which characteristics they possess. For example, taking age as a demographic factor of migrant selectivity yields findings that suggest young people are more likely to migrate as they seek opportunities for education and employment elsewhere (Bell et al., 2017; Del Popolo et al., 2007). As such, migration is often viewed as a life-cycle process, as the likelihood of migration changes throughout an individual's life (Lee, 1966). Gender further impacts the likelihood that an individual migrates, as women continue to be constrained in their mobility and decision-making by male household members and family obligations. Thus, the likelihood of migration is generally lower for women than for men (Bremner, 2013). However, Del Popolo et al. (2007) highlight that in Latin America, studies have found that women tend to be more likely to migrate than men. Yet, the question remains whether this also holds for indigenous women as they may face additional constraints originating from the intersecting identities as women and indigenous peoples (World Bank, 2015). Thus, this study will investigate the combined effect of being an indigenous woman on the odds of being a migrant.

Next to age and gender, education is an essential factor that can have push and pull effects on migrants. Greater educational opportunities at the destination attract less educated individuals to migrate to urban areas (World Bank, 2015). In contrast, a lack of employment opportunities for high-skilled jobs may force well-educated individuals to leave their place of origin to seek better employment opportunities, a phenomenon commonly referred to as brain drain (Gibson & McKenzie, 2011). In line with this theory, Bremner (2013) finds that in the 1990s, indigenous out-migrants from the Ecuadorian Amazon region tended to be young women with relatively high educational attainment. Similarly, Davis et al. (2017) found in their study of rural-urban migration for Amazonian groups in Ecuador that education drives out-migration. Jokisch and McSweeney (2007) further highlight that education seems to be one of the key factors for migration among lowland indigenous groups. Hence, interactions between different factors of migrant selectivity seem to be at play, suggesting that whether an individual possesses a certain demographic characteristic, such as belonging to a specific age group and being indigenous, is

likely to change the odds of migration compared to individuals in different age groups or without indigenous group-membership.

3.3 Household-Level Drivers

3.3.1 Strategic Migration

Next to neoclassical theories proposing individual-level economic drivers behind migration, a set of theories emphasizes rural-urban migration as a household or community strategy to sustain itself. Three theories fall within this broad categorization, namely the New Economics of Labor Migration (NELM) Theory, the Sustainable Livelihoods Framework (SLF), and the Multiphasic Response Theory (MRT) (Bloom & Stark, 1985; Ellis, 2000; Fierros-González & Mora-Rivera, 2020). The three frameworks are united in approaching the migration decision as a household decision rather than solely an individual decision. They put forward the idea that an individual's decision may not only be influenced by their own desire to migrate but also by factors impacting the individual's household, such as household income or household size. Moreover, both the NELM model and the SLF postulate that urbanization is used as a diversification strategy by rural households to overcome local market failures and diversify their income sources to sustain themselves (Bloom & Stark, 1985; Ellis, 2000). The MRT further suggests that migration is used as a tool to circumvent external pressures or constraints that households face (Davis, 1963). Such pressures may include economic constraints such as restricted household incomes and demographic pressures resulting from household overcrowding (Davis et al., 2017). Indeed, previous research on the migration of lowland indigenous groups suggests that out-migration from rural areas may be connected to demographic pressures communities face due to comparatively high birth rates among indigenous women (Arps & McSweeney, 2005).

As such, a combination of these frameworks allows for a more comprehensive analysis of migration causes than neoclassical theories, which exclusively focus on economic and labor-market related factors. Primarily due to the focus on household-level decision-making, the frameworks appear highly relevant in the indigenous context, as it is known that individual migration decisions are embedded on multiple levels, including the household and community levels (Asad & Hwang, 2018; Davis et al., 2017). Additionally, how migration is viewed as

strategic through these frameworks corresponds to suggestions made by Campbell (2015) and McSweeney and Jokisch (2007, 2015), who argue that indigenous urbanization could be a political strategy to strengthen ties with urban communities and increase indigenous representation and advocacy. Based on these theoretical underpinnings, this research will include demographic and economic household-level indicators such as household size, household income, and household poverty status. These indicators are used to assess whether household-level factors are of particular importance in the decision of indigenous individuals to migrate to urban areas. Moreover, potential differences in the role household-level factors play in the decision-making process for indigenous migrants and non-indigenous migrants will be analyzed.

3.4 Other Migration Drivers

As mentioned at the beginning of the section, the push-and-pull framework accommodates a multitude of migration drivers, including economic, demographic, political, and environmental factors. Although this study is predominantly occupied with investigating the role certain demographic and economic factors at the individual and household level play in the migration decision of indigenous people, it is important to acknowledge recent theoretical developments in the field of indigenous migration research, which suggest that there might be strategic political motives for indigenous urbanization movements (Campbell, 2015).

In addition to viewing migration as a strategy for self-preservation, researchers on indigenous migration patterns in Latin America have suggested that specific members of indigenous groups, predominantly indigenous leaders, may move into cities to lobby for indigenous rights (Campbell, 2015; McSweeney & Jokisch, 2015). McSweeney and Jokisch (2007) similarly place indigenous migration within the broader topic of the ongoing struggle for indigenous territorial rights, as the urbanization of indigenous leaders seems to be primarily motivated by the opportunity to strengthen economic, political, and cultural ties between cities and indigenous territories (Campbell, 2015). Campbell (2015) further suggests that indigenous leaders strategically set up migration chains linking rural villages to national capital cities, which then serve as incubators of ethnic political movements. Through these migration chains, indigenous leaders may simultaneously act as urban pioneers, attracting young indigenous

migrants to move into cities where they are provided with social starting capital through the leader's connections (McSweeney & Jokisch, 2015). As such, indigenous migrants following indigenous leaders may benefit from the existing networks earlier migrants have established in the cities, which help them navigate the challenges of migration (Mora-Rivera & Fierros-González, 2020). Although this theoretical approach to indigenous migration, which considers the political struggle indigenous people face in recognition of their rights and territories, is an interesting facet that may gain relevance in recent migration flows, it exceeds the scope of this analysis and would require in-depth studies of the movements of indigenous leaders, their communities and the reasons why they migrate to urban areas.

3.5 Combined Analytical Framework

As this research investigates whether the characteristics of indigenous migrants differ from those of non-indigenous migrants, traditional migration frameworks must be paired with existing research on indigenous migration in Latin America to construct a holistic approach to analyze the determinants of indigenous rural-urban migration in Bolivia. The preceding section introduced the core theoretical frameworks of traditional migration theory and discussed their relevance in the indigenous context. This section summarizes the analytical framework derived from this discussion and the underlying push-and-pull factors that are analyzed in the remainder of this study through an empirical model estimating the odds of migration based on certain individual and household-level characteristics and their interaction with being indigenous.

As discussed, the traditional migration theories cannot paint a complete picture of the complex decisions involved in the migration process on their own. Yet combined into one analytical framework, they may act complementary, addressing the two distinct levels on which migration decisions are made and the push and pull factors involved in the decision, as shown in Figure 2 below.

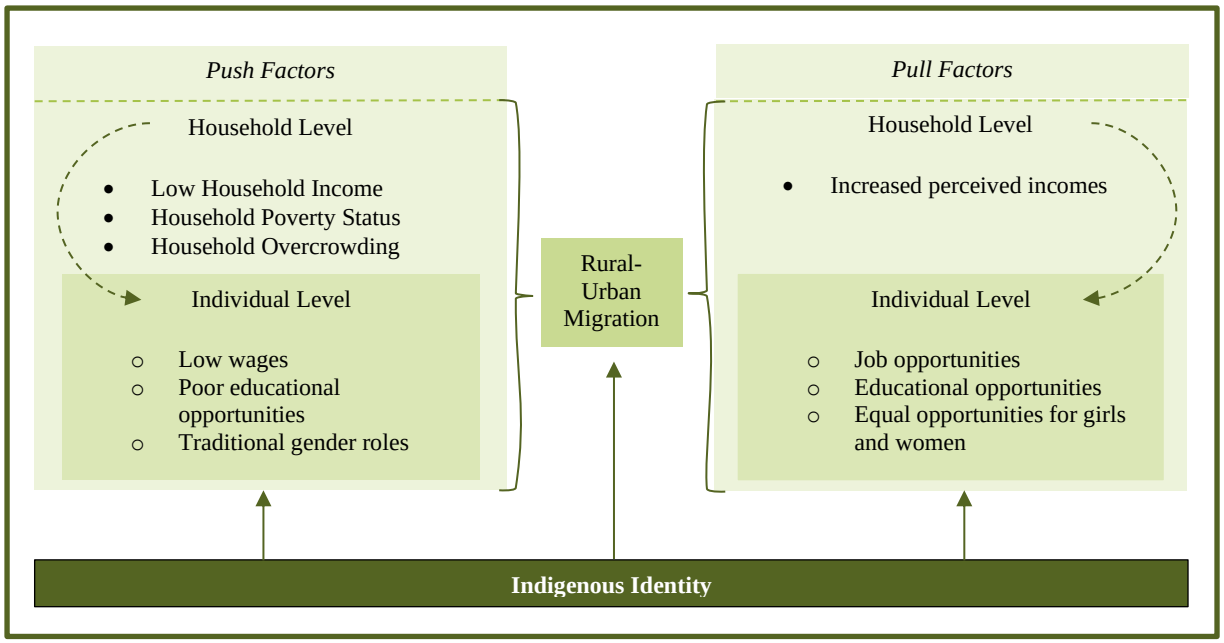

Figure 2: Combined Analytical Framework of Rural-Urban Migration Drivers

As such, the underlying premise of this analysis is based on the idea that the odds of migration are influenced by demographic and economic factors on the individual level, such as age, gender, education, and individual incomes, as well as demographic and economic factors on the household level, such as household incomes, poverty status and household overcrowding (Figure 2). Simultaneously, belonging to an indigenous group is hypothesized to affect how these characteristics behave in influencing the likelihood of migration. Thus, it is expected that the effect of one variable on the probability of being a migrant is different for indigenous and non-indigenous people. The following section introduces the analytical dataset used in this study to test whether this prediction holds for the demographic and economic factors that are investigated in this study.

4 Methodology

To answer the research question of this thesis, what the key determinants of indigenous rural-urban migrants are and to what extent they differ from non-indigenous migrants, this study adopts a quantitative approach. Research on the subject of indigenous migration has been dominated by qualitative approaches, which examine the factors of migration in specific contexts, often from sociological or anthropological perspectives (Asad & Hwang, 2018; Fierros-González & Mora-Rivera, 2020). However, this study aims to establish a statistically robust relationship between indigenous characteristics and urbanization flows. Thus, a quantitative approach is necessary. This section introduces the dataset and variables used in the research design and presents the empirical approach followed in this study.

4.1 Dataset

The dataset used in this analysis is retrieved from Bolivia's National Household Survey Database (*Encuesta de Hogares*), which conducts annual household surveys whose results are made publicly available for surveys recorded between 2005 and 2020 (Instituto Nacional de Estadística, 2021). The cross-sectional surveys are conducted through direct interviews in the respondent's homes by trained personnel, which record their results on a multi-thematic report card (Catálogo del Archivo Nacional de Datos, 2020). Included households are selected at random to obtain a representative sample of rural and urban households from all nine departments of Bolivia (Catálogo del Archivo Nacional de Datos, 2020). The recorded data is then divided into separate databases according to topics, including housing characteristics, sociodemographic characteristics, migration, health characteristics, educational characteristics, occupational characteristics, household income sources, and household expenses. This study draws upon data from two of these databases, "*Persona*" (Person) and "*Vivienda*" (Living Place), including variables related to personal and household characteristics from a combination of the eight topics. As both migration flows and the process of collecting household survey data

were impacted by the recent covid-19 pandemic, this study refrains from using the most recent survey from 2020 and draws on data collected in the 2019 household survey to avoid capturing pandemic-caused deviations in migration flows (Instituto Nacional de Estadística, 2021). The full 2019 dataset consists of 39.605 individual observations, of which 15.853 are indigenous individuals. After data cleaning and filtering for relevant observations of indigenous and non-indigenous individuals, an operational dataset with 35.754 observations remained.

4.2 Variables

Nine variables are used to empirically analyze the key determinants of indigenous urbanization, including six independent variables on the individual and three independent variables on the household level. The variables were chosen based on the existing research on migration determinants discussed in the previous chapter and the limited findings of determinants specific to the indigenous context. Table 1 presents an overview of the main variables.

Table 1: Variable Overview

Outcome Variable	**Abbreviation**	**Measure**
Migration Status	Mig Stat	Categorical: non-migrant, rural-urban migrant
Predictor Variables		
Individual Level		
Age	Age	Continuous
Gender	Female	Categorical Dummy
Marital Status	Mar-Stat	Categorical
Educational Level	Edu	Continuous
Indigenous	Ind	Categorical Dummy
Personal Income	Pers-Inc	Continuous
Household Level		
Household Size	HH-Size	Continuous
Household Income	HH-Inc	Continuous
Poverty Status	Pov-Gap	Continuous

The key dependent variable of interest is an identifier variable of the migration status of indigenous and non-indigenous individuals, indicating whether or not they are rural-urban migrants. The identifier variable was constructed based on the combined information of several variables of the original dataset to obtain this information. Within the household surveys, individuals were asked where they lived five years prior to the household survey (in 2014). If individuals indicated that they resided in a different municipality than at the time of the data collection, the recorded information on their current and previous residences was used to identify rural-urban migrants. Migrants are considered to be rural-urban migrants if they previously lived in a municipality with less than 50.000 inhabitants[3] and currently reside in an urban area (> 50.000 inhabitants) (Instituto Nacional de Estadística, n.d.). This categorization is based on the proposed *Degree of Urbanization* introduced by Dijkstra, Hamilton, Lall, and Wahba (2020). As highlighted by Dijkstra et al. (2020), definitions of rural and urban areas vary greatly worldwide, with some countries basing their definition solely on population size while others consider population density. Thus, an overarching definition of rurality is lacking (Tacoli et al., 2015). However, Dijkstra et al. (2020) propose a threshold of over 50,000 inhabitants to categorize urban areas. While they further introduce a sub-category for semi-dense areas, this study uses a binary divide between rural and urban areas, dividing them at the threshold of 50.000 inhabitants within the same municipality. Through this process, 351 rural-urban migrants and 35.403 non-migrants were identified (observations for rural-rural, urban-urban, and urban-rural migrants are excluded as they are not of interest for this particular study).

[3] Data provided by the National Statistics Bureau of Bolivia on population statistics from the 2012 national census was used to classify municipalities as rural / urban

Based on the reviewed migration theories and previous research on indigenous migration, six key independent variables on the individual level are derived. As Davies et al. (2017) find, education and demographic factors are important drivers of indigenous migration. Moreover, the discussion of common migration theories highlighted that educational and occupational opportunities might be important pull factors for migration (Lee, 1966). Thus, this study includes an educational indicator, namely the highest level of education obtained by the individual, and a measure of labor income, namely personal income, based on the labor-migration theory of Lewis (1954). Moreover, several demographic indicators, including an individual's age, gender, marital status, and most importantly, belonging to an indigenous group, are included as they are commonly referred to in various studies related to (indigenous) migration (see, for example, Asad & Hwang, 2018; Davies et al., 2017; Fierros-González & Mora-Rivera, 2020).

Belonging to an indigenous group is a crucial variable in this study, yet the categorization process includes ambiguity. One obstacle here lies in the different perceptions of indigeneity, which vary between individuals and across matrices used to classify people as belonging to an indigenous group (Alderman, 2020; Flesken, 2013; Merlan, 2009). The most common indicators for indigenous group membership used by academics and international organizations include speaking an indigenous language or self-identifying as indigenous (Asad & Hwang, 2018; Mora-Rivera & Fierros-González, 2020; World Bank, 2015). Moreover, as highlighted by Gigler (2009), self-identification is among the most important identifiers of indigeneity, as it allows for autonomous classification by the individuals in question. Bolivian household surveys include a number of identifiers to determine indigenous group membership, such as speaking an indigenous language, having learned an indigenous language as a child, or self-identifying as belonging to an indigenous group (Catálogo del Archivo Nacional de Datos, 2020). Based on these indicators, a variable identifying individuals as indigenous was created if at least one of the indicators identified individuals as being indigenous. 14.946 individuals were identified as belonging to an indigenous group through this process, of which 205 are indigenous rural-urban migrants.

Besides individual-level indicators, household-level variables are particularly important to understanding the migration decision of indigenous individuals. As highlighted by Lunde et al. (2007), kinship ties seem to be of greater importance to indigenous individuals than non-indigenous individuals, suggesting that household-level indicators may play a greater role in

influencing the migration decision for indigenous individuals. Moreover, the sustainable livelihoods framework previously discussed implies that the decision of an individual to migrate may be impacted by the broader economic well-being of the household, suggesting that rural-urban migration may be a strategy to diversify household incomes (Ellis, 2000). Consequently, this study analyzes three household-level variables to test these propositions: household income, household poverty gap, and household size.

As the individual and household level predictor variables used in this study stem from the 2019 census, which records whether an individual migrated five years prior to the survey, they do not capture characteristics before migration but instead, present the characteristics of people who in the past chose to migrate or not to migrate. Using data on post-migration characteristics is a common practice in migration research and allows for drawing conclusions on migration drivers because of the assumption that migration decisions are part of a cost-benefit analysis (Simpson, 2017). Thus, an individual assesses the potential welfare gains that could be obtained through migration and weighs them against the cost of migrating. For example, the potential income increase is weighted against the cost of uprooting one's life to move to a new location (Fierros-González & Mora-Rivera, 2020). Consequently, an individual only decides to migrate if the expected welfare conditions are significantly higher at the destination than at the place of origin. This logic is represented in Equation 1, where W_{ij} describes the overall welfare of an individual i at location j (based on Fierros-Gonazález & Mora-Rivera, 2020).

$$W_{ij} > W_{ik} \; where \; j \neq k \tag{1}$$

However, estimating the exact welfare gains from migration is challenging. Thus, it is assumed that both measurable and unmeasurable factors influence the decision to migrate (Equation 2). Here, V_{ij} is denoted as measurable well-being and ε_{ij} represents the random, non-quantifiable part.

$$W_{ij} = V_{ij} + \varepsilon_{ij} \tag{2}$$

Because only part of the welfare can be measured, the best approximation to predict whether an individual decides to migrate or not is a multinomial logit model, which estimates the odds of migration based on post-migration characteristics (the empirical model will be introduced in further detail in the following section). In using post-migration characteristics, the welfare level at the destination is captured, and the likelihood of migration based on this observed welfare

can be estimated under the assumption that welfare at the destination is greater than at the origin. The reasoning behind this approach is supported by descriptive indicators provided by the World Bank (2015), which suggest that, on average, urban indigenous residents in Latin America are better off and have greater access to essential services, education, and higher incomes than rural indigenous residents. Moreover, similar studies researching migration drivers based on individual and household level characteristics estimate the odds of migration based on post-migration characteristics, typically with a five-year lag (Asad & Hwang, 2018; Fierros-González & Mora-Rivera, 2020). Therefore, using post-migration data to determine whether individual and household level characteristics differ between indigenous and non-indigenous migrants is an appropriate approach for the purpose of this study. It is, however, important to keep in mind that despite these assumptions, the results of the analysis do not indicate causation between specific characteristics and migration outcomes but instead indicate whether the likelihood of migration increases or decreases if certain characteristics are given.

4.3 Empirical Model

Migration decisions are complex and influenced by many factors on the individual and household levels. Thus, an empirical model is needed which can accommodate variables on both levels while controlling for household effects. This study uses a multinomial logistics regression model to estimate the odds of being a migrant based on the nine introduced predictor variables. Through such a model, the log odds of the outcome are modeled as a linear combination of the specified predictor variables. This allows for assessing the impact a change in the predictor variables has on the odds of obtaining a particular outcome, represented by a nominal outcome variable (UCLA Statistical Consulting Group, 2021). The two possible outcomes allowed for in the model are being a rural-urban migrant or not being a migrant (base outcome = non-migrant). Using the statistical software STATA, the function “mlogit” uses a maximum likelihood procedure to estimate the linear vector of the coefficients according to the following equation,

$$P(Y_i = 1) = \frac{e^{\beta_1 * x_i}}{1 + e^{\beta_1 * x_i}} \quad (3)$$

where x_i represents the series of predictor variables, β represents the coefficient of the predictor variables, and Y_i represents the outcome variable (Morselli & Sommet, 2017). $P(Y_i=1)$ records the conditional probability that the outcome variable (Migration Status) equals one for an individual (1 = rural-urban migrant). The exponential base *e* (Euler's number ≈ 2.718) is used in the equation, as it is the base of the natural logarithm, allowing for the calculation of the logit odds as done in Equation 4 below without requiring an additional log-transformation (Morselli & Sommet, 2017). Converting Equation 1 into a post-logit transformation logistic regression equation returns the logit of the odds ratio:

$$Logit\ (odds) = \beta_0 + \beta_1 * x_i \quad (4)$$

As this study is concerned with identifying the unique characteristics of indigenous rural-urban migrants, this specification is added to the model through interactions between the predictor variables and the variable *Indigenous.* To accommodate using variables on the individual and household level, standard errors are clustered by household. Clustering standard errors circumvents possible issues of violating the assumption of independent residuals that arise as individuals are nested within the same household clusters. Based on these conditions, the full model used to estimate the odds of being a migrant based on the ten predictor variables' interactions with being indigenous is specified as follows:

$$Logit\ odds\ (rural - urban\ migrant)_i = \beta_0 + \beta_1 * age * ind + \beta_2 * age^2 * ind + \beta_3 * edu * ind + \beta_4 * edu^2 * ind + \beta_5 * female * ind + \beta_6 * mar - stat\ * ind + \beta_7 * pers - inc * ind + \beta_8 * hh - inc * ind + \beta_9 * pov - gap * ind + \beta_{10} * hh - size * ind$$

A multiple regression logit model is the best-fitting model for this thesis as it allows for obtaining more accurate predictions of the probabilities that the two possible outcomes, "migrant" and "non-migrant", occur (Cox, 1958; Westin, 1974). An additional advantage of using a logit model is the relative flexibility the model allows for in the data used to predict the outcomes. Unlike an ordinary least-squares regression model, a logistic regression model does not require a normal distribution of the independent variables or homoscedasticity of the error terms. Moreover, the model does not assume a linear relationship between the predictor and outcome variables (Hua & Shi, 2021). A stepwise modeling approach was used to optimize the

model, gradually introducing new variables to the model. Selected outcomes of the stepwise modeling approach are presented in Table 5 of the results section. To further ensure the reliability of the model, a series of econometric tests were conducted, testing the model's goodness-of-fit and the probability classification score. The results of these tests can be found in Appendices A and B and are further elaborated on in section five while discussing the sensitivity analysis of the model.

4.4 Dataset, Model, and Study Limitations

Although the household survey dataset provides a substantial number of observations with 35.754 individuals from 11.583 households and a broad set of variables, some data limitations must be acknowledged. First, despite the large sample size, the share of rural-urban migrants within the dataset is relatively small, with 351 observations of individuals that lived in a rural area in 2014 and resided in an urban area in 2019. This yields a migrant share of 1,37 percent in the sample group of indigenous people and 0,7 percent in the sample group of non-indigenous people. While a larger sample size of rural-urban migrants could improve the reliability of the estimated odds in the analysis, studies on migrant characteristics of indigenous migrants have been conducted with similarly small ratios. For example, Fierros-González and Mora-Rivera (2020) estimate the odds of being an indigenous migrant through a logit model with a dataset containing 0,89 percent internal indigenous migrants. Using the online sample-size calculation software developed by Kohn and Senyak (2021), for a ratio of 1:100, a sample size of at least 3.133 observations is required to obtain results with a type one error of 0,01 (two-tailed) and a type two error of 0,1. With 35.754 observations, the dataset used in this survey is thus large enough to account for the comparatively low ratio between migrants and non-migrants (Kohn & Senyak, 2021).

A second shortcoming of the available data is the lack of longitudinal data collected in the household surveys. In comparison to cross-sectional data, longitudinal data would allow for the estimation of a robust cause-effect relationship between migrant characteristics and migration (Farrington, 1991; Rajulton, 2001). This is possible due to the paired data structure of longitudinal data, which makes it possible to analyze the underlying characteristics of individuals who migrated later on, establishing a causal relationship between individual

characteristics and migration. However, as household survey participants are selected at random each year, it is not possible to track individuals of households over a longer period of time. Hence, the data structure only allows for estimating the odds of migration based on post-migration characteristics. However, as previously mentioned, based on the assumption that the decision to migrate is based on obtaining an increase in overall welfare in urban areas, using post-migration characteristics captures this improved welfare and thus allows for discerning the characteristics of rural-urban migrants. In addition, the obtained results of the analysis can be compared to the self-reported reason for migration, indicating whether the characteristics estimated to impact the migration decision are plausible. Such a comparison is possible as migrants were asked to indicate the primary reason for migration in the household survey. Thus, a logit model to estimate the odds of being a migrant based on current characteristics is the most suitable empirical approach for the available data.

Lastly, due to the five-year lag in the coding of the dependent variable, the data does not account for return migration or short-term migration. As individuals are considered migrants if their place of residence five years prior was different from the place of residence at the time of the data collection, the survey falls short of identifying whether individuals migrated several times within this five-year timeframe. While there are observations where only selected members of a household indicated that they had a different place of residence five years ago, suggesting that the household did not migrate together at the same time, it is impossible to determine whether this variation is indeed a consequence of regular or return migration, the formation of a new household through marriage-migration, or whether part of the household migrated earlier, with other members following later on. Additionally, the data structure does not account for the possibility that migrants may have moved shortly before or after the five-year threshold. As such, the phrasing of the questions used to code the dependent variable limit the extent of the empirical analysis, excluding the possibility of accounting for return and short-term migration.

Next to the data-specific limitation, two general limitations of both the model and overall study are worth acknowledging in this section. First, due to incompatibility with the data structure obtained from the household surveys and the STATA command to run a hierarchical logistics model, the alternative method of choosing a simple logistics model with clustered standard errors by households had to be utilized to conduct the empirical analysis. While the chosen methodology is appropriate for this analysis, as previously outlined, using a hierarchical model could have added value to the study by accounting for the interdependency of household and

individual units in the migration decision-making process (Asad & Hwang, 2018; Davis et al., 2017). Moreover, hierarchical models allow for more than two levels of analysis, thus opening the possibility to account for community-level variables simultaneously.

A final limitation concerns the overall availability of variables. Although several migration theories and previous research on indigenous migration suggest a range of household- and community-level variables that bear relevance to the research question posed in this study, these variables could not be constructed from the available household survey dataset. Instead, targeted surveys would be necessary to obtain data on the movement of indigenous leaders, migrant networks, and other territorial factors that potentially influence the migration decision (Campbell, 2015; Jokisch & McSweeney, 2015).

5 Results

5.1 Descriptive Results

In a first step to analyzing potential differences in the migration drivers for indigenous and non-indigenous people, it is helpful to turn to a descriptive overview to get a first impression of how the characteristics of indigenous migrants differ from those of non-indigenous migrants and from indigenous people who chose to stay in their communities of origin. Table 2 summarizes the average characteristics of each group. As indicated by the statistics in Table 2, indigenous migrants tend to be younger than their counterparts who remain at their place of origin. Yet, on average, they are seven years older than non-indigenous migrants. However, as shown in Table 3, the standard deviation for the variable age is notably larger for indigenous migrants, thus partially explaining why the average is higher for this group. Moreover, indigenous migrants have, on average, fewer years of schooling and lower personal and household incomes than non-indigenous migrants. For these indicators, the standard deviations displayed in Table 3 only differ slightly for indigenous and non-indigenous migrants, suggesting that the spread of the sample distribution does not heavily influence the observed differences in values.

Additionally, indigenous migrants tend to have lower personal and household incomes than indigenous people who remained at their place of origin, giving the first indication that incomes may play a role in the migration decision of indigenous people. It should also be noted that based on the available survey data, the share of non-indigenous rural-urban migrants is notably smaller than that of indigenous rural-urban migrants. This observation seems plausible as urbanization within Bolivia already started during the latter half of the 20th century, while researchers concerned with indigenous migration patterns highlight that, especially for lowland indigenous groups, an urbanization trend only became visible within the past 30 years (Heins, 2011; Jokisch & McSweeney, 2007; 2015).

Table 2: Descriptive Statistics of Migrants and non-Migrants

	Indigenous		**Non-Indigenous**
	Non-migrants (n=14.741)	Migrants (n=205)	Migrants (n=146)
Individual Level Characteristics			
Age	39,76	29,27	22,32
Years of Schooling	7,83	8,17	9,16
Female (Dummy)	0,53	0,57	0,59
Personal Income	1.773	1.512	1.844
Household Level Characteristics			
Household Income	4.647	4.608	5.444
Income Poverty Gap	0,17	0,15	0,09
Household Size	4,10	3,00	3,19

Notes: Sample Size is 35.754; observations for non-indigenous non-migrants are not displayed

Table 3: Summary Statistics of Indigenous and Non-Indigenous Migrant Characteristics

	Indigenous Migrants				**Non-Indigenous Migrants**			
	Mean	Min	Max	SD	Mean	Min	Max	SD
Individual Level Characteristics								
Age	29,27	5	85	16,71	22,32	5	76	13,35
Years of Schooling	8,17	0	19	5,02	9,16	0	19	5,83
Female (Dummy)	0,57	0	1	0,5	0,59	0	1	0,5
Personal Income	1.512	0	13.800	2.201	1.844	0	14.958	2.881
Household Level Characteristics								
Household Income	4.608	350	19.717	3.311	5.444	475	21.729	3.572
Income Poverty Gap	0,15	0	0,82	0,25	0,09	0	0,82	0,17
Household Size	3,00	1	8	1,46	3,19	1	8	1,78

Another indicator of interest in identifying the main drivers of indigenous urbanization is the self-reported reason for migration, a variable recorded in the 2019 household survey. Table 4 displays the six possible answers to the question, as well as the reported frequencies and relative share of the answers for indigenous and non-indigenous migrants.

Table 4: Self-Reported Reasons for Rural-Urban Migration

	Indigenous		Non-Indigenous	
Migration Reasons	Frequency	Share (%)	Frequency	Share (%)
Job Search	37	18,05	21	14,38
Job Transfer	22	10,73	12	8,22
Education	54	26,34	50	34,25
Health	6	2,93	3	2,05
Family Reason	82	40,0	60	41,10
Other	4	1,95	0	0
Total Migrants	205	1,37	146	0,70
Total non-Migrants	14.741	98,63	20.662	99,3

As shown in the table, family-related migration factors account for 40 percent of the migration reasons for indigenous people, followed by educational and work-related reasons. Migration reasons among non-indigenous people seem similarly distributed, with work-related reasons playing a slightly smaller role than for indigenous migrants, while educational and family-related reasons account for over 70 percent of the motives. Although this overview of self-reported migration reasons already gives a first indication of which factors influence the migration decision, they do not indicate what the unique characteristics of migrants compared to non-migrants are and whether these characteristics significantly differ between indigenous and non-indigenous rural-urban migrants. To investigate this, the following section presents the empirical multinomial logistics regression results.

5.2 Empirical Results

Table 5 shows the results of the multinomial logistics regression, reporting the relative log odds of being a migrant based on certain individual- and household-level characteristics. The coefficients can be interpreted as corresponding to an increase or decrease in the relative log odds of being a rural-urban migrant compared to not being a migrant, given a one-unit increase in the corresponding predictor variable. As presented in the table, the analysis was conducted for four separate models. Model zero aims to isolate the effect of being indigenous on the odds of being a migrant, regardless of other individual- and household-level characteristics. The coefficient denoted as being indigenous is positive and statistically significant at the one percent

level, indicating that the relative log odds of being a migrant increase by 0,679 if an individual is indigenous versus if they do not belong to an indigenous group. This serves as an initial starting point for further investigating the differences between indigenous and non-indigenous rural-urban migrants concerning the role of individual- and household-level characteristics. Models one through three gradually expand in the number of variables introduced in the models. In model one, individual-level demographic characteristics are added. Model two expands by adding personal income as an economic predictor, while model three contains individual- and household-level characteristics, presenting the full model.

Table 5: Results Multinomial Logit Regression Analysis

	Model 0	**Model 1**	**Model 2**	**Model 3**
Base outcome = non-migrant				
Individual Level Predictors				
Indigenous	**0,679***** (0,144)	**1,416**** (0,661)	**1,424**** (0,663)	**1,225*** (0,709)
Age 18-30		(base)	(base)	(base)
Age under 18		-0,077 (0,457)	-0,103 (0,456)	0,274 (0,434)
Age 30-60		**-1,332***** (0,294)	**-1,518***** (0,326)	**-1,494***** (0,310)
Age above 60		**-3,290***** (0,892)	**-3,425***** (0,896)	**-3,736***** (0,882)
Indigenous*Age under 18		-0,391 (0,574)	-0,358 (0,572)	-0,234 (0,534)
Indigenous*Age 30-60		0,008 (0,370)	0,172 (0,398)	0,104 (0,387)
Indigenous*Age above 60		1,130 (0,979)	1,257 (0,981)	0,971 (0,973)
Education		-0,067 (0,065)	-0,051 (0,066)	-0,040 (0,063)
Indigenous*Education		0,052 (0,087)	0,037 (0,088)	0,048 (0,086)
Education^2		0,005 (0,004)	0,003 (0,004)	0,002 (0,004)
Indigenous* Education^2		-0,005 (0,005)	-0,004 (0,005)	-0,005 (0,005)
Female		0,269 (0,164)	**0,342**** (0,170)	**0,420**** (0,177)
Indigenous*Female		-0,150 (0,225)	-0,196 (0,239)	-0,314 (0,243)
Marital Status: Single		(base)	(base)	(base)
Partner		0,431 (0,292)	0,328 (0,296)	0,325 (0,288)
Separated/Divorced		**1,282***** (0,427)	**1,148***** (0,435)	**0,775*** (0,433)

Widowed		**2,478*** ** (0,628)	**2,342*** ** (0,625)	**1,804*** ** (0,588)
Indigenous*Partner		-0,289 (0,399)	-0,205 (0,402)	0,036 (0,377)
Indigenous*Separated/Divorced		-0,835 (0,604)	-0,741 (0,617)	-0,490 (0,611)
Indigenous*Widowed		**-1,810** ** (0,755)	**-1,708** ** (0,757)	**-1,421** ** (0,717)
Personal Income			**0,0001*** ** (0,00003)	**0,0001** ** (0,0001)
Indigenous*Personal Income			-0,0001 (0,00005)	**-0,0002*** ** (0,0001)
Household Level Predictors				
Household Income				-0,00001 (0,00003)
Indigenous*Household Income				**0,00012*** ** (0,00004)
Household Size				**-0,532*** ** (0,128)
Indigenous*Household Size				-0,094 (0,146)
Income Poverty Gap				0,130 (0,613)
Indigenous*Income Poverty Gap				0,467 (0,672)
Pseudo R^2	0,01	0,0421	0,0449	0,1030
No.Obs.	35.798	35.798	35.798	35.754
Clustered Standard Errors	Yes	Yes	Yes	Yes

Notes: Household Clustered Standard Errors are reported in parentheses. ***/**/* correspond to significance levels of 1% / 5% / 10%

5.2.1 Individual-Level Predictors

Model 1, as displayed in Table 5, tests the difference in the importance of individual-level characteristics in the migration decision of indigenous and non-indigenous people. A first noteworthy observation is that when adding individual-level characteristics into the model, the coefficient of being indigenous increases in magnitude, remaining a significant predictor of migration status. To obtain the true odds of being a migrant when one is indigenous, the log odds coefficient of 1,225 is converted into the odds ratio. As such, the relative odds of being a migrant are more than three times as large if an individual belongs to an indigenous group. However, the interactions between being indigenous and individual demographic characteristics such as age, educational attainment, gender, and marital status are not statistically significant in the model (except for being an indigenous widow/er). Adding the predictor variable of personal income to model (2) does not change the underlying observed

relationships between migrant status and demographic predictors. However, the coefficient of personal income appears to be highly statistically significant yet relatively small in magnitude. Extending the model to its full version (model 3) by controlling for household-level predictors shows that the interactions between being indigenous and personal and household incomes appear to have strong statistical significance as predictors of being a migrant. Moreover, adding household-level predictors corresponds to a more than doubled Pseudo R^2 compared to the previous model[4], suggesting that these variables capture important factors influencing the migration decision. An interpretation of the coefficients obtained in the full model, as well as their meaning, follows.

Similar to models one and two, the interaction coefficients of being indigenous and within different age groups remain statistically insignificant, while belonging to a particular age group is a relevant predictor of migrant status for non-indigenous individuals. Thus, for example, belonging to the age group above 30 years compared to between 18 and 30 years strongly decreases the odds of being a migrant for non-indigenous people. At the same time, the model does not allow for an unambiguous interpretation of the crossover effects of being in a specific age group and being indigenous on the odds of migration. However, while acknowledging that the coefficients are not statistically significant, a careful examination would suggest that indigenous individuals are more likely to migrate than non-indigenous people in any age group containing ages under 30, the most likely being below the age of 18. Although the lack of significance of the age interaction variables suggests that age is not the main predictor of migration status for indigenous people in the sample, existing literature on indigenous migrants

[4] Note that the Pseudo-R^2 of a logit model is not equivalent to the R^2 of a linear regression model. Instead, the Pseudo-R^2 reports the change in the log-likelihood from the intercept-only to the full model (UCLA, 2021). Nevertheless, an increase in the Pseudo-R^2 throughout the models suggests that a greater share of the variation is explained in the full model compared to the intercept-only model than for models 0, 1, and 2.

in Latin America presents different results (Davis et al., 2017). The following section will discuss potential reasons for the divergence in results.

Contrary to popular findings in migration research, the model estimates that, based on Bolivia's 2019 household surveys, education is not a statistically significant predictor of rural-urban migration flows. This holds for both non-indigenous migrants and the interaction between education and being indigenous, as reported in Table 5. A careful examination of the direction of the education coefficients would suggest that an additional year of schooling decreases the odds of being a migrant for indigenous individuals. In contrast, for non-indigenous people, the relationship between education and migration is initially negative until a turning point at around 13 years (completion of high school), after which an additional year of education would correspond to an increase in the odds of being a migrant. The signs of the educational variables are in line with existing research and theoretical expectation of their role in the migration process. However, the lack of statistical significance requires a more thorough discussion in the following section.

Turning to the next predictor variable, gender, the full model provides estimates that suggest that for non-indigenous people, being female is associated with a 0,42 increase in the relative log odds of being a migrant. In contrast, there is no statistically significant crossover effect with being female for indigenous people. These findings are contrary to the hypothesized relationship between gender and indigeneity and migration, as indigenous women are likely to face an added layer of discrimination and difficulties through their intersecting identities of being female and indigenous (García, 2021).

The third set of predictor variables that appear to be significant in influencing the decision to migrate is an individual's marital status. Here it is worth noting that the coefficients of the predictors displayed in Table 5 appear significant for non-indigenous individuals, suggesting that the log odds of migration are greater for individuals that previously had a partner and at the time of the survey were separated, divorced, or widowed, compared to singles. Adding an interaction between marital status and being indigenous yields significant results only in one category, namely widowed indigenous individuals. For individuals in this category, the odds of being a migrant are 1,22 times lower than those of non-indigenous widowed people. Although the coefficients of the interactions for other marital-status categories do not appear significant, a general trend can be observed, which suggests that the odds of being a migrant are generally higher for indigenous individuals across all categories, except for widow/ers. The discussion

section will further explore the possible intersecting difficulties widowed indigenous people may experience that decrease the likelihood that they are migrants.

The final individual-level predictor variable that significantly influences the migration decision of individuals records personal incomes obtained from all labor and non-labor activities. Without the interaction between personal incomes and being indigenous, the coefficient of the predictor is small and positive[5], suggesting that, on average, an increase in the personal incomes of non-indigenous people is associated with a slight increase in the odds of being a migrant. However, the crossover effect of personal income and being indigenous yields a statistically significant predictor coefficient with a negative sign. Thus, overall, the relationship between the two predictors and being a migrant is negative, suggesting that as personal incomes for indigenous individuals grow, the likelihood of migration decreases. This indicates that low incomes in rural areas are a significant factor explaining why indigenous individuals migrate to urban areas, likely in the search for a higher-paying occupation. On the contrary, as the odds of migration increase as incomes increase for non-indigenous individuals, this trend suggests that the search for higher wages may not be what motivates non-indigenous people to move to urban areas. The potential mechanisms behind this observation will be explored within the following discussion section.

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[5] The economic magnitude of the coefficient appears relatively small, corresponding to a decrease in the real odds of migration of indigenous individuals of 0,0002 for a one unit increase in personal income. However, personal income is measured on a monthly basis, thus the logic that an income increase of one Bolivian Boliviano (BOB-USD 1:0,14) is associated with only a small change in the odds of migration is intuitive.

5.2.2 Household-Level Predictors

Based on the existing literature on indigenous migration, household-level factors are likely to play an important role in influencing the decision of indigenous individuals to migrate (Asad & Hwang, 2018; Davis et al., 2017; Fierros-González & Mora-Rivera, 2020). Model three controls for this by adding the household-level predictors of household income, household size, and household income poverty gap (Table 5). The coefficients for the income poverty gap and its interaction with being indigenous are not statistically significant determinants of migration within the model. Similarly, for non-indigenous individuals, household income is not a significant predictor of migration status, although the coefficient shows a negative sign. However, the interaction between household income and being indigenous plays a statistically significant role in influencing the migration decision of individuals. This observation is in line with the theoretical underpinnings of the model, suggesting that household-level constraints are more important predictors of indigenous migration than non-indigenous migration. The coefficient of the variable suggests that for indigenous individuals, an increase in household income is associated with a small increase in the odds of being a migrant (compared to a decrease in the odds of being a migrant for non-indigenous people). Similar to personal incomes, the household income variable is measured on a monthly basis, suggesting that for a one-unit increase in monthly household level incomes (by 1 BOB), the odds of being a migrant are 0,0001 higher than for non-indigenous individuals. As such, the relationship between the crossover effect of being indigenous and household-level income increases on migration status is opposite to the results obtained for personal incomes. While increases in personal incomes are associated with a decrease in the odds of being a migrant, increases in household income are associated with an increase in the odds of migration. Possible explanations for this observation, which will be explored further in later sections, are that indigenous households may be more likely to send migrants when they have sufficient financial means to do so or when the anticipated returns to wages after migration are higher.

A final household-level predictor variable is the size of a household. The coefficient of the variable is negative and statistically significant for non-indigenous individuals, suggesting that individuals stemming from smaller households are more likely to migrate. In contrast, the predictor variable for the interaction between household size and being indigenous is not statistically significant but suggests that the crossover effect is also negatively associated with migration, yet at a smaller magnitude than for non-indigenous households. The strong negative effect of household size on migration status is contrary to the hypothesized direction, suggesting

that migration may be a result of demographic pressures, and thus the odds of migration would increase as household size increases (Arps & McSweeney, 2005).

Overall, the multinomial logistics regression results allow for carefully answering the research question posed at the beginning of this thesis, namely what the key demographic and economic determinants of rural-urban migration for indigenous migrants are and to what extent they differ from migration drivers for non-indigenous people. The results indicate that individual-level demographic factors such as age, educational attainment, and gender are not among the main predictors for indigenous rural-urban migration, while belonging to a particular age group is a significant predictor of the migration status of non-indigenous people. Monetary incentives, including household and personal incomes, are among the key predictors of migration status for indigenous individuals, while household incomes do not seem to be associated with the decision to migrate for non-indigenous individuals. Moreover, being indigenous is a significant factor in migrant selectivity in itself. Section six discusses some of the most unexpected findings while referring to existing migration research and theories to contextualize the results of this study.

5.3 Robustness Checks

Two econometric tests were conducted to ensure the goodness of fit for the full model used in this analysis despite shortcomings stemming from the limited explanatory power of the model. Firstly, the probability classification score was calculated to determine the share of observations correctly classified within the model. As Table 6 in Appendix A shows, the classification score for the full model (model 3) lies at 99,02 percent, suggesting that the estimated model could correctly classify almost all observations. In a second step, the goodness-of-fit of the model was investigated by performing a Hosmer-Lemeshow test (Hosmer et al., 1988). The observations were grouped into ten groups to conduct the test, allowing the test to estimate the goodness of fit for each percentile by predicting the probability of obtaining the expected value for each percentile (Fagerland & Hosmer, 2012). The results displayed in Table 7 (Appendix B) show that for observations of migration status = 0, expected and observed values lie relatively close together. A slight deviation can be observed in the lower percentiles of observations for migration status = 1. However, the probability expressed in column 2 increases

as percentiles change, suggesting that while the model could be improved concerning low-level predictions, the impact these deviations have on the overall results of this thesis is minor. Thus, the model used in this thesis sufficiently qualifies for the purpose of this analysis based on its goodness of fit and its probability classification score.

The robustness of the final model was further checked through the stepwise modeling approach and through using alternative specifications for the variables. The results of the stepwise modeling approach are included in the presentation of the main results (repeated in Table 8, Appendix C) and show that upon adding further predictor variables, the signs and significances of predictors already included in the model do not substantially deviate throughout the different models. Table 8 in appendix C further presents an alternative model specification which shows that upon replacing the continuous variable education in the model through a categorical predictor, the overall results do not significantly change. This provides further evidence of the goodness-of-fit of the model chosen for this econometric analysis and allows for drawing empirical conclusions from the coefficients obtained in the model.

6 Discussion

The purpose of this section is to contextualize some of the unusual empirical results obtained in the previous section in an attempt to understand where potential differences between indigenous and non-indigenous migrants might stem from and why interaction terms between being indigenous and certain characteristics are still important to consider even though they did not yield statistically significant results in this particular study. The lack of statistical significance for several interaction terms may be caused by several factors, such as the limited sample size that arose out of the 2019 household survey, the coding of the variables in the survey, or the five-year lag of the independent variables.

Nonetheless, it is worth noting that contrary to the theoretical underpinnings presented in section 3, the relationship between the key predictor variable, indigeneity, and migration status is statistically significant, showing that being indigenous is positively associated with the odds of being a migrant. Although Bolivia's indigenous population accounts for 41 to 62 percent of the total population, within the household surveys, the share of indigenous individuals was concentrated at the lower bound, with indigenous individuals accounting for 41 percent of the observations (World Bank, 2015). A positive association due to statistical error resulting from the over-representation of indigenous individuals is thus unlikely.

A different point of explanation may be the unique political landscape of Bolivia in contrast to other Latin American countries. Under indigenous President Evo Morales, awareness of indigenous issues has increased, indigenous rights have been strengthened, and rural and urban indigenous populations have been socially and politically empowered (Crabtree, 2017). Urban indigeneity was furthermore recognized through constitutional reforms in the country in 2009, allowing for a paradigm shift in the perception of indigeneity from a predominantly rural category to one associated with urban spaces and development (Horn, 2018b). As such, the time since the election of the Morales Government is also viewed as a major phase of increase in indigenous urbanization, explaining why the results show a positive association between indigeneity and rural-urban migration, contrary to prominent observations and theories based on migration flows in countries with different political landscapes (Horn, 2018a: 50). The

remaining part of this section discusses the findings of various interactions between being indigenous and different individual and household-level characteristics.

6.1 Individual-Level Predictors

As the results presented in the previous section show, the key individual-level predictor variable that yields a statistically significant result for the interaction between individual characteristics and being indigenous is the variable measuring personal income. At the same time, demographic characteristics such as age, education, gender, and marital status appear statistically insignificant despite a strong body of theoretical and empirical literature discussing and demonstrating their relevance as predictors of migration status (Bell et al., 2017; Mayda, 2010; Plane, 1993; Simpson, 2017). This suggests that contrary to indigenous migrants in other Latin American countries, indigenous migration in Bolivia is not primarily a lifecycle phenomenon dictated by age and other demographic characteristics but, in contrast to the common perception of indigenous people and their values, is motivated by economic incentives. Migration as a lifecycle phenomenon is a theory commonly used to analyze migration drivers other than economic motives or migration trends among indigenous people and postulates that migrants are subject to selectivity based on demographic factors such as age and education, which impact the odds of being a migrant as they change during the individuals' live (Lee, 1966). As such, previous research suggests that migration is a more common phenomenon among younger individuals, often in combination with the search for improved educational or occupational opportunities (Bell et al., 2017; Simpson, 2017). The coefficients obtained in the previous section show a negative sign for age groups above 30, suggesting that the odds of migration are smaller for individuals in that age group compared to the age group of 18- to 30-year-olds. This is in line with arguments made by Del Popolo et al. (2007), which suggest that the probability of migration is highest among people between the ages of 15 and 29. Moreover, they present evidence showing that young individuals make up the largest share of migrants for both indigenous and non-indigenous groups. Yet, they find that the differences in the proportion of young migrants and older migrants are larger for indigenous people, whereas the results of this research do not yield statistically significant differences between age groups for indigenous people, nor differences within the same age groups between indigenous

and non-indigenous people. Thus, in the dataset used for this analysis, age plays a significant role in predicting the probability of migration for non-indigenous individuals but not for indigenous individuals. This suggests that factors other than age are more relevant in the context of indigenous migration.

Another factor of migrant selectivity introduced in the literature review and analyzed in this study is the role of education. Due to the unusual results obtained regarding the predictive power of education for migration status in this study, it is worth discussing the findings further. The underlying sign of the educational variables both for non-indigenous individuals and in interaction with being indigenous correspond to previous findings and theories that postulate that rural individuals from low educational backgrounds tend to migrate to urban areas due to greater educational possibilities (Simpson, 2017; World Bank, 2015). For indigenous people, this relationship remains strongly negative as education increases, while for non-indigenous people, the odds of migration increase for people with particularly high levels of educational attainment, suggesting a potential brain-drain scenario of well-educated non-indigenous migrants. Rural-urban migration for educational reasons may be a necessary tool, especially for the indigenous population, due to a lack of educational opportunities in rural areas. For example, the World Bank Report on Indigenous People in Latin America (2015) finds that the educational attainment of indigenous people in rural areas is significantly lower than that of indigenous people in urban areas. Moreover, less than ten percent of indigenous people in rural areas complete secondary education, and fewer than one percent obtain a tertiary education degree (World Bank, 2015). Thus, the sign of the education predictor seems highly plausible, yet the lack of significance of the coefficient stands in strong contrast to the large body of literature theorizing that education acts as an important push and pull factor for migration (Bell et al., 2017; Gibson & McKenzie, 2011; Simpson, 2017). In addition, these empirical results also conflict with the initial descriptive results presented in section 5, where education was the second most cited factor in the self-reported migration reason. More than one-quarter of indigenous and non-indigenous migrants indicated that they migrated for educational purposes, suggesting that this variable should play a more prominent role in the migration decision for the two groups than the empirical results indicate.

Despite using alternative model specifications with educational attainment coded as a categorical variable (Appendix C), the results remain unchanged, calling for future inquiry into the role of education in the decision to migrate. A possible explanation for the difficulties in

establishing a statistically significant relationship between education and migration in the current dataset may lie in the time lag that arises due to the coding of the dependent variable. Thus, it is unclear whether individuals obtained additional education within the past five years, making it more challenging to disentangle the effect of education on the migration decision. Future research may circumvent this issue by obtaining longitudinal survey data that allows for the matching of an individual's educational developments over the surveyed period.

Another surprising result is the coefficient and significance of the gender variable. Based on its coefficient, it suggests that non-indigenous migrants are more likely to be females. This observation is in line with previous research finding that while being female decreases the odds of being a migrant in other regions of the world, the opposite is true in Latin America (Del Popolo et al., 2007). However, the combined effect of being indigenous and female opens up room for further discussion, as the crossover effect suggests that the likelihood of migration for indigenous women is higher than for non-indigenous women. Although statistically insignificant, this indication stands in contrast with popular theories from the field of migration studies, research on indigenous people, and gender studies, which suggest that the intersecting identity of being female and indigenous increases an individual's vulnerability and thus decreases the odds of migration (Del Popolo et al., 2009; García, 2021). Reports further highlight that indigenous women in other Latin American countries were less likely to migrate than non-indigenous women (Jaspers & Montaño, 2013). A core reason prominently proposed to explain why indigenous women are less likely to migrate is the triple vulnerability they face (Jaspers & Montaño, 2013). Thus, indigenous women already face discrimination based not only on their sex but also on their ethnicity. An additional layer of discrimination is added if an indigenous woman chooses to migrate, making them more vulnerable than non-indigenous women who do not face the added layer of ethnic exclusion (García, 2021; Gómez & Quintal, 2007; World Bank, 2017). A similar logic of double and triple vulnerability can be applied to indigenous widow/ers, who, according to the empirical results, are negatively associated with being migrants compared to non-indigenous widow/ers. Applying the reasoning of intersecting vulnerabilities, widowed indigenous individuals may face additional obstacles to migration, possibly due to a reliance on their communities of origin for support, strong family ties that hold them back, or due to the additional hurdle of starting a new life in another city as an indigenous individual (Simpson, 2017). Additionally, widowhood often leaves the remaining spouse in charge of the household, which may increase the responsibilities of the widow/ers to their families and decrease the odds of migration (Lawson, 1998). As such, the finding that

indigenous widow/ers are less likely to be migrants than non-indigenous widow/ers is in line with theoretical perspectives on migrant selectivity.

Overall, the analysis of the individual-level characteristics highlights that demographic factors do not appear to be the main predictors of rural-urban migration for indigenous people in Bolivia. In contrast, age, gender, and marital status appear to be significant predictors for non-indigenous migrants. Combined with the significant and positive effect of being indigenous on the odds of being a migrant, this suggests that indigenous migrants do differ from non-indigenous rural-urban migrants with regard to the different forms of migrant selectivity they face. Thus, it appears more likely that migration is a life cycle process for non-indigenous people, while for indigenous people, economic motives seem to be the most important. This observation is important for several reasons. Firstly, it indicates that there may be underlying problems that indigenous individuals face in the rural context that are specifically related to poorer economic prospects and the search for higher-wage jobs in urban areas. Moreover, this underlines that although significant advancements in combating rural poverty in Bolivia have been made, indigenous individuals are still affected at higher rates than non-indigenous individuals and consequently seek to escape this by migrating to cities (World Bank, 2015). Lastly, these observations highlight that the traditional view of seeing indigenous people as "other", uninterested in participating in the formal economy and reaping economic benefits, may be outdated and harmful, denying these individuals the same economic opportunities as other citizens.

6.2 Household-Level Predictors

Similar to the individual-level indicators, the three household-level indicators under investigation suggest that economic factors appear to be the most important predictors of migration for indigenous people. Although household poverty status was not significantly related to migration in the analysis, the positive association suggests that migrants are more likely to stem from households lying further away from the gap. Thus, a higher incidence of poverty is positively associated with migration. Given the backward-looking data structure, a positive association between household poverty and migration status is in line with reports by the World Bank (2015, 2017), pointing to higher urban poverty rates for indigenous migrants.

Due to the intersecting layers of discrimination and social exclusion indigenous migrants face, as well as the lack of a social support network and labor market discrimination, indigenous migrants tend to be more vulnerable to living in impoverished circumstances than non-indigenous migrants (World Bank, 2015). At the same time, existing research and theoretical underpinnings hypothesize that poverty at the point of origin acts as a strong push factor in migration (Christiaensen, Jedwab & Gindelsky, 2015). This is in line with the findings of a significant and positive association between post-migration household income and migration status, suggesting that, as hypothesized, migrant households tend to obtain larger incomes and thus experience an increase of welfare in urban areas. The positive association may further be connected to the possibility that initial incomes of migrant-sending households are higher than those of non-migrant-sending households, as there are additional sources of income from other household members. This enables the household to send migrants who cannot earn high incomes in rural areas to urban regions, hoping that their increased urban incomes also increase total household earnings, for example, through remittances (Giesbert, 2007; Rempel & Lobdell, 1978). Thus, household incomes and poverty status can act as push and pull factors in indigenous rural-urban migration, supporting the conclusion that economic factors appear to be important drivers of indigenous urbanization.

Moreover, it is worth noting that household-level income is a highly significant predictor of indigenous migration yet does not play a statistically significant role in predicting non-indigenous migration. This provides a first indication that household-level factors may be more important in influencing indigenous people's migration decisions than those of non-indigenous individuals. However, the obtained results do not allow for a definite conclusion on this observation, as household income is the only household-level indicator of statistical relevance for indigenous migration. Existing research on indigenous migration shows that including further household-level variables in the analysis may yield clearer-cut results. For example, Fierros-González and Mora-Rivera (2020) and Davis et al. (2017) find that farmland ownership of indigenous households is a relevant predictor of internal migration. Yet, both papers are similarly unsuccessful in showing a statistically significant relationship between household size and indigenous migration. As such, demographic pressures appear to be a negligible factor in explaining both indigenous and non-indigenous rural-urban migration, as the results of this research further suggest a negative but insignificant association between migration and household size. Thus, family ties seem to keep migrants at their place of origin rather than driving individuals away from large households. While these results stand in contrast with

theoretical arguments made by Arps and McSweeney (2005), they are in line with findings of other research on indigenous movements, thus allowing for a careful conclusion that instead of being driven by demographic pressures, rural-urban migration of indigenous people in Bolivia is mainly driven by economic motives (Davis et al., 2017; Fierros-González & Mora-Rivera, 2020; Lunde et al., 2007; Patrinos & Skoufias, 2007).

Overall, the results of this analysis support the conclusion that economic factors appear to be the main drivers of indigenous urbanization. However, it must be noted that the overall explanatory power of the model is limited to an R^2 of 10,3 percent, suggesting that there is still a large portion of variation which cannot be explained by the variables included in the model. Research on indigenous migration suggests that including additional household-level variables such as land ownership or access to basic services could increase the model's explanatory power. Moreover, community-level variables could help establish migration patterns and investigate the role of migrant networks. Furthermore, the five-year lag in the measurement of the independent variables and the event of migration may explain the limited explanatory power of the model, suggesting that the model may be improved by utilizing longitudinal data to calculate the actual welfare gains from migration. These are important considerations but must be subject to future research on indigenous mobility, as these variables could not be constructed from Bolivia's 2019 household survey data.

7 Conclusion

Rural-urban migration has been one of the main phenomena since the mid-20th century in Bolivia and many other Latin American countries, making it a key discussion point in national policies. Yet, to make effective policies, it is core to understand who migrates and why individuals choose to leave their communities of origin. This thesis aims to shed light on these two questions while paying particular attention to Bolivia's indigenous population, which accounts for up to 62 percent of the country's national population but is often excluded from popular discourse on internal migration. By estimating the odds of rural-urban migration for indigenous and non-indigenous individuals based on specified personal-level and household-level characteristics, this thesis obtained four core findings. First, being indigenous was isolated to be a significant factor of migrant selectivity for rural-urban migrants in Bolivia, tripling the chance an individual has migrated to an urban area. Second, contrary to the popular perception of indigenous people as valuing economic incentives less than non-indigenous people, the results show that economic motives were among the most important drivers of urbanization for indigenous Bolivians. Third, while differences among indigenous and non-indigenous migrants were found especially with respect to the role of demographic characteristics of migrants, suggesting that while for non-indigenous migrants, factors such as age, gender, and marital status significantly impacted the migration decision, a similar conclusion could not be reached for indigenous migrants. Lastly, no overarching conclusion could be reached regarding the unique relevance of household-level characteristics in the migration decision of indigenous individuals. This suggests that further research on the role of additional household-level predictors is crucial to obtaining insights into the hierarchical structures in which the migration decision is embedded.

Although the empirical results of this thesis are not exhaustive, they are a first step in shedding light on the questions of who migrates from rural to urban areas in Bolivia and why. The results of this thesis should be viewed as starting points for future research and a first indication to develop policies directed towards indigenous migrants who are likely to face additional challenges and discrimination in urban areas (World Bank, 2017). An important area of future research arising from the results of this thesis is which economic factors specifically pull

migrants to urban areas or push them out of their rural communities. While this thesis showed a general association between incomes and migration status, detailed information as to which jobs migrants take up in urban areas, how many remittances are sent back to rural households, or which other sources of income rural households seek out to diversify their earnings could be beneficial to creating targeted policies to support rural households and labor migrants. The second area of research relevant to policymaking is gathering more detailed information about who migrates. More specifically, understanding which individuals of indigenous communities migrate and how this impacts the migration decision of later indigenous migrants. Targeted surveys with both qualitative and quantitative aspects can extend this research's findings by incorporating the role of migrant networks and politically strategic migration in indigenous mobility.

Despite the large potential for further research into further factors impacting the migration decision, the findings obtained in this thesis highlight the importance of incorporating the unique characteristics of indigenous movements into national policymaking and investigating the characteristics of indigenous migrants in other Latin American countries. In analyzing the migration flows of rural-urban indigenous migrants, this thesis has further demonstrated that indigenous urbanization is not an isolated phenomenon of selected indigenous individuals but that a more general trend of relocation and integration into urban areas is progressing, which requires an adjustment of the outdated view of indigenous groups as isolated, rural communities (Davis et al., 2017). This new perspective, which is supported by findings of other researchers focusing on indigenous mobility in Latin America, must be incorporated into future research, policy advice, and migration policies to develop effective tools to analyze and support indigenous migration.

8 References

Alderman, J. (2020). Unpacking Disavowals of Indigeneity in Bolivia, *Latin American and Caribbean Ethnic Studies,* vol. 15, no. 4, pp. 430-438

Alexiades, M. N. & Peluso, D. M. (2015). Introduction: Indigenous Urbanization in Lowland South America, *Journal of Latin American and Caribbean Anthropology,* vol. 20, no. 1, pp. 1-12, DOI: 10.1111/jlca.12133

Andersen, L. (2002). Rural-Urban Migration in Bolivia: Advantages and Disadvantages, Institute for Socio-Economic Research, working paper, Universidad Católica Boliviana

Arps, S. & McSweeney, K. (2005). A "Demographic Turnaround": The Rapid Growth of Indigenous Populations in Lowland Latin America, *Latin American Research Review,* vol. 40, no. 1, pp. 3-29

Asad, A. L. & Hwang, J. (2018). Indigenous Places and the Making of Undocumented Status in Mexico-Us Migration, *International Migration Review,* vol. 53, no. 4, pp. 1032-1077, DOI: 10.1177/0197918318801059

Aylwin, J. (2002). El Acceso De Los Indígenas a La Tierra En Los Ordenamientos Jurídicos De América Latina: Un Estudio De Casos, Santiago: CEPAL

Bell, M., Bernard, A., Charles-Edwards, E., Rowe, F. & Ueffing, P. (2017). Comparing Internal Migration across the Countries of Latin America: A Multidimensional Approach, *PLoS One,* vol. 12, no. 3

Bilsborrow, R. E. & Lu, F. (2011). A Cross-Cultural Analysis of Human Impacts on the Rainforest Environment in Ecuador, in R. Cincotta & L. Gorenflo (eds), *Human Population,* Berlin: Springer, pp. 127-151

Bloom, D. E. & Stark, O. (1985). The New Economics of Labor Migration, *The American Economic Review*, vol. 75, no. 2, pp. 173-178

Bremner, J. (2013). Population Mobility and Livelihood Diversification among Indigenous Peoples of the Ecuadorian Amazon. [Doctoral], University of North Carolina

Campbell, J. M. (2015). Indigenous Urbanization in Amazonia: Interpretive Challenges and Opportunities, *The Journal of Latin American and Caribbean Anthropology*, vol. 20, no. 1, pp. 80-86, DOI: https://doi.org/10.1111/jlca.12136

Catálogo del Archivo Nacional de Datos. (2020). Encuesta De Hogares Bolivia 2019: Descripción, Catálogo Anda Catálogo Central De Datos Y Microdatos, Available online: http://anda.ine.gob.bo/index.php/catalog/84/study-description [Accessed 20 December 2021]

Cox, D. R. (1958). The Regression Analysis of Binary Sequences, *Journal of the Royal Statistical Society: Series B (Methodological)*, vol. 20, no. 2, pp. 215-232, DOI: https://doi.org/10.1111/j.2517-6161.1958.tb00292.x

Crabtree, J. (2017). Indigenous Empowerment in Evo Morales's Bolivia, *Current History*, vol. 116, no. 787, pp. 55-60

Davis, J., Sellers, S., Gray, C. & Bilsborrow, R. (2017). Indigenous Migration Dynamics in the Ecuadorian Amazon: A Longitudinal and Hierarchical Analysis, *The Journal of Development Studies*, vol. 53, no. 11, pp. 1849-1864, DOI: 10.1080/00220388.2016.1262028

Davis, K. (1963). The Theory of Change and Response in Modern Demographic History, *Population Index*, vol. 29, no. 4, pp. 345-366, DOI: 10.2307/2732014

de Haas, H. (2011). The Determinants of International Migration: Conceptualizing Policy, Origin, and Destination Effects, International Migration Institute, working paper, no. 32 International Migration Institute

Del Popolo, F. & Jaspers, D. (2014). Guaranteeing Indigenous People's Rights in Latin America. Progress in the Past Decade and Remaining Challenges. Summary, Santiago: ECLAC

Del Popolo, F., Oyarce, A. M. & Pizarro, J. M. (2009). International Migration and Indigenous Peoples in Latin America: The Need for a Multinational Approach in Migration Policies, *Revista Latinoamericana de Población,* vol. 3, no. 4, pp. 143-163

Del Popolo, F., Oyarce, A. M., Ribotta, B. & Rodríguez Vignoli, J. (2007). Indigenous Peoples and Urban Settlements: Spatial Distribution, Internal Migration, and Living Conditions, Santiago: CELADE

Dijkstra, L., Hamilton, E., Lall, S. & Wahba, S. (2020). How Do We Define Cities, Towns, and Rural Areas? , Sustainable Cities, World Bank Blogs, Available online: https://blogs.worldbank.org/sustainablecities/how-do-we-define-cities-towns-and-rural-areas [Accessed 11 May 2022]

Ellis, F. (2000). Rural Livelihoods and Diversity in Developing Countries, Oxford: Oxford University Press, pp. 248-252

Fagerland, M. W. & Hosmer, D. W. (2012). A Generalized Hosmer–Lemeshow Goodness-of-Fit Test for Multinomial Logistic Regression Models, *The Stata Journal,* vol. 12, no. 3, pp. 447-453

Farrington, D. P. (1991). Longitudinal Research Strategies: Advantages, Problems, and Prospects, *Journal of the American Academy of Child & Adolescent Psychiatry,* vol. 30, no. 3, pp. 369-374

Fierros-González, I. & Mora-Rivera, J. (2020). Determinants of Indigenous Migration: The Case of Guerrero's Mountain Region in Mexico, *Journal of International Migration and Integration,* vol. 21, no. 1, pp. 93-116

Flesken, A. (2013). Ethnicity without Group: Dynamics of Indigeneity in Bolivia, *Nationalism and Ethnic Politics,* vol. 19, no. 3, pp. 333-353

García, A. C. (2021). Urban Indigenous Women: The Challenge of Creating Fairer Cities with Cultural Identity, Inter-American Development Bank, Available online: https://blogs.iadb.org/ciudades-sostenibles/en/urban-indigenous-women-the-challenge-of-creating-fairer-cities-with-cultural-identity/ [Accessed 10 May 2022]

Gibson, J. & McKenzie, D. (2011). Eight Questions About Brain Drain, *Journal of Economic Perspectives*, vol. 25, no. 3, pp. 107-128, DOI: 10.1257/jep.25.3.107

Giesbert, L. (2007). Seeking Opportunities: Migration as an Income Diversification Strategy of Households in Kakamega District in Kenya, working paper, no. 58, German Institute of Global and Area Studies (GIGA)

Gigler, B. S. (2009). Poverty, Inequality and Human Development of Indigenous Peoples in Bolivia, Centre for Latin American Studies, working paper, Georgetown University

Gómez, M. J. S. & Quintal, R. B. (2007). Mujeres Indígenas Migrantes: Cambios Y Redefiniciones Genéricas Y Étnicas En Diferentes Contextos De Migración, *Amérique Latine Histoire et Mémoire*, vol. 14

Guss, D. M. (2006). Introduction: Indigenous Peoples and New Urbanisms, *The Journal of Latin American and Caribbean Anthropology*, vol. 11, no. 2, pp. 259

Harris, J. R. & Todaro, M. P. (1970). Migration, Unemployment, and Development: A Two-Sector Analysis, *The American Economic Review*, vol. 60, no. 1, pp. 126-142

Heins, C. (2011). Indigenous Internal Migration in Bolivia Causes and Current Challenges. La Paz: Konrad-Adenauer-Stiftung

Horn, P. (2018a). Emerging Urban Indigenous Spaces in Bolivia: A Combined Planetary and Postcolonial Perspective, in P. Horn, P. Alfaro d'Alencon & A.C. Duarte Cardoso (eds.), *Emerging Urban Spaces: A Planetary Perspective*, Cham, Springer International Publishing, pp. 43-64

Horn, P. (2018b). Indigenous Peoples, the City and Inclusive Urban Development Policies in Latin America: Lessons from Bolivia and Ecuador, *Development Policy Review,* vol. 36, no. 4, pp. 483-501, DOI: https://doi.org/10.1111/dpr.12234

Hosmer, D. W., Lemeshow, S. & Klar, J. (1988). Goodness-of-Fit Testing for the Logistic Regression Model When the Estimated Probabilities Are Small, *Biometrical Journal,* vol. 30, no. 8, pp. 911-924

Hua, C. & Shi, Y. J. (2021). Chapter 10 Binary Logistic Regression. *Companion to Ber 642: Advanced Regression Methods*

Instituto Nacional de Estadística. (2021). Bases De Datos Encuestas Sociales, Instituto Nacional De Estadística, Available online: https://www.ine.gob.bo/index.php/censos-y-banco-de-datos/censos/bases-de-datos-encuestas-sociales/ [Accessed 20 December 2021]

Instituto Nacional de Estadística. (n.d.). Bolivia: Población Por Provincias Y Municipios, Censos 2001 Y 2012, Tasas Crecimiento Intercensal, Available online: https://www.academia.edu/es/7449830/BOLIVIA_POBLACI%C3%93N_POR_PROVINCIAS_Y_MUNICIPIOS_CENSOS_2001_Y_2012_TASAS_CRECIMIENTO_INTERCENSAL_Censo_2012 [Accessed 26 May 2022]

International Working Group for Indigenous Affairs. (2021). Indigenous Peoples in Bolivia, Available online: https://www.iwgia.org/en/bolivia [Accessed 19 December 2021]

Jaspers, D. & Montaño, S. (2013). Mujeres Indígenas En América Latina: Dinámicas Demográficas Y Sociales En El Marco De Los Derechos Humanos, CEPAL

Jedwab, R., Christiaensen, L. & Gindelsky, M. (2017). Demography, Urbanization, and Development: Rural Push, Urban Pull, and… Urban Push?, *Journal of Urban Economics,* vol. 98, pp. 6-16

Jokisch, B. & McSweeney, K. (2007). Beyond Rainforests: Urbanisation and Emigration among Lowland Indigenous Societies in Latin America, *Bulletin of Latin American Research,* vol. 26, no. 2, pp. 159-180

Jokisch, B. & McSweeney, K. (2015). Native Amazonians' Strategic Urbanization: Shaping Territorial Possibilities through Cities, *The Journal of Latin American and Caribbean Anthropology*, vol. 20, no. 1, pp. 13-33

Kainth, G. S. (2010). Push and Pull Factors of Migration: A Case Study of Brick Kiln Migrant Workers in Punjab, Munich Personal RePEc Archive Paper, working paper, no. 30036, Guru Arjan Dev Institute of Development Studies

Kohn, M. A. & Senyak, J. (2021). Sample Size Calculators, Available online: https://www.sample-size.net/ [Accessed 08 May 2022]

Lawson, V. A. (1998). Hierarchical Households and Gendered Migration in Latin America: Feminist Extensions to Migration Research, *Progress in Human Geography*, vol. 22, no. 1, pp. 39-53, DOI: 10.1191/030913298677526732

Lee, E. S. (1966). A Theory of Migration, *Demography*, vol. 3, no. 1, pp. 47-57

Lewis, W. A. (1954). Economic Development with Unlimited Supplies of Labour, *The Manchester School*, vol. 22, no. 12, pp. 139-191, DOI: https://doi.org/10.1111/j.1467-9957.1954.tb00021.x

Lunde, T., Patrinos, H. A. & Skoufias, E. (2007). Indigenous Peoples in Latin America: Economic Opportunities and Social Networks, Policy Research Working Paper, working paper, no. 4227, World Bank

Mayda, A. M. (2010). International Migration: A Panel Data Analysis of the Determinants of Bilateral Flows, *Journal of Population Economics*, vol. 23, no. 4, pp. 1249-1274

Merlan, F. (2009). Indigeneity: Global and Local, *Current Anthropology*, vol. 50, no. 3, pp. 303-333

Minority Rights. (2022). Bolivia, World Directory of Minorities and Indigenous Peoples, Available online: https://minorityrights.org/country/bolivia/ [Accessed 30 March 2022]

Morselli, D. & Sommet, N. (2017). Keep Calm and Learn Multilevel Logistic Modeling: A Simplified Three-Step Procedure Using Stata, R, Mplus, and Spss, *International Review of Social Psychology,* vol. 30, no. 203-218

Patrinos, H. A. & Skoufias, E. (2007). Economic Opportunities for Indigenous Peoples in Latin America: Conference Edition. Washington, DC: World Bank

Peluso, D. M. (2015). Circulating between Rural and Urban Communities: Multisited Dwellings in Amazonian Frontiers, *The Journal of Latin American and Caribbean Anthropology,* vol. 20, no. 1, pp. 57-79

Plane, D. A. (1993). Demographic Influences on Migration, *Regional Studies,* vol. 27, no. 4, pp. 375-383

Rajulton, F. (2001). The Fundamentals of Longitudinal Research: An Overview, *Canadian Studies in Population,* vol. 28, no. 2, pp. 169-185

Rempel, H. & Lobdell, R. A. (1978). The Role of Urban-to-Rural Remittances in Rural Development, *The Journal of Development Studies,* vol. 14, no. 3, pp. 324-341

Rodríguez Vignoli, J. (2002). Distribución Territorial De La Población De América Latina Y El Caribe: Tendencias, Interpretaciones Y Desafíos Para Las Políticas Públicas, Población y Desarrollo Nº 32 (LC/L.1831-P/E), Santiago: CEPAL

Simpson, N. B. (2017). Demographic and Economic Determinants of Migration, IZA World of Labor, Bonn: Institute for the Study of Labor

Stephens, C. (2015). The Indigenous Experience of Urbanization, State of the World's Minorities 2015

Tacoli, C., McGranahan, G. & Satterthwaite, D. (2015). Urbanisation, Rural-Urban Migration, and Urban Poverty, working paper, International Institute for Environment and Development

UCLA Statistical Consulting Group. (2021). Multinomial Logistic Regression | Stata Data Analysis Examples, Statistical Methods, and Data Analytics, Available online: https://stats.oarc.ucla.edu/stata/dae/multinomiallogistic-regression/ [Accessed 07 May 2022]

Westin, R. P. (1974). Predictions from Binary Choice Models, *Journal of Econometrics*, vol. 2, no. 1, pp. 1-16

World Bank. (2015). Indigenous Latin America in the Twenty-First Century: The First Decade, Washington, DC: World Bank Group

World Bank. (2017). To Be Indigenous and a Citizen of Latin America, The World Bank, Available online: https://www.worldbank.org/en/news/feature/2017/08/09/ser-indigena-ciudadano-latinoamerica [Accessed 21 December 2021]

World Bank. (2021). Urban Population (% of Total Population) Latin America & Caribbean, World, European Union, North America, United Nations Population Division, World Urbanization Prospects: 2018 Revision, Available online: https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=ZJ-1W-EU-XU [Accessed 19 December 2021]

World Bank. (2022). Urban Population in Bolivia 1972-2022, Available online: https://databank.worldbank.org/reports.aspx?source=2&series=SP.URB.TOTL.IN.ZS&country=BOL# [Accessed 02 May 2022]

9 Appendix A

Table 6: Estat Classification Test for Model 3

Logistic Model for Full Model (Model 3)			
Classified	D	~D	Total
+	0	0	0
-	351	35.403	35.754
Total	351	35.403	35.754
Classified + if predicted Pr (D) > 0.5 True D defined as Migration Status ≠ 0			
Sensitivity	Pr (+ | D)		0,00%
Specificity	Pr (- | ~D)		100%
Positive predictive value	Pr (D | +)		0,00%
Negative predictive value	Pr (~D | -)		99,02%
False + rate for true ~D	Pr (+ | ~D)		0,00%
False – rate for true D	Pr (- | D)		100%
False + rate for classified +	Pr (~D | +)		0,00%
False – Rate for classified =	Pr (D | -)		0,98%
Correctly Classified			**99,02%**

10 Appendix B

Table 7: Hosmer-Lemeshow Goodness-of-fit-test

Group	Prob	Obs_1	Exp_1	Obs_0	Exp_0	Total
1	0,0011	16	2,2	3560	3573,8	3576
2	0,0021	10	5,8	3565	3569,2	3575
3	0,0032	11	9,2	3565	3566,8	3576
4	0,0042	9	13,1	3566	3561,9	3575
5	0,0057	17	17,5	3558	3557,5	3575
6	0,0071	23	22,7	3553	3553,3	3576
7	0,0098	23	29,9	3552	3545,1	3575
8	0,0141	32	41,3	3544	3534,7	3576
9	0,0230	46	64,1	3529	3510,9	3575
10	0,3173	164	145,1	3411	3429,9	3575
No. Obs			35.754			
No. Groups			10			
Hosmer-Lemeshow Chi^2 (8)			100,32			
P-value			0,0000			

11 Appendix C

Table 8: Robustness Check all Models

	Model 0	**Model 1**	**Model 2**	**Model 3**	**Model 4⁺**
Base outcome = non-migrant					
Individual Level Predictors					
Indigenous	0,679*** (0,144)	1,416** (0,661)	1,424** (0,663)	1,225* (0,709)	1,379* (0,736)
Age 18-30		(base)	(base)	(base)	(base)
Age under 18		-0,077 (0,457)	-0,103 (0,456)	0,274 (0,434)	0,401 (0,468)
Age 30-60		-1,332*** (0,294)	-1,518*** (0,326)	-1,494*** (0,310)	-1,607*** (0,329)
Age above 60		-3,290*** (0,892)	-3,425*** (0,896)	-3,736*** (0,882)	-3,738*** (0,904)
Indigenous*Age under 18		-0,391 (0,574)	-0,358 (0,572)	-0,234 (0,534)	-0,313 (0,568)
Indigenous*Age 30-60		0,008 (0,370)	0,172 (0,398)	0,104 (0,387)	0,157 (0,407)
Indigenous*Age above 60		1,130 (0,979)	1,257 (0,981)	0,971 (0,973)	0,999 (0,990)
Education		-0,067 (0,065)	-0,051 (0,066)	-0,040 (0,063)	
Indigenous*Education		0,052 (0,087)	0,037 (0,088)	0,048 (0,086)	
Education^2		0,005 (0,004)	0,003 (0,004)	0,002 (0,004)	
Indigenous* Education^2		-0,005 (0,005)	-0,004 (0,005)	-0,005 (0,005)	
No Education					(base)
Primary Education					0,0148 (0,284)
High School					0,095 (0,403)
Bachelor					0,081 (0,548)
Master & Higher					0,691 (0,723)
Indigenous*Primary Education					0,044 (0,403)
Indigenous*High School					-0,274 (0,514)

Indigenous*Bachelor					-0,76 (0,684)
Indigenous*Master & Higher					0,009 (0,924)
Female		0,269 (0,164)	0,342** (0,170)	0,420** (0,177)	0,436** (0,175)
Indigenous*Female		-0,150 (0,225)	-0,196 (0,239)	-0,314 (0,243)	-0,283 (0,243)
Marital Status: Single		(base)	(base)	(base)	(base)
Partner		0,431 (0,292)	0,328 (0,296)	0,325 (0,288)	0,275 (0,294)
Separated/Divorced		1,282*** (0,427)	1,148*** (0,435)	0,775* (0,433)	0,65 (0,463)
Widowed		2,478*** (0,628)	2,342*** (0,625)	1,804*** (0,588)	1,884*** (0,598)
Indigenous*Partner		-0,289 (0,399)	-0,205 (0,402)	0,036 (0,377)	0,067 (0,391)
Indigenous*Separated/Divorced		-0,835 (0,604)	-0,741 (0,617)	-0,490 (0,611)	-0,48 (0,65)
Indigenous*Widowed		-1,810** (0,755)	-1,708** (0,757)	-1,421** (0,717)	-1,484** (0,727)
Personal Income			0,0001*** (0,00003)	0,0001** (0,0001)	0,0001** (0,00005)
Indigenous*Personal Income			-0,0001 (0,00005)	-0,0002*** (0,0001)	-0,0002*** (0,00006)
Household Level Predictors					
Household Income				-0,00001 (0,00003)	-0,00002 (0,00004)
Indigenous*Household Income				0,00012*** (0,00004)	0,0001*** (0,00004)
Household Size				-0,532*** (0,128)	-0,534*** (0,132)
Indigenous*Household Size				-0,094 (0,146)	-0,101 (0,153)
Income Poverty Gap				0,130 (0,613)	0,111 (0,643)
Indigenous*Income Poverty Gap				0,467 (0,672)	0,455 (0,706)
Pseudo R^2	0,01	0,0421	0,0449	0,1030	0,1094
No.Obs.	35.798	35.798	35.798	35.754	34,406
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes

Notes: Models 0 through 3 represent the stepwise modeling approach. Model 4^+ is included as an additional robustness check with alternative variable specifications. Household Clustered Standard Errors are reported in parenthesis. ***/**/* represent significance levels at 1%/5%10%