INTERNAL MIGRATION

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MAIN FINDINGS

» In 2016, the rate of permanent internal migration reached a 16-year peak. The migration rate was 26‰ between settlements; 13‰ across counties; and 8‰ across regions. The absolute number of migrations was 255,000, 125,000 and 78,000, respectively.

» In 2016, the total migration rate reached its highest value since the change of regime on all spatial scales. The most recent figures indicate that Hungarians change their permanent residence by crossing the boundaries of a settlement at least twice in their lives (2 for men and 2.4 for women).

» Permanent inter-settlement and inter-county migration is clearly influenced by economic tendencies; meanwhile inter-regional migration is fairly stable and less affected by economic cycles.

» Although in this chapter we lay great emphasis on analysing migration by sex, in many ways the differences were insignificant. Only the migration rate of women aged 15–29 differed substantially from that of the same male age group; otherwise there were only minor gender differences.

» In 2016, the average distance of migration movement was 54.6 km for men and almost the same (53.8 km) for women. For both sexes, the distance was largest among those aged 30–44 (58.2 km among men and 56.3 km among women).

» The median distance of migration for men showed a steady increase with age; however, there was no such pattern among women. The median distance for older men (25.1 km) exceeded that of active age groups (23–24 km), and was significantly higher than that of the youngest age group (18.9 km). Differences among women – with the exception of children – were less obvious.

» The majority of internal migrations are of short distance. In 2016, the largest number of migrations occurred within 10–19 km as the crow flies, and over two-thirds were 50 km or less.

» The age profile of migration showed a pattern similar to that presented in international academic literature: there were visible peaks related to childhood, employment and old age, although there was no increase in intensity following retirement.

» Disregarding migration between Budapest and the outlying settlements of Pest County, today – of all the settlement types – only the capital has a positive migration balance; in all other types of settlement, the migration rate is moderately negative.

» An analysis of both the active and the total population shows clearly that the number of counties with migration gain is decreasing continuously, with migration becoming ever more focused. Apart from the capital (and the neighbouring Pest County), only Győr-Moson-Sopron County and Vas County had a positive migration balance in recent years.

» In case of the elderly, the areas of origin and destination differ significantly from those of active individuals. Besides Budapest, a fairly significant migration of older persons is apparent in the counties of eastern Hungary.

» There is a strong correlation between the income level of a settlement and its migration rate. The connection is obvious in the case of younger active individuals (aged 15–44), while results for older individuals (aged at least 60) indicate other motivating factors.

INTRODUCTION

Migration is the recurring phenomenon of people changing their place of residence over varying distances and periods of time. It has a direct effect on population changes, and influences the socio-demographic composition of a given area.

Internal migration involves people changing their place of residence across the boundaries of administrative units, regardless of whether this is permanent or temporary. If permanent, migrants give up their previous place of residence; if temporary, they move to another place while retaining their original place of residence.

In this chapter, we analyse only *permanent internal migration*[G]. This is justifiable, because the reasons for such a change presumably involve long-term decisions (e.g. buying property, establishing a partnership). Unlike *temporary internal migration*[G], the longitudinal data for permanent migration are homogeneous: that is, they have not been affected by administrative changes in the recent past.[1] There is a significant number of unregistered changes of residence in the case of temporary migration, which further complicates the interpretation of trends. With regard to the spatial mobility of a given population, moving house within the administrative boundaries of a settlement is also an important phenomenon; however, as we take a demographic perspective, it is the spatial redistribution of the population and the changing place of residence across the administrative boundaries of settlements that is our main focus.

Following the change of regime in Hungary, the internal rearrangement of the population gradually intensified. This process was primarily enhanced by 'suburbanization' – that is, the move from larger cities to neighbouring settlements or the suburbs

(Szilágyi and Gerse 2015). At the time of regime change, those social classes excluded from the labour market were forced to move from cities to poorer, peripheral places. The migration of individuals who are capable of (and who are old enough to) work is primarily influenced by unemployment and inequalities in the economic development of various areas (HCSO 2012). Migration from underdeveloped regions toward more developed areas is driven by the upturn in the economy (Obádovics and Bruder 2017; Kulcsár and Obádovics 2016).

CHANGES IN PERMANENT INTERNAL MIGRATION OVER TIME

After 1989 – and with only minor fluctuations – the number of *permanent internal migrations*[G] increased significantly in Hungary, peaking in 2007 at 255,221 individuals (Bálint and Gödri 2015). Since 2008, there has been a reversal of this process – so much so that in 2011, the number of internal migrants fell below 200,000.

The volume of migration tracks changes in the economy: it fell significantly following the financial crisis of 2008, and increased afterwards. As part of this process, there was an influx into the cities, and primarily into the capital (Szilágyi and Gerse 2015). By 2016, the number of permanent internal migrations reached 255,000 *(Figure 1)*.

During the previous decade and a half, there were some 10–16,000 more moves among women than among men. After the turn of the millennium, the number of permanent inter-settlement migrations by men ranged from 100,000 to 120,000; it fell to 90,000 following the financial crisis; however, in 2016 it returned to its previous maximum of 120,000. The gender-specific

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[1] On the difficulties of comparing temporary migration over the course of time, see Gödri and Spéder (2009).

trends of the *crude migration rate^G* are practically identical, with no apparent differences in the intensity of migration between the sexes.

Figure 1: *Number of permanent internal migrations, by sex, 2000–2016*

Number of migrants

GDP per capita

■ Man   ■ Woman   ■ GDP per capita
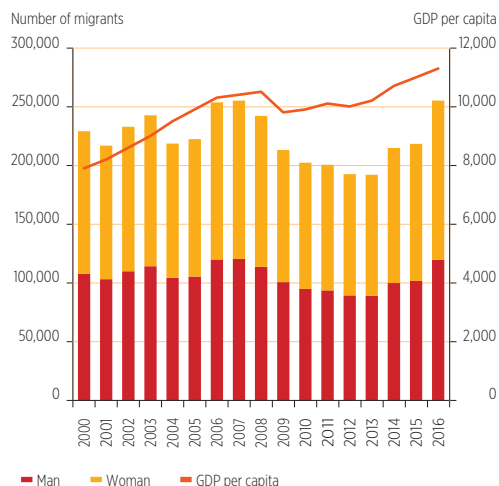
Source: HCSO, migration statistics.

An overview of the longitudinal data on the intensity of internal migration according to the various stages of life reveals that migration intensity among middle-aged and elderly individuals is low and has varied within a very narrow range over the past decade and a half. There are insignificant differences between the migration tendencies of men and women aged over 45, and the migration intensity of men and women aged 30–44 is also similar. Gender-specific differences are only apparent among young adults aged 15–29, where the rate for women is significantly higher than that for men (42.8‰ and 28.7‰, respectively, in 2016). It may be that the higher migration rate among young women is related to the fact that women's partners are usually older, and thus have a more stable position in the labour market; consequently, when two people establish a relationship, it tends to be the woman who moves to where her partner lives. *(Figure 2.)*

Figure 2: *Crude migration rate per 1,000 inhabitants, by age group, 2000–2016*

■ 0–14   ■ 15–29   ■ 30–44   ■ 45–59   ■ 60+
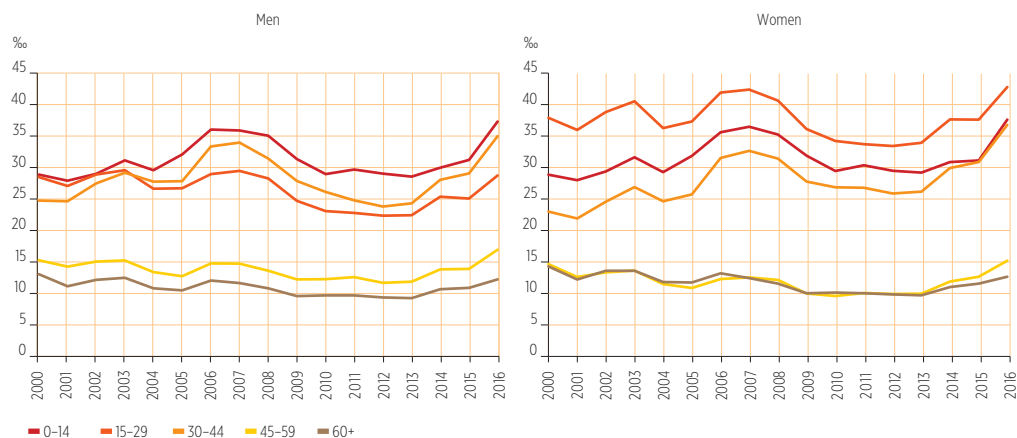
Source: HCSO, migration statistics; authors' calculations.

PATTERNS OF MIGRATION BY AGE

As is shown by extensive observation, as with both fertility and mortality, migration shows very strong age-specific features. Demographers began dealing with the age pattern of internal migration in developed countries almost four decades ago. Despite the fact that the intensity of internal migration varies significantly from country to country, migration age profiles follow a uniform pattern and are scale independent – meaning that there is no variation in the different patterns of migration between regions or other spatial units (settlements). Patterns of migration by age can best be approximated by multiple exponential functions, the components of which can be related to the typical features of migration during a given stage of an individual's life. The first curve – during childhood – reflects the migration intensity of parents. Migration during infancy and early childhood is fairly common, when one's parents are younger and more mobile; it becomes less intense during the teenage years. An increase in migration intensity after childhood is related to leaving the parental home. According to the standard migration age profile, migration intensity peaks in early adulthood, as an individual decides to move for reasons of employment, further study or partnership. With age, factors such as a stable career, the establishment of a household with two breadwinners, the purchase of property and children starting school result in more moderate mobility and fewer spatial movements. Some migration age profiles show a peak at the age of 50–60, as a result of new housing requirements and changes due to retirement. Finally, the peak visible for the oldest age group may be related to elderly people going into institutional care or parents moving closer to their children.

Observations from different countries and using the various spatial scales show that not all components are necessarily present in every migration age pattern; however, almost all age profiles contain the childhood- and the employment-related components, while the retirement- and the old-age-related upward turns are less common. In many regional age-specific migration patterns, the retirement-related rise indicates mainly short-distance migration from the larger cities.

Age-specific migration patterns can be described by considering the migration rate by single age or by age group. Although the decision on the maximum age limit is an arbitrary one, it must always be higher than the modal age of retirement. Migration patterns by age can vary from the standard model, with certain age-specific events (e.g. migration related to education) requiring extension of the model. The age profiles for internal migration are presented in terms of five-year age bands, sex and two spatial scales (namely inter-settlement and inter-regional migration). The analysis of age patterns deals with peaks in migration probability, age-specific characteristics of peak frequency and the shape of the curves *(Figure 3)*.

Taking a non-model-based approach, some conservative observations can be made. All patterns clearly reveal the migration peaks related to childhood, employment and old age, while age-group specific data do not show a retirement-related increase in intensity. Migration between settlements and between regions only varies in intensity, with inter-regional migration being considerably lower, as might be expected. There are no marked differences in gender-specific age profiles. However, the age profiles for different calendar years clearly show that the employment-related peak emerges at an ever later stage in an individual's life: whereas at the beginning of the 1990s, the migration probability for men peaked at the age of 20–24, today it occurs 10 years later.

Figure 3: Internal migration rate, by age group and sex, 1990, 2000, 2016
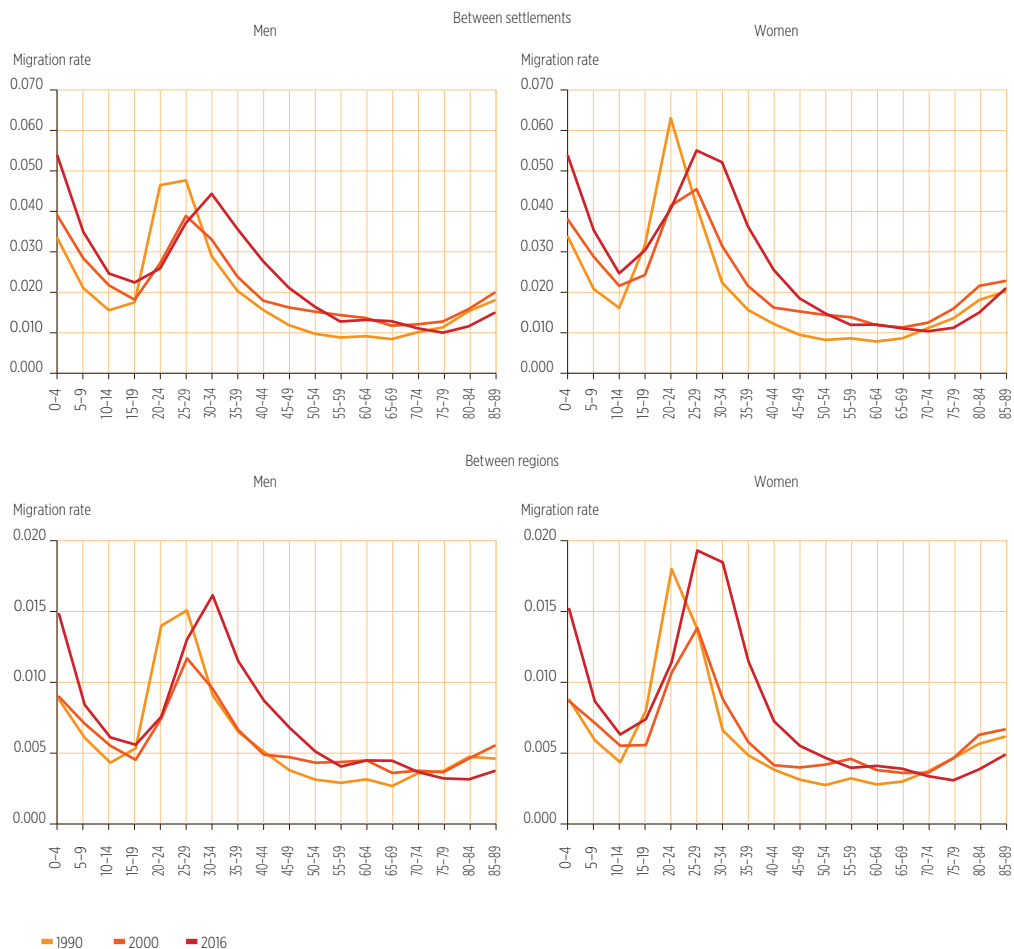
Source: HCSO, migration statistics; authors' calculations.

DISTANCE OF MIGRATION

It was already widely recognized at the end of the nineteenth century that most migrations occur over a short distance, and only a small proportion of migrants choose to move farther. The willingness to move decreases with distance, and there are several possible reasons for this: financial and psychological burdens increase with distance; the number of personal interactions related to the previous place of residence inevitably decreases; support is less available and harder to activate. Unwillingness to relocate is also related to the fact that as the distance increases, so knowledge about the new place of residence becomes scarcer, which leads to uncertainty.

Domestic data sources lack information about the distance between the place of origin and destination. There are several ways to determine distance. One is to consider accessibility by road either in time or in distance. A simpler way is to measure the straight-line distance between the centroids (or the population-weighted centres) of the place of origin and the destination. Distance 'as the crow flies', however, becomes increasingly inaccurate if the two settlements are separated by some kind of physical obstacle. (For example, take two settlements on opposite sides of a river and with no direct connection (bridge): distance as the crow flies is far less than the actual distance by road.) There is no information available on the motivations of migrants: we cannot therefore assume that short-distance migration is related to housing and the environment, while long-distance migration is motivated by different reasons, such as employment, better earning opportunities, further education or partnership.

Most internal migration occurs over a short distance. In 2016, most relocations were within 10–19 km as the crow flies; far fewer were less than 10 km. Over two-thirds of moves did not exceed 50 km. The number of moves declines steeply between 10 and 40 km and moderately thereafter. About a fifth of all migrations exceeded 100 km. There is another apparent decrease in the number of migrations over 200 km – most probably because Budapest and other major cities are generally less than 200 km away *(Figure 4)*.

There are no significant gender differences in relation to the distance of migration. This ties in with our earlier observation (Bálint and Gödri 2015) that, in the case of children (households with children), the migration distance tends to be shorter, with almost three-quarters choosing to move less than 50 km; among other age groups, rather fewer (66–69%) moved less than 50 km.

In this chapter, we present the average and the median distance of migration *(Figures 5 and 6)*. The median distance is the middle value in the ranked order of distances: that is, it is a distance either reached or surpassed by half of all migrants.

In our earlier study (Bálint and Gödri 2015), we found that the average distance varies by age group: it was typically higher among those aged 15–59 and capable of work than among the elderly (over 60) and children (0–14) (moving with their parents). With the exception of the youngest age group, median distance has been steadily narrowing in the different age groups over recent years, with differences essentially disappearing.

In 2016, the average distance *(Figure 5)* for men was 54.6 km and was almost identical for women (53.8 km). The data for the sexes by age group corresponded with previous observations. Migration distance was more significant among those capable of (and old enough to) work. In the case of both sexes, the greatest average distance (58.2 km and 56.3 km, respectively) was observed among individuals aged 30–44. However, the difference between the active age groups and the elderly was very small. Minors moved the shortest average distance. Although, unfortunately, we are unable to determine distances by household structure, we are probably not mistaken if we assume that the short distance in the case of minors is due to different motivations for families with children to move.

In 2016, the median distance by age group *(Figure 6)* showed a steady increase, with the exception of those aged 45–59. The median distance for older men (25.1 km) exceeded that of all other age groups (23–24 km), and was significantly higher than the median distance moved by the youngest age group (18.9 km). In the female population, the difference between age groups was less apparent (except among young girls).

Figure 4: *Number of migrations in relation to distance, by sex and age group, 2016*
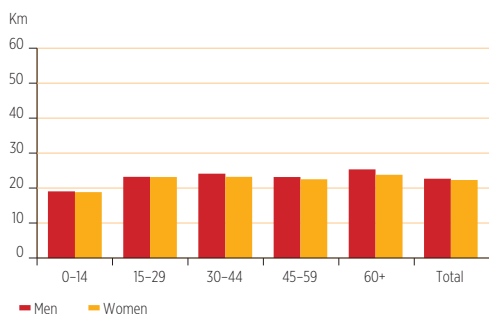
Men

Women

Number of migrations

Number of migrations

■ 0–14   ■ 15–29   ■ 30–44   ■ 45–60   ■ 60+
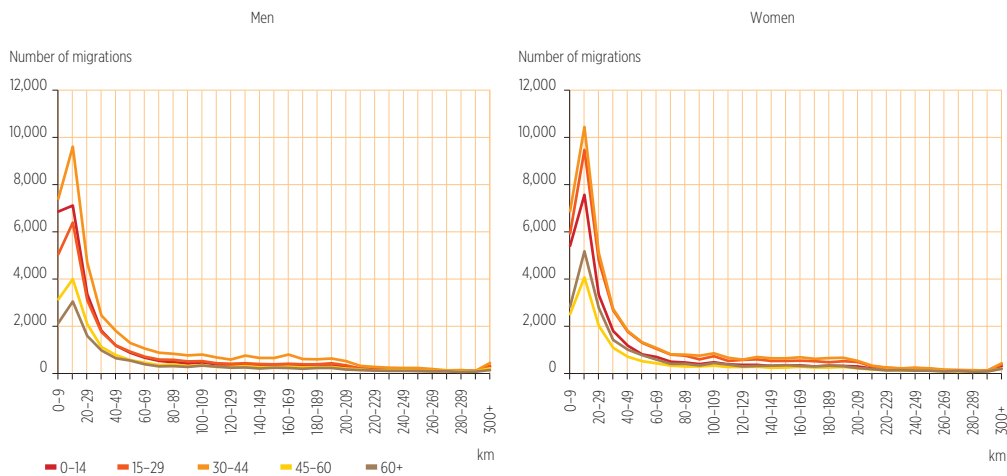
Source: HCSO, migration statistics; authors' calculations.

Figure 5: *Average distance of inter-settlement permanent migration, 2016*
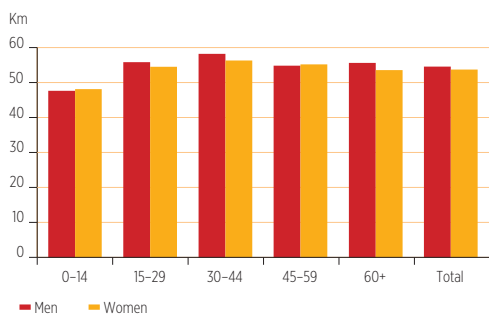
Figure 6: *Median distance of inter-settlement permanent migration, 2016*

■ Men   ■ Women

■ Men   ■ Women

Source: HCSO, migration statistics; authors' calculations.

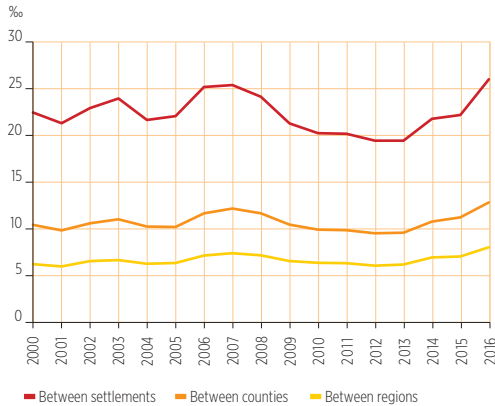*Source:* HCSO, migration statistics; authors' calculations.

PERMANENT INTERNAL MIGRATION ON DIFFERENT SPATIAL SCALES

We saw previously that the frequency of migration decreases with an increase in distance. This significant role of distance is very much apparent in crude migration rates for settlements, counties and regions *(Figure 7)*. The specific indicator for internal migration across the administrative bounda-ries of settlements was at least double the figure for migration across county boundaries and three times the figure for inter-regional migration. These ratios have been stable since 1990. There are no gender differences in this respect, either. Trends in migration rates show similar fluctuation across the various spatial scales, peaking – following a gradual increase since the change of regime – in 2007, decreasing after the financial crisis of 2008, and hitting

an all-time low in 2012. After the recession, the migration rate increased year on year, reaching its highest level for 16 years in 2016, when the migration rate between settlements was 26‰; between counties 13‰; and between regions 8‰.

Figure 7: Number of permanent internal migrations per 1,000 inhabitants, on different spatial scales, 2000–2016

Source: HCSO, migration statistics.

GROSS MIGRAPRODUCTION RATE

Another commonly used indicator of migration intensity is the *gross migraproduction rate*[G]. This indicator expresses the number of potential migrations over the course of one's life, based on the migration rates of different age groups in a given year. The indicator is very sensitive to how age limits are determined. In this chapter, we set migration rates for each single age up to 90, and then treat those over 90 as a combined age group.

The average number of permanent inter-settlement migrations ranged from 1.6 to 2.4 during the period investigated *(Figure 8)*. The indicator for women was 0.2–0.3 higher than that of men. Like the crude migration rate *(Figure 2)*, the gross migraproduction rate reached an all-time high in 2016 (2.2 for men and 2.4 for women).

In the period under consideration, the variation in the average number of inter-county migrations was much smaller. However, the trends are very similar to those of inter-settlement migration. The highest values also occurred in 2016 (1.05 for men and 1.14 for women). Thus the gender difference was less than 0.1.

According to data from registers, only every second member of the population is involved in migration across a regional boundary during his/her lifetime. There has been a moderate increase since 2014, and as a consequence the gross migraproduction rate for both sexes reached 0.7 by 2016; in every other year, it hovered at around 0.5–0.6. Inter-regional migration has been less affected by economic changes.

Figure 8: Gross migraproduction rate on different spatial scales, by sex, 1990–2016
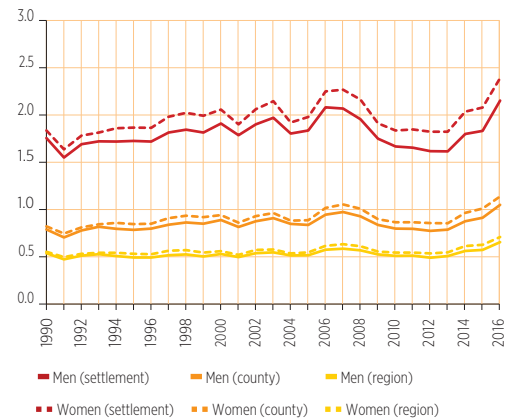
Source: HCSO, migration statistics.

MIGRATION BY SETTLEMENT TYPE

One must take great care when evaluating migration by settlement type. The mobility transition theory usually presents migration in a historical perspective, through the relationship between urban and rural areas.

However, there is no uniform definition of the former. If we consider the definition used by public administration, there would be a fairly radical change in the number and structure of towns. (Between 1990 and 2016, the number of towns increased from 166 to 346; consequently, the population of towns also rose formally, although the rate of urbanization barely changed.)

Taking the traditional approach, which uses categories based on legal status, gives a relatively clear picture. The phenomenon of suburbanization from the 1990s onwards caused significant migration away from the capital and county seats; a slight drift towards other towns; and a higher level of migration into villages with a good location and positive features. After the turn of the millennium, the migration away from Budapest and county seats, and simultaneously the migration into smaller settlements, became more moderate. The data for the period after 2010 are less clear-cut, with a slight drift of men out of county seats and of women out of villages *(Figure 9)*.

It is clearly visible from the data that suburbanization reached its peak at the turn of the millennium *(Figure 9)*. Due to its size, Budapest and the surrounding agglomeration played a major role in this process. Of the 5.91 million permanent migrations that occurred across administrative boundaries between 1990 and 2016, 736,000 (12.4%) were from Budapest to settlements in Pest County. One might query whether (and to what extent) the population gain enjoyed by villages was a result of the drift toward small settlements in the vicinity of the capital during suburbanization. In order to answer this question, we looked at migration by settlement type, disregarding the interactions (movement) between Budapest and Pest County *(Figure 10)*. The legal status of settlements reflects the administrative classification of 2016.

After excluding the (typically) suburbanizing movements between the capital and Pest County, the following observations can be made that are somewhat different from the previous situation. Over the decade or so up to 2016, the capital gained population quite significantly from the Hungarian countryside (with an exception in one or two years). However, the scale of the population movement from Budapest out to the agglomeration was much greater than the numbers arriving in the capital

Figure 9: Crude internal migration rate, by sex and type of settlement, 1990–2016
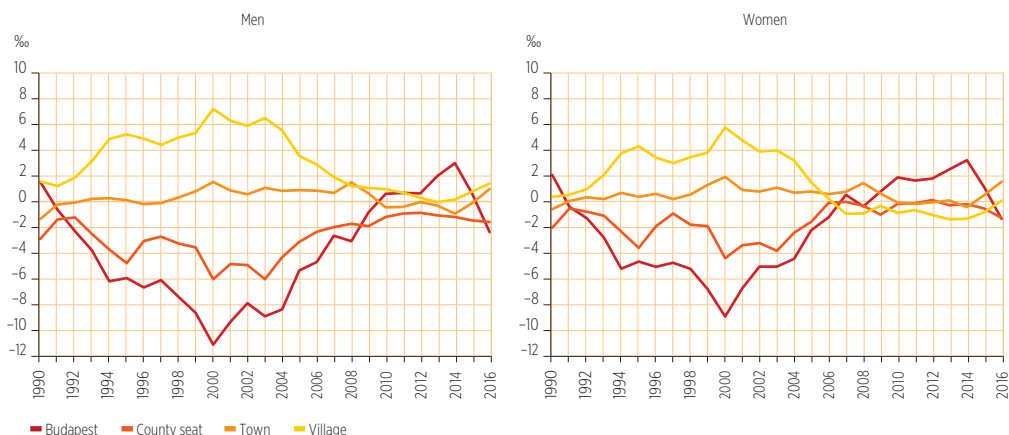
Source: HCSO, migration statistics; authors' calculations.

Figure 10: Crude migration rate by type of settlement (excluding migration between Budapest and Pest County), 1990–2016
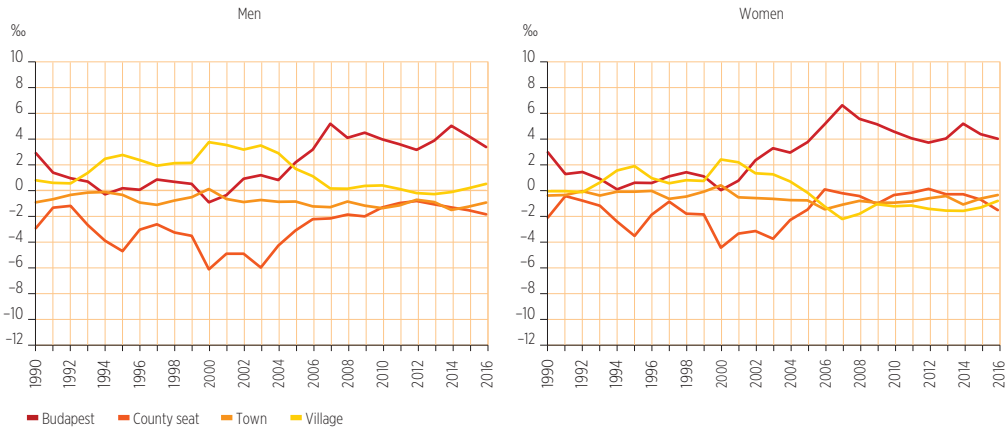
Source: HCSO, migration statistics; authors' calculations.

from elsewhere, which is why there was net migration out of the capital.

Disregarding the movements to and from the green belt surrounding Budapest, we find that – of all the settlement types – only the capital had migration gain; across all other settlement types, the balance was either around zero or moderately negative *(Figure 10)*.

INTENSITY OF MIGRATION AT THE COUNTY LEVEL

The *migration balance^G* is an important indicator of social and economic differences between regions. Migration from less-developed to better-developed regions is not a new phenomenon (Illés 2000).

One of our previous studies (Daróczi and Bálint 2015) revealed that changing place of residence varies by age group. While the movement of those of active age is primarily related to how the labour market functions, there are other motivating factors in the case of older generations. Those retiring or already retired are influenced by many other factors, such as changing expectations with regard to housing and the environment; profit from selling their property; proximity

to institutions (e.g. hospitals) or family members; and relocating to their place of birth. These areas are often not the same as the areas with the best labour force market and earning opportunities.

The maps below showing migration rates in counties cover three periods: the early nineties (1990–1992), after the turn of the millennium (2000–2002) and today (2014–2016). On this occasion, only two fairly broad age bands – young active individuals (15–44) and those over the age of 60 – are indicated by sex *(Figures 11* and *12)*.

Annual changes in migration rates for young active individuals (15–44) across the counties clearly reflect the ever-decreasing opportunities for the rural population. In the early nineties, half of all counties had outward migration. The scale of this drift was most significant in the eastern counties of the country. This is closely related to the crises of the transition. Beside structural causes, it ought to be mentioned that the migration route from the Great Plain towards the capital is historically a traditional one. Only a few counties of Transdanubia (e.g. Komárom-Esztergom and Baranya, as a consequence of the collapsing mining industry) had a negative migration balance.

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Figure 11: Crude migration rate per 1,000 individuals of the population aged 15–44 population, by county, 1990–1992, 2000–2002, 2014–2016

Men

Women

1990–1992
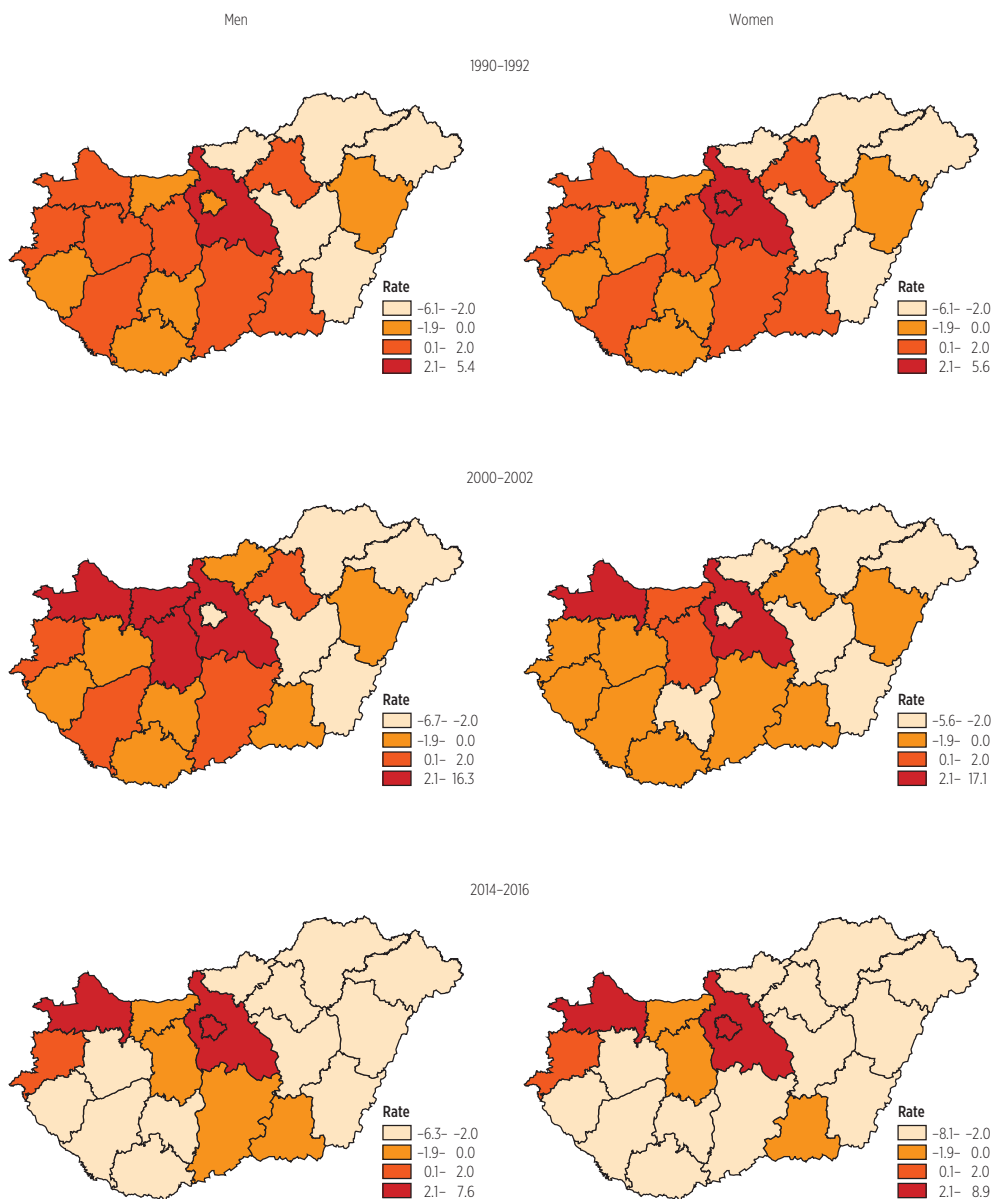
2000–2002

2014–2016

Source: HCSO, migration statistics; authors' calculations.

Figure 12: Crude migration rate per 1,000 individuals of the population aged 60 and over, by county, 1990–1992, 2000–2002, 2014–2016
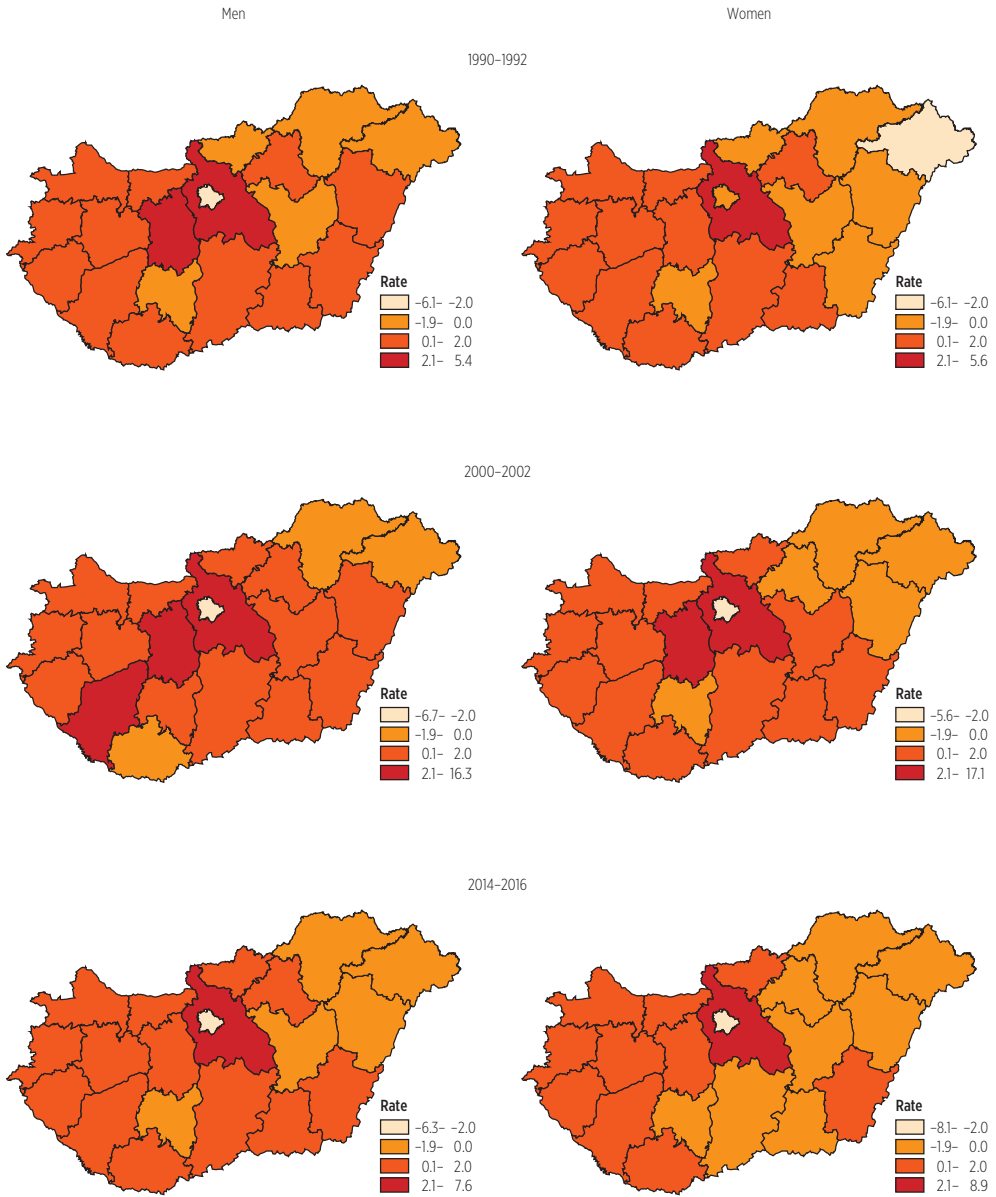
Source: HCSO, migration statistics; authors' calculations.

The second period – from 2000 to 2002 – shows the concentration of counties with a more significant migration gain. These include the most dynamically developing counties with the most favourable financial and employment conditions (with the exception of Budapest, which has a population loss due to suburbanization). Changes during the most recent period reveal a highly focused situation, with an ever more obvious dual structure based on the intensity of migration rates. The migration gain of Budapest, Pest County, Győr-Moson-Sopron County and Vas County stands against the migration loss (of varying degree) that is typical of the rest of the counties.

The volume of migration of the population aged over 60 is not insignificant either, with over 30,000 moves, meaning that a quarter (24.8%) of all internal migration is performed by this age group. The spatial characteristics of the migration intensity of the elderly are relatively stable. The elderly tended to move out of Budapest even back in the early nineties, and they have continued to do so today; regardless of period, Pest County is their preferred destination. Aside from the Budapest agglomeration, the western part of Hungary has a stable positive migration balance, while outward migration from the north-eastern part of the country has also been a constant feature. Since the motivation for migration and return migration is unknown, it may be that – as well as county-scale information – even more detailed data and models are needed, if we are to better understand the phenomenon.

## SPATIAL DISPARITIES IN PERMANENT INTERNAL MIGRATION

The disparity between the regions was not as apparent at the turn of the millennium, when Central and Western Transdanubia were the preferred destinations *(Figure 13)*.

However, in 2002 this changed, when Central Hungary took over as the leading region – a position it has held ever since. During the 16 years up to 2016, Budapest and Pest County had a total migration gain of 135,000. Only Western Transdanubia was able to maintain a stable positive balance throughout the period; the balance for Central Transdanubia fluctuated around zero, apart from in the last two years; while Northern Hungary (58,500) and the Northern Great Plain (64,000) had significant migration loss over the period under consideration. By comparison, the loss suffered by the Southern Great Plain and Southern Transdanubia was more moderate.

In 2016, the most appealing region was Central Hungary (+3.0‰), followed by Western Transdanubia (+1.8‰) and then Central Transdanubia (+1.4‰). The largest outward migration was from the Northern Great Plain (-3.5‰) and Northern Hungary (-3.0‰). The migration rates of Southern Transdanubia and the Southern Great Plain (-1.8‰) also showed population loss.

The four most underdeveloped NUTS 2 regions of Hungary have been so-called 'sending areas' for migrants since the turn of the millennium.

Figure 13: Crude migration rate of regions per 1,000 individuals, 2000–2016

Central Hungary · Central Transdanubia · Western Transdanubia · Southern Transdanubia · Northern Hungary · Northern Great Plain · Southern Great Plain
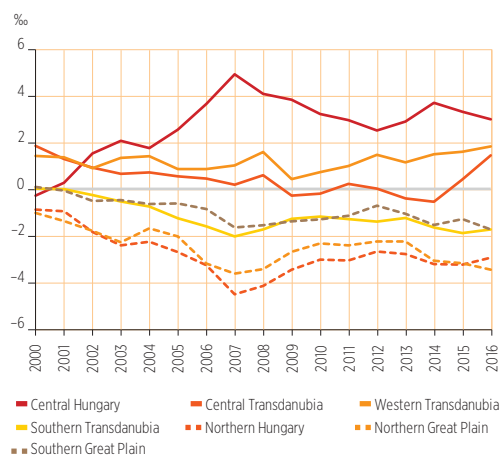
Source: HCSO, migration statistics; authors' calculations.

EFFECTIVENESS OF MIGRATION

One of the most significant effects of internal migration is the spatial redistribution of the population within the country. The commonly used crude or total migration rates indicate the intensity of migration; however, they are not suited to expressing the redistributive effects of migration. This aspect of migration can best be measured using the *migration effectiveness index*[G]. The value of this index ranges from 0% to 100%. If migratory flow within the system is stable – that is, outward movement is coupled with inward movement of similar volume – the index will be low, or even zero in extreme situations. If, however, spatial relations are asymmetrical, spatial units will typically divide into areas of origin and destination and the index will be high. Thus, the index can be interpreted as the proportion of unreciprocated migration. In this section, we present the redistribution of the population by sex and age group between 1990 and 2016 *(Figure 14)*.

Once again, findings by sex carry little important information. Redistribution of the population in the early nineties was moderate in all age groups, with approxi-

mately a tenth of inter-county migration being unreciprocated, and the total number of migration movements standing at 96,000. In the following years, the rate of redistribution increased in all age groups, with the effectiveness of migration – with the exception of active individuals aged 15–44 – exceeding 20%. After the turn of the millennium, the spatial redistribution of the population due to internal migration became more moderate, with an intensive increase among those aged 0–14 and 45–59 in recent years. The most unequal migration is typical of those aged 45–59. However, it must be noted than only 4–7% of all migration can be attributed to this age group, and the high value of the index was almost exclusively caused by migratory relations between Budapest and Pest County.

Although for a long time it seemed as though the movement of young (15–44) active individuals involved in migration was the most stable and showed the smallest spatial inequalities, in recent years this situation seems to have changed. The increasing asymmetry in the spatial redistribution of the economically active population indicates serious demographic and labour market problems.

Figure 14: Effectiveness of inter-regional permanent internal migration, by age group and sex, 1990–2016
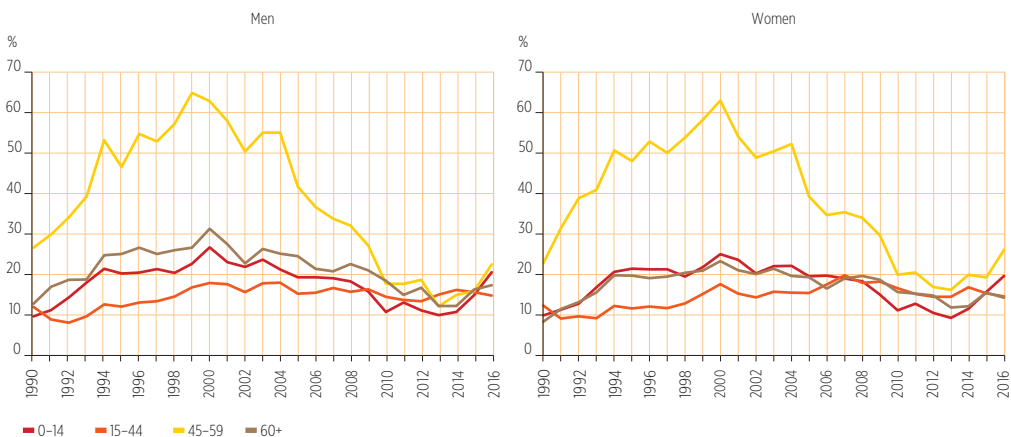
Source: HCSO, migration statistics; authors' calculations.

MOTIVATING FACTORS FOR INTERNAL MIGRATION: ROLE OF INCOME

One of the most important questions of migration regards the nature of motivating factors behind changing the place of residence. Migratory flows can be investigated on the basis of the characteristics of geographical units (settlements, small regions). The main focus of our attention is the relationship between migration and characteristics of destinations (sending and receiving areas). According to conventional economic models, migration is fundamentally motivated by the difference in income level between the current and the chosen region, together with employment opportunities. Higher income and lower unemployment in the target area increase the likelihood of someone migrating. Based on the economic model, migration takes place if potential gains exceed the costs of migration (both monetary and non-monetary costs, cost of relocating, loss of income during relocating, psychological effect of leaving family and friends behind, housing expenses, etc.). Beside traditional economic factors, social and demographic considerations, quality of life, the environment (e.g. public order, social services, environmental quality) and infrastructural factors (e.g. house rental market, public transport) influence the decision to migrate. Earlier relevant studies on the Hungarian situation revealed that income and unemployment also affect internal migration (Fidrmuc 2002; Cseres-Gergely 2005).

In this chapter, we analysed the relationship between migration and income using a very simple method. We examined settlements and ranked the taxpayer population of each according to the amount of personal income tax paid; divided the taxpayer population into five equal groups (quintiles); and finally compared the crude migration balance of each quintile by sex and age group in 2000 and 2016. Analysis by age group helps gain a better understanding of whether income and labour market incentives are general considerations among different groups of migrants. The data were processed on two spatial scales: namely permanent migration between a) settlements and b) counties. With the latter, we tried to disregard suburbanization-type movement. Since most of the migration between Budapest and the settlements of Pest County are typically of that type, we excluded these interactions in our current analysis.

The results are only presented with regard to the entire population, since there was no difference by sex in migratory movement. At the turn of the millennium, internal inter-settlement migration reflected the income hierarchy to a lesser extent. Settlements belonging to the most favourable income category (fifth income quintile) suffered various degrees of migration loss, with only the age group 15–29 experiencing a positive migration rate, presumably because of better income prospects. The significant outward migration from settlements with a high level of income and a large population may be related to the suburbanization taking place at the time. Outward movement from towns means that the population gain of settlements with a lower income level is apparent for almost every income quintile.

Current migratory movement shows a strong relationship with the income level of settlements: the higher the income level, the smaller the migration loss. This is a stable correlation in the age groups 15–29 and 30–44, although there is a positive balance only in the fifth income quintile,

which indicates a more focused migration than in other age groups. Leaving a place of residence with undesirable characteristics is most dominant among those aged 15–44. Therefore, the findings clearly support the claim that income strongly influences the migration of the population aged 15–44.

The relationship between the income level of the place of residence and migration is also apparent among the elderly. However, in their case it is not the favourable or unfavourable nature of the labour market that is decisive, but rather income-related features provided by the settlement (e.g. network of institutions, healthcare infrastructure) *(Table 1)*.

It is commonly recognized that migration is sensitive to spatial scales. The robustness of the results can be tested by analysing the relationship between income and migration at a different level *(Table 2)*.

By observing inter-settlement migration across county boundaries, shorter, primarily suburbanization-type migration can be disregarded. The most striking difference compared to inter-settlement migration is that the relationship between income and migration was already as expected in 2000 *(Table 2)*. The migration balance of settlements with low average income was negative, regardless of age group, while the majority of settlements in the highest income quintile had a migration gain. A closer analysis of migration reveals that the pattern for those aged at least 60 was the least regular. Compared to previous categorization – as a consequence of lower migration intensity – the absolute difference between the quintiles decreased significantly. Our findings suggest that the choice of the spatial scale and the migratory movements considered in the analysis can affect the possible conclusions.

Table 1: *Crude migration rates of inter-settlement migration according to personal income tax base quintiles per taxpayer, by age group, 2000, 2016*

Income tax quintile	0–14	15–29	30–44	45–59	60+	Total
2000						
1.	1.1	–4.8	1.0	3.8	–3.9	–0.8
2.	3.9	–2.1	2.9	6.9	0.7	2.3
3.	5.2	0.0	3.8	6.3	1.9	3.3
4.	6.4	1.4	4.1	5.6	2.6	3.9
5.	–3.1	0.3	–2.0	–3.1	–0.7	–1.6
2016						
1.	–7.8	–11.0	–11.1	–1.5	–7.1	–7.8
2.	–3.5	–8.3	–9.1	–1.4	–2.4	–4.8
3.	–0.7	–4.3	–5.1	1.0	0.9	–1.5
4.	3.6	–1.9	–1.1	1.5	1.8	0.7
5.	0.3	3.6	2.8	–0.4	0.0	1.3

Source: HCSO, T-STAR database; authors' calculations.

Table 2: *Crude migration rates of inter-county migration per 1,000 inhabitants according to personal income tax base quintiles per taxpayer, by age group, 2000, 2016*

Income tax quintile	0–14	15–29	30–44	45–59	60+	Total
2000						
1.	–1.6	–4.8	–3.7	–0.4	–1.2	–2.3
2.	–1.8	–4.5	–4.4	–0.5	–0.1	–2.0
3.	–1.4	–4.0	–4.2	0.1	–0.4	–1.8
4.	0.1	–3.7	–1.9	0.2	0.4	–0.8
5.	0.6	2.9	1.8	0.0	0.0	0.9
2016						
1.	–1.7	–3.3	–3.6	–0.3	–0.7	–1.9
2.	–1.7	–3.7	–4.5	–0.4	0.1	–1.9
3.	–1.5	–3.2	–3.9	0.2	0.0	–1.6
4.	0.4	–2.6	–2.0	0.2	0.5	–0.6
5.	0.6	2.2	1.9	0.0	–0.1	0.9

Source: HCSO, T-STAR database; authors' calculations.

GLOSSARY

Crude migration rate: The number of individuals involved in migration in proportion to the mid-yearly population number per 1,000 inhabitants.

Gross migraproduction rate: Indicates the number of times a person would become a migrant during his/her lifetime if the migration trends of a given year are taken as constant. It is calculated by dividing the number of migrants of a given age by the mid-yearly population of that age, and then adding up these ratios.

Migration balance or net migration: The difference between the number of individuals permanently registered in an administrative unit of a given country and the number of individuals permanently leaving the same administrative unit for another one.

Migration effectiveness index: The ratio of net migration to total migration, including both inward and outward migration.

Permanent internal migration: Changing place of residence within the borders of a country, but across the boundaries of a settlement; in this case the migrant leaves his/her original place of residence and chooses another in a different settlement.

Temporary internal migration: Changing place of residence within the borders of a country, but across the boundaries of a settlement; in this case the migrant keeps his/her original place of residence, but chooses a temporary place of residence.

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