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MULTILEVEL RESEARCH OF MIGRATION WITH A FOCUS ON INTERNAL MIGRATION

LUCIE KUREKOVA, PAVLINA HEJDUKOVA

Abstract:

In migration research, multidisciplinary approaches are often applied, drawing on knowledge from existing theories, which implies the need for robust statistical reporting. It is not always easy to define who a migrant is, and studies exploring migration can be categorized according to many criteria. Contemporary literature contains a wide range of studies dealing with migration, its determinants, and its impacts on the economy. However, there are relatively few studies focusing primarily on regional (i.e., internal) migration compared to the number of studies analyzing international migration. The goal of this study is to highlight problems in migration reporting and to propose a strategy for analyzing migration based on multilevel research, making this approach applicable to internal migration.

Keywords:

Migration, labor market, statistical indicators, model

JEL Classification: J61, J21, E27

Authors:

LUCIE KUREKOVA, University of West Bohemia, Faculty of Economics, Czech Republic, Email: kurekova@kfu.zcu.cz

PAVLINA HEJDUKOVA, University of West Bohemia, Faculty of Economics, Czech Republic, Email: pahejdu@kfu.zcu.cz

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Introduction

Present literature contains a whole score of studies dealing with migration, its determinants and impacts on the economy, etc. However, there are very few studies dealing primarily with regional (i.e. internal) migration in comparison to the number of studies analyzing international migration. Therefore, this study accents regional migration, i.e. movement that takes place over the borders of lower self-governing units within one state. The study of migration plays a highly important role in evaluating political, economic and social changes.

Multiple scientific disciplines deal with the phenomenon of migration, e.g. demography, sociology, economics, political science and history. Therefore, while researching this phenomenon, it is possible to utilize a wide range of concepts and viewpoints for defining the term migration and subsequently formulate typologies of migration. Similarly, many theoretical approaches dealing with migration modelling can be found. While researching migration, we can encounter the application of multidisciplinary approaches with the use of knowledge from existing theories, which implies the need for statistical reporting. It is not always easy to determine who a migrant is, and this theoretical indefiniteness causes subsequent problems in the statistical reporting and recording of this phenomenon as such. Furthermore, it is clear that types of migration are not sufficiently differentiated from one another and can overlap. Using definitions of migration, typologies of migration can be divided into two groups according to the criteria used for their creation, that is into (i) theoretical and (ii) bureaucratic types of migration.

Economic theory is commonly assumed to have introduced one type of migration into the analysis of migration, i.e. economic migration, which is accompanied by a territorial change in the labor supply. It is evident that the economic analysis of migration also offers a view of migration that is broader than simply observing the economic causes of migration, i.e. primarily via the impacts of migration on the economy.

Studies exploring migration can be divided up according to many criteria. One may be whether they focus on explaining the causes of migration, i.e. whether they deal with the determinants of migration or whether they are attempting to explain the consequences of migration. Other criteria for categorizing studies can be theoretical ones, which these studies are primarily based upon. Common criteria are: neoclassical economics and the assumption of diminishing regional inequality (i.e. the convergence of regions), Ravenstein's laws of migration, and gravity models (i.e. of migration), the concept of push-pull factors, and others. Furthermore, studies can be divided according to the geographic focus of their analyses, e.g. the study of internal migration in European states and outside of Europe.

The goal of this study is to point out problems in reporting migration and to propose a strategy to analyze migration based on the multilevel research of migration while making this strategy applicable to internal migration. The paper is structured in the following manner: Chapter 1 describes the possibilities for defining migration and the most commonly used definitions; furthermore, the Czech Republic is used as an example to describe the deficiencies in reporting migration. Chapter 2 proposes a framework for the complex multi-level research of migration. Primary findings are summarized in the conclusion.

1 Defining the term migration

According to Shaw (1975), migration can be defined in a fairly broad manner as "the relatively permanent movement of persons over a significant distance"). This definition of migration is quite loose. It is clear that this definition (thanks among other things to the impact of the need for statistical reporting) has been clarified and narrowed down over the years. For example, the Czech Statistical Office (2018) defines migration (moving) as follows: "Moving is understood as

a change of permanent residence or long-term residence past the boundaries of a certain territorial unit. Internal moving, i.e. within the territory of the Czech Republic, is differentiated from moving abroad". This means that although migration is a manifestation of the population's mobility, this mobility should not be confused with other types of mobility such as commuting to work, tourism, etc.

Migration is most commonly associated with a change in place of residence as a permanent change and with the passage over borders between territories. The core of the definition is formed by two aspects: (i) time and (ii) spatial distance (see Wood, 1982; Kok, 1999). Although the definition of the term migration has been clarified, practical problems may arise during analyses of migration as a result of the theoretical indefiniteness and *de facto* insufficient concretization of terms. These problems include areas near the borders of a territory and the minimal distance of migration (see Shryock, 2004), or a disregard for the problem of the overlap (or lack thereof) of an administrative territory and the territorial definition of labor markets (see Standing, 1982), repeated change in permanent residency, and the circulation of migration (see Nekorjak, 2009).

Clarifying and adding additional criteria to define migration has led to the creation of a set of typologies, which can subsequently be used to divide up migration in a structured manner and use this division for more detailed analyses of migration. Orientation in the number of typologies can often be difficult, and types of migration are often insufficiently differentiated from one another and can therefore overlap. Definitions and typologies of migration can be divided into two groups according to the criteria used for their creation, that is into (i) theoretical and (ii) bureaucratic types of migration. The bureaucratic type can be understood as an addition to the theoretical one. These groups have formed out of the necessity to deal with the so-called "adequacy problem" (i.e. searching for an appropriate empirical indicator) or by searching for an empirical counterpart (i.e. a statistical indicator) to the theoretical concept.

Theoretical definitions are formed via scientific disciplines that deal with migration (e.g. replacement or amenity migration, etc.); the bureaucratic ones stem from statistical classifications or legal norms and primarily concern statistical reporting indicators, which are an integral part of the empirical analysis of migration (e.g. legal and illegal migration, internal and external migration, etc.). Because statistical reporting is gradually being harmonized at the EU level, we can assume there is methodological proximity or at least the gradual convergence of the methodological basis of statistical indicators reported by EU member states, even in the case of migration within states.

1.1 Theoretical types of migration

Contributions to defining migration and formulating its typology have doubtlessly been made by the "sociology of migration", which formed over the course of the previous century. Petersen (1958) published his article titled A General Typology of Migration, in which he defines several groups of migration that more or less mutually overlap: (i) primitive, (ii) forced, (iii) impelled, (iv) free, and (v) mass. He goes on to discuss Fairchild's view of migration via invasive and colonization movements, when the migration of less advanced cultures migrate to more advanced ones and vice versa in an either peaceful or warlike (aggressive) way. The impacts of migration are then evaluated in the sense of benefits to the given society (culture) and their potential future progress or degradation. According to Fairchild (1925), a person is capable of settling anywhere and staying in that given place until he/she is forced to move by another force. Therefore, Petersen (1958) also discusses the psychological aspect of migration as a part of human nature, in which wanderlust is a deciding factor in the tendency to migrate. In his view, a person cannot always give preference to a sedentary lifestyle. Discussions are held on migration as a natural part of human existence, and today migration is put into the context of

human rights and the freedom of movement (see e.g. Papademetriou and Yale-Loehr, 1996; Murray, 2017). Petersen's typology has been added to and reworked many times (see e.g. Krishnan and Odynak, 1987; Demuth, 2000). Petersen and his successors assumed that factors were at work that pushed and pulled on migration, and from them deduced types of migration. Demuth's (2000) study contains two additional types of migration: labor migration and non-immigration migration (i.e. temporary migration for the purpose of study, research, etc.). Economic theory is commonly assumed to have introduced one type of migration into the analysis of migration, and that is economic migration, which is accompanied by a territorial change in the labor supply. For this reason, members of the scientific community and the general public have settled upon a label for this type of migration as labor migration. However, the economic analysis of migration offers a view of it that is broader than simply observing movements between labor markets, i.e. primarily via the impacts of migration on the economy. The movement of the workforce (or any movement of the population) can lead to changes in demand on product and service markets or the property market, and impacts can also be observed via involvement in the state's social policy system either actively (taxes) or passively (utilizing social welfare). Changes on the labor market are naturally linked to other economic and social aspects (inflation, unemployment, level of education, age, etc. – for more, see e.g. Stanimir, 2020 or Kaderabkova, Jasova and Holman, 2020). Based upon the facts above, we can reach the assumption that each migration has economic impacts, and therefore every migration can be labelled economic. According to de Jong and Gardner (2013), economic theories only take into consideration economic variables, but as a final result are more objective than non-economic ones. The authors back up their statement with the fact that each person views non-financial factors in different ways (subjectively).

The next type of migration that can be linked to economic theory is so-called "replacement migration". This term is associated with a state's foreign policy, which deals with the lack of a labor force via controlled migration (Geddes, 2002). This type of migration also implies the creation of other types of migration, such as selective migration, which is the movement of people in regard to a certain group of individuals (these people usually share a profession, qualification, age, etc.). This type of migration is also grounded in statistical surveys.

Regional economics, which absorbs the impacts of geography, also offers several types of migration. Usually, migration in this context is seen as a factor of regional development. The traits determining types of migration are usually very closely linked to the characteristics of the region, e.g. rural and urban migration, amenity migration or lifestyle migration. Furthermore, migration can be divided up according to trends such as urbanization, suburbanization, deurbanization, etc. These trends are often linked to the selective migration mentioned above, which is considered to be a process in which territories developing as a result of migration more often acquire a certain group of people with a certain characteristic attribute, e.g. profession, education or age (usually young, educated and enterprising people), while territories in peripheral areas often lose these groups of the population. The next possible categorization of migration, which is mentioned by Bartoš et al. (2011), is via migrants' motivation. The motivation to migrate is characterized using five relatively large categories that are sufficiently differentiated internally: (i) economic reasons: the availability of employment opportunities, level of personal income, compatibility with professional orientation, level of living costs, etc.; (ii) residential: availability of housing, quality of housing, character of neighborhoods, etc.; (iii) personal: following family members, marriage, divorce, family unification, etc.; (iv) amenities: environment, social factors, cultural reasons, availability of public services, etc.; (v) residual: climate, heritage, ethnic origin, specific education, etc. It is quite probable for two or more of these factors to combine, e.g. economic reasons are often accompanied by personal ones (see e.g. SOÚ AV ČR, 2019).

1.2 Bureaucratic types of migration

A basic criterion from which migration is inferred is the border of the territory over which migration takes place. Classification of territories is often carried out via the generally acknowledged division of territorial structures, e.g. NUTS (Nomenclature des Unités territoriales statistiques) – EUROSTAT reporting, or TL (Territorial Level) – OECD reporting. These state-level classifications commonly correspond to the political division of states. In this way, migration can be divided into external (international) and internal migration (domestic, regional). Another criterion can be the direction of people's movement, allowing migration to be viewed as a flow variable, i.e. as the outflow of people from one territory or symmetrically as the inflow of people into a territory. In the context of international migration, emigration and immigration have become fixed terms.

From the standpoint of permanent residence permission, we divide migration into legal and illegal, and this label is used again more often in the context of international migration. According to the Czech Statistical Office's methodology, two basic categories of illegal migration in the Czech Republic are observed: (i) illegally crossing the external Schengen border of the Czech Republic (individuals who have illegally crossed or attempted to illegally cross the external Schengen border of the Czech Republic); (ii) illegal residence (foreign nationals discovered in the territory of the Czech Republic, including transit space in international airports, who are in violation of the legal conditions for the residence of foreign nationals).

Migration can be seen as short-term, long-term and permanent according to the length of residence on a given territory. The length of residence and subsequent return to a home or other country is linked to the concept of temporary and circular migration; for now, however, no formal definition of circular migration exists. For example, Nekorjak (2009) considers circular migration to be a strategy by which people temporarily travel abroad with the plan to return home and then repeat this journey (sometimes multiple times). According to Agunias and Newland (2007), circular migration should not be confused with traditionally perceived temporary migration, which does not allow the migrant to fully use his/her potential in the target or source country. Circulation should lead to the creation of positive externality, from which both home and host countries can draw benefits, as migrants heighten their qualifications and productivity via circulation. Temporary migration is understood as one-time travel and subsequently time-limited residence, whereas circular migration leads to repeated travel. Thanks to this, the conditions for those migrating to a territory may also be simplified. Temporary and circular migration are more relevant for the analysis of international migration; in the analysis of internal migration, we can observe in parallel a different and relatively intensive manifestation of people's mobility, that is travelling to and from employment. This manifestation of mobility is studied, for example, by the Czech Statistical Office (2013); nonetheless, there are no continual timelines for individual regions (the survey is carried out during the census of the population, homes and dwellings). Furthermore, institutions such as the Ministry of Transport (MD, 2018) study personal transport, but mobility concerning travel to and from employment is highly difficult to filter out of these statistics.

Contributions to the definition of migration are also made by international organizations; for example, the World Bank (WB, 2019) focuses its definition (and thus also its data collection) on international migration and understands it as the movement of people across a state's borders. The International Organization for Migration (IOM, 2019) defines migration as the movement of people outside their common place of residence either over an international border or within a state. The IOM (2019) goes on to define a migrant as an individual who moves or passes over international borders or within a state outside their common place of residence, regardless of (i) legal status; (ii) whether the movement is voluntary or involuntary; (iii) the reasons for their movement; or (iv) the length of stay. This definition embodies the aspect of space and time and

is a relatively broad definition (i.e. umbrella definition), which is further processed by the IOM (2019) while defining other categories of migrants.

1.3 Deficiencies in reporting using the example of the Czech Republic's records

It would be suitable at this point in the paper to mention some of the data deficiencies and changes regarding the reporting of internal and international migration using the example of the Czech Statistical Office's records. This concerns data only on recorded migration. A number of individuals who had moved abroad was evidently not registered, as a discrepancy of 35 to 46 thousand people was found during the population census of 2001 and 2011 respectively. Because the records of births and deaths in the Czech Republic are relatively exact, it can be assumed that between 1991 and 2011, roughly 81 thousand people more than the number cited by the Czech Statistical Office moved abroad. Contrary to Eurostat, the Czech Statistical Office does not carry out a follow-up correction after the census of the migration balance in the years after the previous census. Therefore, unregistered migrants cannot be included in the analysis (also see Fiala and Langhamrová, 2015). Three methodological changes took place over the course of the studied period. Until 2004, data on movement was acquired via the aggregation of statistical reports on movement sent by the Czech Statistical Office's reporting unit; since 2005, the Czech Statistical Office began to acquire data on the movement of people from the Ministry of the Interior. This change led to limitations on the amount of information on migration, as data on migrants' level of education or their reason for moving was no longer investigated. The Czech Statistical Office published the numbers of moves until 2007. When someone changed their permanent place of residence more than once during a single year, this person was registered more than once in the statistics. From 2008, data on these cases was purified, and thus only one case of movement within a calendar year was attributed to a person (movement was thus recorded between the first place of movement over the course of the year and the last place of movement). Other changes dealt with studying the internal migrations of foreign nationals, which until 2004 were provided by the relevant district authority of the Foreign and Border Police. The movement of foreign nationals who had permanent residence in the Czech Republic was followed until 2000. From 2001, migration is also reported for foreign nationals residing in the Czech Republic based on visa permission for over 90 days of residence and had been residing in the Czech Republic for longer than one year, and for individuals who had been granted asylum. From the middle of 2004, data on the movement (international and internal) of foreign nationals was provided by the Headquarters of the Foreign and Border Police Service (for more on reporting methodology, see ČSÚ, 2018). It is also important to mention that inhabitants of the Czech Republic with Czech citizenship do not have the obligation to declare a change in their residency. There are cases in which registered residence (often at the address of a city office) does not correspond to the actual place of residence. This points to the fact that statistics on internal migration are likely underestimated. The number of cases of internal movement is thus higher than cited by the official numbers stemming solely from a change of registered residence.

2 A framework for the complex multilevel research of migration

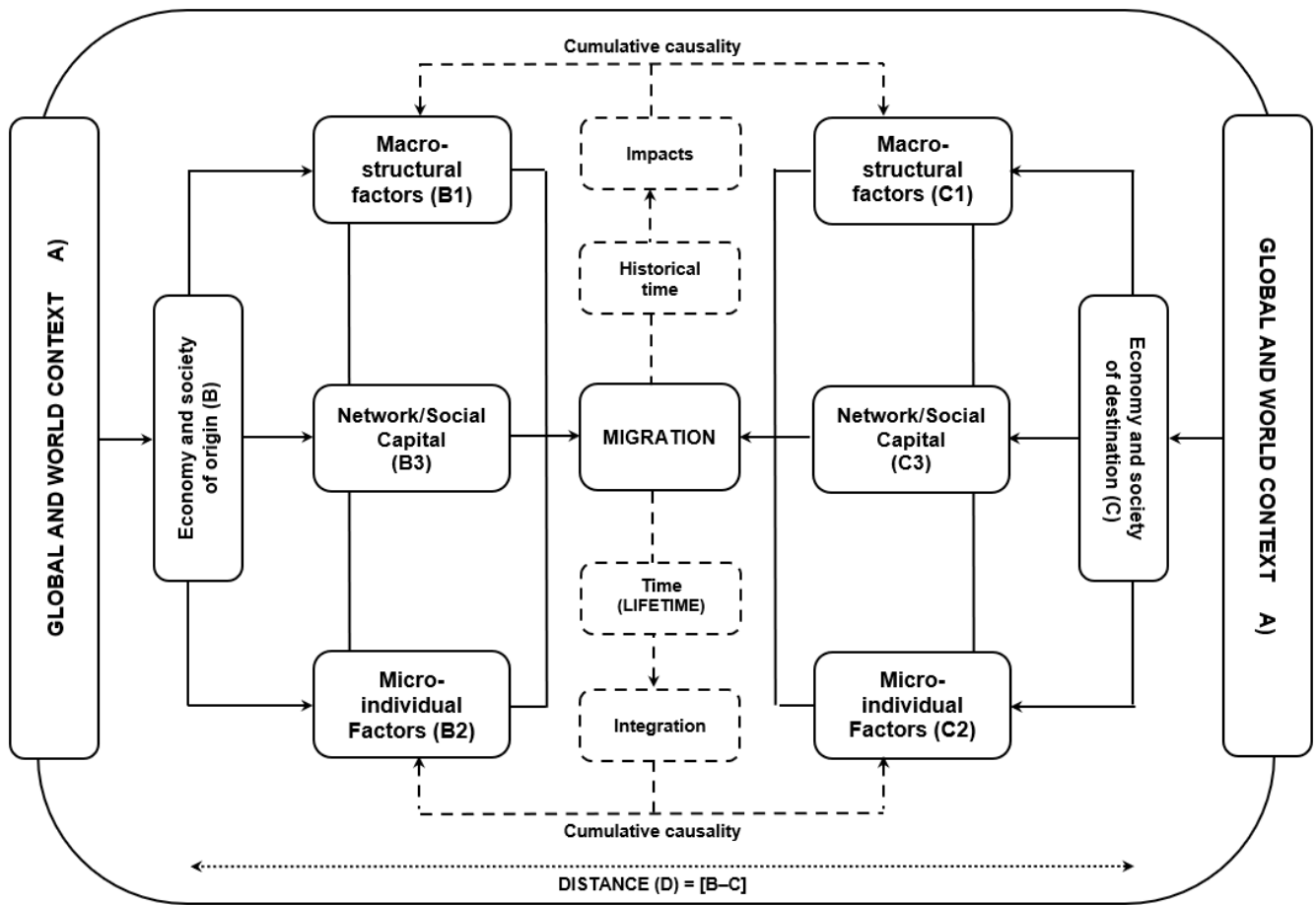
Based on studied literature concerning migration models, Flowchart 1.1 was created. It records the levels of migration analysis together with the factors that can determine it and the impacts and relationships that migration can have. By including these factors and relationships, we can thus create a complex theoretical model of migration or a conceptual framework for studying the factors and impacts of migration embodying all aspects of migration. When (A) represents a global (international) context, (B) represents the home region, (C) the host (target) region, and (D) represents the factor of space or the distance between the home and host economy. The

summary of theoretical migration concepts thus builds upon Flowchart 1.1. This summary is provided in Table 1.1, including a link to the framework for the complex multilevel research of migration.

Factors in home and host regions are divided into macro (B1; C1), mezzo (B2; C2) and micro (B3; C3) factors according to the aforementioned levels. Flowchart 1.1 takes the factor of time into consideration (see the central section of the flowchart), in which time is understood on the macro-level as historical time (which can include longer periods of time); on the micro-level, time is then seen from the migrant's point of view as a "lifetime" (usually a shorter period of time). The indicated cumulative causality between (B) and (C) can be understood as circular migration; it can represent remittances or the tendency towards convergence or, on the contrary, divergence between the host and home economy. There is a theoretical indefiniteness that is linked to the exact definition of migration's impact on the development of disparities. Migration models stemming from the neoclassical theory assume that migration contributes to a decrease in spatial disparities (see Lewis, 1954; Harris and Todaro, 1970; Todaro, 1976). However, there are also theoretical concepts that assume a heightening of differences between regions and the influence of migration, e.g. cumulative causation theory (see Myrdal, 1957) or the theory of polarized development (Friedmann, 1966).

Contrary to Goldlust and Richmond (1974) and Piché (2013), the factor of distance (D) was also included in the flowchart, which is understood as a significant determinant of migration, which stems from Ravenstein's laws of migration, which are still widely used in migration analyses. Furthermore, the flowchart was generalized to allow it to be used at the regional level (i.e. for an analysis of internal migration). In his flowchart, Piché (2013) accents the role of gender, which has a doubtless impact on migration (gender naturally plays a role in the labor market, which is important for migration – see e.g. Ouaiïmon and Zhang, 2019). However, we can assume that the aspect of gender is already included in the micro-factors (B2 and C2).

Figure 1 – Framework for the complex multilevel research of migration



Source: adaptation according to Goldlust and Richmond (1974), Piché (2013) and the authors' own modifications according to studied literature

Table 1 – Overview of migration theories and link to multilevel research of migration

Category	Concept / model / theory	Note	Implementation into the internal migration model and primary link to Flowchart 1.1
EMPIRICAL-INDUCTIVE MODELS	Ravenstein's laws (Ravenstein, 1885)	(i) the primary causes of migration are of a primarily economic character; (ii) the movement of people over short distances is preferred; with the movement of people over larger distances, the tendency among those migrating to select larger cities that are the centers of industry and trade appears; (iii) the direction of movement is from agricultural areas to industrial ones, i.e. inhabitants of the countryside have a greater tendency to migrate than inhabitants of urban areas; (iv) the growth in migration volume is shared with the development of industry, trade and transport; (v) women move more than men; (vi) large cities grow primarily thanks to the influx of new inhabitants, not by natural growth; (vii) each wave of migration evokes reverse migration.	* (B1) (B2) (C1) (C2) (D)
	Stouffer's theoretical model of intervening opportunities (Stouffer 1960; Galle and Taeuber, 1966); Wadycki, 1975)	Migration is above the framework of Ravenstein's laws, via the function of intervening opportunities among other factors. The volume of people's movement over a certain distance is directly proportionate to the number of opportunities in this distance and indirectly proportionate to the number of intervening opportunities.	
	Zipf's law (Zipf, 1949)	Zipf builds upon Ravenstein's migration laws and, based upon the results of his empirical research studying the movement of people between cities, he formulated the hypothesis that the volume of migration is indirectly proportionate to the distance that migrating individuals must pass over and directly proportionate to the size of the population of the place of departure and place of destination. Zipf's law is often applied together with Gibrat's law.	

Category		Concept / model / theory	Note	Implementation into the internal migration model and primary link to Flowchart 1.1
		Gravity model (Karemera et al., 2000; Kim and Cohen, 2010 or Akarca and Tansel, 2018)	The basic model records the relationships formed by Zipf's law. Gravity models are relatively widely used in the empirical analysis of migration, primarily due to their relatively good ability to predict.	
FORMULATION OF ECONOMIC MIGRATION MODELS	Macro-economic view	Primary model of migration (Hicks, 1963; Lewis, 1954)	Migration is a phenomenon driven by spatial differences in the yields from the production factor of labor between individual labor markets; salary differences are key factors.	* (B1) (C1) (D)
		Expanded (Todaro's) migration model Todaro (1976)	Probable income on the host labor market is considered before the move itself. Today, variables representing salary and employment differences are considered to be crucial in terms of migration, both for internal and external migration.	
		Lee's model: push and pull (Lee, 1969; Jansen, 1970)	Lee's model provides additional explanatory variables that can influence migration. Push factors force departure from the home economy; on the contrary, pull factors attract migration waves to the host economy. Among other things, this model builds on the idea of intervening opportunities. In addition to salary and employment differences, other explanatory variables enter into the econometric model.	
		Dual labor market theory (Piore, 1979; Gordon, 1995)	Important aspects that are introduced into the analysis of migration are the segmentation of the labor market and the qualifications of the workforce. In advanced economies, the influx of migration is caused by the constant demand for a workforce on the secondary market. A high-skilled workforce is required on the labor market, and work requiring a low-skilled workforce is required on the secondary labor market.	

Category		Concept / model / theory	Note	Implementation into the internal migration model and primary link to Flowchart 1.1
		International trade theory: Heckscher-Ohlin and Stolper-Samuelson theorems (Ethier, 1986; Jones, 1987)	A debate on the theoretical level, a frequent topic of which has been the mobility of the production factor of labor across states' borders in connection with migration.	-
	Micro-economic view	Immigration market (Borjas, 1989)	A key finding for additional theoretical development in the field of migration is the existence of the so-called immigration market. Just like products are bought and sold over borders on international markets, people are also "bought and sold" over borders on the immigration market.	* (B2) (C2)
		Human capital theory (Sjaastad, 1962)	Builds upon the idea of the immigration market and applies findings from the work of Becker (1975), i.e. cost-benefit analysis (CBA).	
ADDITIONAL APPROACHES TO MIGRATION MODELLING	Network approach	Theory of cumulative causation (Myrdal, 1957)	The causal connection is cumulative in the sense that each migration changes the context within which subsequent decisions on migration are made. This leads to additional waves of migration, which implies a protraction of the length of migration time and thus heightens the probability of emigration.	(B) (C)
		New economics theory of migration / Stark's model (Stark and Bloom, 1985; Taylor, 1999; Abreu, 2012)	Decisions on migration made at the level of households (the mezzo level)	(B) (C)
		World-systems theory (Wallerstein, 1974)	Migration is a function of globalization changes, the growing mutual interconnection and dependency of economies, and the creation of new forms of production.	(A)

Category		Concept / model / theory	Note	Implementation into the internal migration model and primary link to Flowchart 1.1
		Network theory of migration (de Haas, 2010; Castle and Miller, 2009)	Important role of personal relationships between migrants and non-migrants; rooted primarily in sociology and anthropology.	(B3) (C3)
		Migration systems theory (Mabogunje 1970)	Migration restructures whole societies both in the host and home country. Migration system theory combines the macro, mezzo and micro levels to explain migration.	(A) (B) (C)
	Secondary market	Ethnic niches (Waldinger, 1999; Model, 1997; Hamilton et al., 2018)	The influx of foreign labor supply is linked to segmentation of the labor market and creation of ethnic niches. An ethnic group is capable of taking control of a certain sector of employment in a way that provides their members with privileged access to newly created jobs, which limits others from taking them.	(B2) (B3)
		Study accentuating gender (Piché, 2013)	The criterion of gender is considered to be a key determinant of migration in connection with the inequality of women's status on the labor market. The study thus focuses on so-called selective migration.	(B1) (C1)

Source: authors' own based on studied literature

Note: (*) Implementation into the internal migration model.

Conclusion

In the field of the theoretical research of migration, one final goal remains, and in the best possible case this goal should be to create one complex theory of migration that would be capable of explaining all aspects of migration (Borjas, 1989). Not all theories of migration (theoretical concepts and migration models) have a solely economic basis. Decomposition into individual problems is typical for studies in the field of migration. Multilevel research of people's movement according to territorial units or a focus on selective migration is also typical (see e.g. Massey, 1993; 1994; Portes, 1999; Vigdor, 2002; Piché, 2013; Hejduková and Kureková, 2016; 2017).

The goal of the study has been to point out problems in reporting migration and to propose a strategy to analyze migration based on the multilevel research of migration while making this strategy applicable to internal migration. As data on migration represent a key input into a vast economic research, such as construction sector (Hromada et al. 2021), labour market and economic performance studies (Čermáková et al. 2019), transportation sector (Lukavec et al. 2017), health sector (Neethu et al. 2021 or Tamas 2021) regional economic performance and policies (Jašová et al. 2017), and many others, motivation of this study was to provide an instrument to record the data on diverse levels of migration.

It is not always easy to determine who a migrant is, and this theoretical indefiniteness causes subsequent problems in the statistical reporting and recording of this phenomenon as such. Furthermore, it is clear that types of migration are not sufficiently differentiated from one another and can therefore overlap. Possible deficiencies in reporting migration have been pointed out using the example of the Czech Republic. Inhabitants of the Czech Republic with Czech citizenship do not have the obligation to declare a change in their residency. This means that statistics on internal migration are underestimated.

Based on studied literature on migration models, a flowchart attempting to capture the complexity of the phenomenon of migration has been created. An effort has been made to record the various levels of migration analysis, the factors that can determine it, and the impacts of migration. The flowchart thus illustrates the relationships not only between the home and host economy, but also the relationships between the individual determinants of migration. Including these factors and relationships can thus give rise to a complex theoretical model of migration or a conceptual framework for studying the determinants, impacts and influences of migration. This flowchart thus offers potential guidance in creating a conceptual framework for studying the factors and impacts of migration.

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References

- Abreu, A. (2012). The new economics of labor migration: Beware of neoclassicals bearing gifts. In *Forum for social economics*, 41(1), 46–67.
- Agunias, D. R., & Newland, K. (2007). *Circular Migration and Development: Trends, Policy Routes, and Ways Forward*. Washington, DC: Migration Information Source, The Migration Policy Institute.
- Akarca, A. T., & Tansel, A. (2018). Analyzing Internal Migration to Antalya and Muğla through Gravity Modelling. *Sosyoekonomi*. 26(37),117–126.

- Bartoš, M. (2011). *Amenitní migrace do venkovských oblastí České republiky*. Kostelec nad Černými lesy: Lesnická práce.
- Borjas, G. J. (1989). Economic Theory and International Migration. *International Migration Review*, 23(3), 457. doi:10.2307/2546424
- Castles S., & Miller, M. J. (2009). *The Age of Migration: International Population Movements in the Modern World*. Basingstoke: Palgrave MacMillan.
- Čermáková, K., Jašová, E. (2019). Analysis of the Negative and Positive Impact of Institutional Factors on Unemployment in Visegrad Countries. *International Journal of Economic Sciences*, Vol. VIII(1), pp. 20-34. , DOI: 10.52950/ES.2019.8.1.002
- ČSÚ. (2013). *Dojízdka do zaměstnání a škol podle Sčítání lidu, domů a bytů – Česká republika – 2011*. Retrieved from <https://www.czso.cz/csu/czso/dojizdka-do-zamestnani-a-skol-podle-scitani-lidu-domu-a-bytu-2011-ceska-republika-2011-6elqhrwol> (01.08.2019)
- ČSÚ. (2018). *Vnitřní stěhování v České republice za období 2005–2017* Retrieved from <https://www.czso.cz/csu/czso/vnitri-stehovani-v-cr> (01.08.2019)
- De Haas, H. (2010). Migration and Development: A Theoretical Perspective. *International Migration Review*, 44(1), 227–264. doi:10.1111/j.1747-7379.2009.00804.x
- De Jong, G. F., & Gardner, R. W. (Eds.). (2013). *Migration decision making: multidisciplinary approaches to microlevel studies in developed and developing countries*. Elsevier.
- Demuth, A. (2000). *Some conceptual thoughts on migration research. Theoretical and methodological issues in migration research*. Aldershot: Ashgate.
- Ethier, W. J. (1986) *International Trade Theory and International Migration*. In: O. Stark (ed.), *Migration Theory, Human Capital and Development*. Greenwich: JAI Press.
- Fairchild, H. P. (1925). *Immigration: a world movement and its American significance*. New York: Macmillan.
- Fiala, T., & Langhamrová, J. (2016). Porovnání vnitřní a zahraniční migrace v jednotlivých krajích ČR v letech 1993–2014. *MIGRACE A DEMOGRAFICKÉ VÝZVY* (31–58). Jindřichův Hradec: Česká demografická společnost.
- Friedmann, J. (1966). *Regional development policy* (Vol. 36). Cambridge, MA: MIT Press.
- Galle, O. R., & Taeuber, K. E. (1966). Metropolitan Migration and Intervening Opportunities. *American Sociological Review*, 31(1), 5. doi:10.2307/2091275
- Geddes, A. (2002). Migrace v rozšířené Evropě. *Konference na Pražském hradě* (stránky 31–49). Praha: British Council.
- Goldlust, J., & Richmond, A. H. (1974). A multivariate model of immigrant adaptation. *International Migration Review*, 8(2), 193–225.
- Gordon, I. (1995). Migration in a segmented labour market. *Transactions of the Institute of British Geographers*, 20(2), 139–155.
- Hamilton, T. G., Easley, J. A., & Dixon, A. R. (2018). Black immigration, occupational niches, and earnings disparities between US-born and foreign-born blacks in the United States. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 4(1), 60–77.
- Harris, J. R., & Todaro, M. P. (1970). Migration, unemployment and development: a two-sector analysis. *The American economic review*, 60(1), 126–142.
- Hejduková, P., & Kureková, L. (2016). The globalized world and migrants: Impacts on healthcare markets. *Globalization and Its Socio-Economic Consequences*, PTS IV, 628–635.
- Hejduková, P., & Kureková, L. (2017). Migration of Nurses: Serious Global Health Problem. In: *Globalization and Its Socio-Economic Consequences*, University Zilina, 644–651.
- Hromada, E.; Vitasek, S.; Holcman, J.; Schneiderova Heralova, R.; Krulicky, T. Residential Construction with a Focus on Evaluation of the Life Cycle of Buildings. *Buildings* 2021, 11, 524. <https://doi.org/10.3390/buildings11110524>

- IOM. (2019). Key Migration Terms. Retrieved from <https://www.iom.int/key-migration-terms> (01.08.2019)
- Jansen, C. J. (1970) Migration: a Sociological Problem. In: Jansen, C. J. (ed.): *Readings in the Sociology of Migration*. Oxford: Pergamon Press.
- Jašová, E., Kadeřábková, B. & Čermáková, K. (2017) Use of the method of the stochastic trend for NAIRU estimation in the Czech Republic and Slovakia at the macro - and meso-levels, *Economic Research-Ekonomska Istraživanja*, 256272, DOI: [10.1080/1331677X.2017.1305782](https://doi.org/10.1080/1331677X.2017.1305782)
- Jones, R.W. (1987). *Heckscher-Ohlin Trade Theory*, *The New Palgrave Dictionary of Economics*. London: Macmillan.
- Kaderabkova, B., Jasova, E., & Holman, R. (2020). Analysis of substitution changes in the Phillips curve in V4 countries over the course of economic cycles. *International Journal of Economic Sciences*, IX(2), 39–54. DOI:10.20472/ES.2020.9.2.003
- Karemera, D., Oguledo, V. I., & Davis, B. (2000). A gravity model analysis of international migration to North America. *Applied Economics*, 32(13), 1745–1755. doi:10.1080/000368400421093
- Kim, K., & Cohen, J. E. (2010). Determinants of international migration flows to and from industrialized countries: A panel data approach beyond gravity. *International Migration Review*, 44(4), 899–932.
- Kok, P. (1999). The definition of migration and its application: Making sense of recent South African census and survey data. *Southern African Journal of Demography*, 7(1), 19–30.
- Krishnan, P., & Odynak, D. (1987). A generalization of Petersen's typology of migration. *International migration (Geneva, Switzerland)*, 25(4), 385–397.
- Lee, E. S. (1969). A Theory of Migration. In: Jackson, J. A. (ed.): *Migration*. London: Cambridge University Press.
- Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *The manchester school*, 22(2), 139–191.
- Lukavec, M. & Kadeřábková, B. (2017). How much does a minute of commuting cost? An examination of property prices in relation to distance to the city center in Prague, CR. *Stavební obzor - Civil Engineering Journal*. 26. 555-567. [10.14311/CEJ.2017.04.0044](https://doi.org/10.14311/CEJ.2017.04.0044).
- Mabogunje, A. L. (1970). Systems approach to a theory of rural-urban migration. *Geographical analysis*, 2(1), 1–18.
- Massey, D. S. (1993). Theories of International Migration: A Review and Appraisal. *Population and Development Review*, 19(3), 431–466
- Massey, D. S. (1994). An Evaluation of International Migration Theory: The North American Case. *Population and Development Review*, 20(4), 699–751.
- Ministerstvo dopravy. (2018). Ročenky dopravy Retrieved from <https://www.sydos.cz/cs/rocenky.htm> (01.08.2019)
- Modell, S. (1997). An occupational tale of two cities: Minorities in London and New York. *Demography*, 34(4), 539–550.
- Myrdal, G. (1957). *Rich Lands and Poor*. New York: Harper and Row.
- Neethu, L., Helan A. P. (2021). The health issues and problems faced by returnees from Gulf countries in Kerala., *International Journal of Economic Sciences*, Vol. X(1), pp. 71-83. , DOI: [10.52950/ES.2021.10.1.005](https://doi.org/10.52950/ES.2021.10.1.005)
- Nekorjak, M. (2009). Klientský systém a ukrajinská pracovní migrace do České republiky. *Sociální studia*, 3(1), 89–109.
- Ouaïmon, U. CH., & Zhang, Y. (2019). Women's participation in the labor market and Economic Development: Evidence from ECCAS and ECOWAS Countries. *International Journal of Economic Sciences*, VIII(1), 94–105. DOI: [10.20472/ES.2019.8.1.007](https://doi.org/10.20472/ES.2019.8.1.007)

- Papademetriou, D. G., & Yale-Loehr, S. (1996). *Balancing Interests: Rethinking US Selection of Skilled Immigrants. International Migration Policy Program 4*. Washington, DC: The Brookings Institution.
- Petersen, W. (1958). A general typology of migration. *American Sociological Review*, 23(3), 256–266.
- Piché, V. (2013). Contemporary Migration Theories as Reflected in their Founding Texts. *Population (English Edition, 2002–)*, 68(1), 141–164.
- Piore, M. J. (1979). *Birds of passage: migrant labor and industrial societies*. Cambridge University Press.
- Portes, A. (1999). Towards a New World—the Origin and Effects of Transnational Activities. *Ethnic and Racial Studies*, 22(2), 465–477.
- Ravenstein, E. G. (1885). The laws of migration. *Journal of the statistical society of London*, 48(2), 167–235.
- Stanimir, A. (2020). Generation Y on labour market – perception of work values and quality of job. *International Journal of Economic Sciences*, IX(1), 202–223. DOI: 10.20472/ES.2020.9.1.011
- Shaw, R. P. (1975): *Migration Theory and Fact; A Review and Bibliography of Current Literature*. Bibliography Series No. 5. Regional Science Research Institute, Philadelphia.
- Shryock, H. S. (2004). *The methods and materials of demography*. D. Swanson, & J. S. Siegel (Eds.). New York: Elsevier Academic Press.
- Sjaastad, L. A. (1962). The costs and returns of human migration. *Journal of political Economy*, 70(5, Part 2), 80–93.
- SOÚ AV ČR, v.v.i., CERGE–EI, FSS MU. (2019). České panelové šetření domácností 1. vlna [datový soubor] [online]. Ver. 4.0. Praha: Český sociálněvědní datový archiv, [01.08.2019]. DOI: 10.14473/CHPS101_4_0
- Standing, G. (1982). *Conceptualising Territorial Mobility in Low-income Countries*. International Labour Office.
- Stark, O., & Bloom, D. E. (1985). The new economics of labor migration. *The American Economic Review*, 75(2), 173–178.
- Stouffer, S. A. (1960). Intervening opportunities and competing migrants. *Journal of regional science*, 2(1), 1–26.
- Taylor, E. J. (1999). The new economics of labour migration and the role of remittances in the migration process. *International migration*, 37(1), 63–88.
- Tamas A. (2021). The macro determinants of the Romanian pharmaceutical imports and exports in 2001-2018 period using the gravity model. *International Journal of Economic Sciences*, Vol. X(1), pp. 128-142. , DOI: 10.52950/ES.2021.10.1.008
- Todaro, M. P. (1976). *Internal Migration in Developing Countries*. Geneva: International Labor Office.
- Vigdor, J. L. (2002). Locations, outcomes, and selective migration. *Review of Economics and Statistics*, 84(4), 751–755.
- Wadycki, W. J. (1975). Stouffer's model of migration: A comparison of interstate and metropolitan flows. *Demography*, 12(1), 121–128.
- Waldinger, R. D. (1999). *Still the promised city?: African-Americans and new immigrants in postindustrial New York*. Harvard University Press.
- Wallerstein, I. (1974). The Rise and Future Demise of the World Capitalist System: Concepts for Comparative Analysis. *Comparative Studies in Society and History*, 16(4), 387–415.
- Wood, C. H. (1982). Equilibrium and historical-structural perspectives on migration. *International Migration Review*, 16(2), 298-319.
- World bank. (2019). *Migration and Remittances*. Retrieved from <https://www.worldbank.org/en/topic/labormarkets/brief/migration-and-remittances> (01.08.2019)

Zipf, G. K. (1949). *Human Behavior and the Principle of Least Effort*. Cambridge, Massachusetts: Addison-Wesley.