CROSS-BORDER HOUSING MONITOR
Euregio Meuse-Rhine

january 2023

provincie limburg
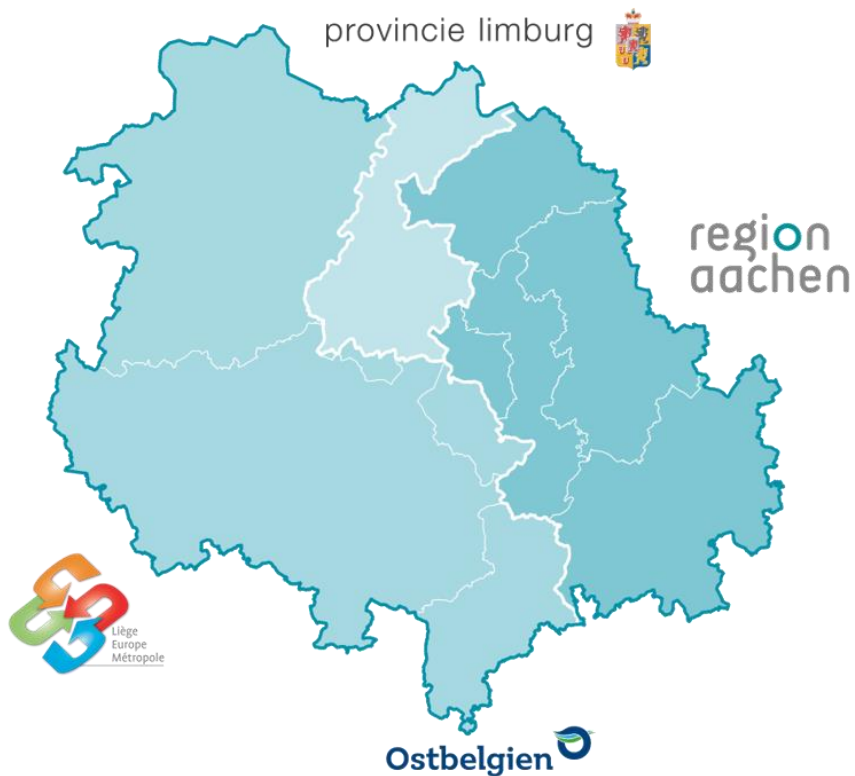
region aachen

Liège Europe Métropole

Ostbelgien

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Datasources Report Housing Monitor EMR:

- Population — Statbel | IT.NRW | CBS
- Households — Statbel | IT.NRW | CBS
- International migration — Statbel | IT.NRW | CBS
- Housing stock — Statbel | IT.NRW | Etil
- Housing ownership — Statbel | IT.NRW | CBS
- Housing type — Statbel | Etil
- Housing market transactions — Statbel | VALUE | Etil
- Housing market purchase price — Statbel | VALUE | Kadaster

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Preface

Living in the EMR border area

The Euregio Meuse-Rhine (EMR) is located in the heart of Europe - at the crossroads of the main economic and educational centers of Germany, Belgium and the Netherlands. For more than forty years, the border regions of the Region Aachen, Ostbelgien, Provincie Limburg (BE), Province de Liège and Provincie Limburg (NL) have been working together as partners in the EMR to break down cross-border barriers, promote cooperation and create a common, borderless living environment.

One of the areas in which these cross-border barriers are still problematic is the housing market. Too little living space, high purchase and rental prices, an outdated housing stock and migration movements of the population – all examples of the existing housing problems in the Euregio Meus-Rhine (EMR).

The Interreg project 'Housing Monitor EMR' has been launched to create a structurally more attractive residential environment in this three-country area. One of the goals of this project is to develop a Housing Monitor that combines demographic trends, developments in the housing market and other aspects closely related to the theme of living in one integrated statistical database, available as online portal with interactive map. Developing such a monitor can increase cross-border transparency and create the possibility to overcome the fact that municipal and national borders still often form a dividing line between the different housing markets.

The four project partners – Region Aachen, Provincie Limburg (NL), Province of Liège and Ostbelgien (the German speaking community of Belgium) – worked together in the scope of this project to identify a set of indicators that ideally should be included in the cross-border Housing Monitor. Although the Belgian province of Limburg is not an official partner in this specific project, data for this region is included in the monitor. With a developing team consisting of a technical (GeoDok) and an analytic (Etil) partner, the various challenges in such a multi-regional project have been faced with a flexible approach. The result of this collaboration is available as an online portal via www.housing-emr.eu.

In this report Etil describes the most important findings of the included indicators and challenges in the development of the cross-border Housing Monitor. Data is analyzed and reported on a regional level, while sometimes zooming in into the municipality level.

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Summary

Up until now it proved difficult to gather and combine data about the housing market for the EMR, as different data sources, definitions and availability play a role. With this project a geographical online portal is developed where relevant cross-border housing market information is available in one place, free of charge and up to date for municipalities in the EMR region. This portal focuses on indicators that describe the demand (population and households) and supply side (housing market), as well as including information about the surroundings of the living environment. The focus of this report is the EMR and her different regions. Therefore those indicators that are comparable between the regions are highlighted and analyzed in this report.

Data availability

An important part of the project was to include as many indicators as possible in the online portal. Relevant indicators are determined by the project partners in the first phase of the project. For many of these indicators it turned out to be impossible to include a complete cross-border overview, because of various types of data gaps that were found while gathering the data. Despite the harmonization issues, as many indicators as possible are integrated in the portal. This decision broadened the scope of the project from purely a monitoring portal into a portal that can be used as growth-model, giving insight in the interregional harmonization problems and data gaps.

The following types of data gaps have been encountered during the process:

- No recent data or no comparable reference year is available between the regions.
- Data is available for all regions, but definitions and/or classifications differ, making it hard to harmonize and thus compare the data.
- Data is not available on a common scale level.
- Data is just not available in a region.
- A combination of these data gaps.

In total, 17 out of a total of 57 indicators (30%) data is unambiguously available for all EMR regions. In the other 40 indicators (70%) one or more data gaps exist. Visualization of these data gaps should motivate the different regions to fill those gaps and complement the portal in the following years.

Despite the different data gaps that are encountered, the monitor gives insight in various core themes such as population, households, international migration, housing and the housing market.

Population

A little bit more than 4 million people are living in the total EMR region. Most inhabitants live in the Region Aachen (1,276,451), followed by Liège (1,032,385), Limburg (BE) (885,951), Limburg (NL) (729,548) and Ostbelgien (78,604). The most densely populated region is the Dutch province of Limburg with 742 inhabitants/km², compared to 371 inhabitants/km² in the total EMR region. Two obvious population developments are seen in the last ten years. A large population increase in 2015 is the result of the refugee crisis followed by a decrease in population due to the outbreak of the COVID-19 virus in 2020 due to more deaths and increased travel restrictions.

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Forecast are determined using different prognosis models, based on different decision rules for the different regions. It is therefore difficult to compare forecasting data between the regions. In terms of population forecasts in 2030, models show a slight growth of population in the region of Liège with 0.17%, in the Region Aachen with 0.13% and a growth of 0.04% in Limburg (BE). Models predict a population decrease in the Dutch province of Limburg with -0.08%.

Households

As household numbers for the Region Aachen are only available for the year 2011, these are not included in this summary. In the last ten years households developed on average with 0.5% per year in the EMR (excluding Region Aachen). Development is highest in Limburg (NL) with an annual average of 0.9%. The region of Liège shows the lowest annual household increase with 0.3%.

In three out of four EMR regions it is predicted that the number of households will have increased by 2030. Only in the Dutch province of Limburg the predicted amount of households will decrease by 0.1%. Again, for these forecasts is has to be taken into account that different regions use different prognosis models, making it difficult to actually compare this data.

International migration

On average the population in the total EMR region increased with 12,622 people per year in the last ten years due to international migration movements. On average this equals 0.32% of population in the EMR. Immigration in the EMR region shows a peak development in 2015 with a balance of 23,764 migrants, which can be directly related to the ongoing refugee crisis at that time. A large part of this influx can be subscribed to the welcoming immigration policy Germany adapted during this crisis, leading to a migration balance of 14,538 persons.

Housing

A total of 1,912,142 independent housing units exist in the total EMR region on January 1, 2022. Since 2015 the housing stock has grown on average with 13,047 housing units per year in the EMR, resulting in an average relative development of +0.7% per year. On average, this is more than the household development (0.5%). However, as household development is not available for Region Aachen, comparing household and housing developments is difficult.

Housing total in the region Ostbelgien increased with 8.5% in the period 2015-2022, making it the region with the highest increase. The Dutch province of Limburg shows the lowest relative development, with a total development of +1.9% in 2015-2022.

Information about housing ownership is only available in 2011 for the Belgian and German regions. In the Dutch region data is available since 2012, making it hard to compare data between the regions. However, when comparing the years 2011 (Belgium/Germany) with 2012 (the Netherlands) it can be seen that 59% of houses in the EMR region are owner-occupied, 40% is a rental house and 1% is defined to be in the category 'Other', including ownership unknown, unregistered units or holiday homes.

Analyzing the different housing types for EMR regions shows a high relative development of apartments since 2015. In the region Ostbelgien this is even 50%. The lowest relative development is found in Limburg (NL) with an increase of 7%.

Housing market

There were 35,892 registered transactions in 2021 in the Belgian and Dutch part of the EMR region. The average number of transactions in the years 2014-2021 is 34,963, meaning in 2021 more houses are sold than on average in the last eight years.

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Data about purchase prices is not comparable between the different regions as different definitions are used in each region. In the Belgian regions the median transaction price is collected. In Limburg (NL) the mean transaction price is available. In Region Aachen the mean demand purchase price is used, based on only the online offer of houses for sale. Due to these different definitions, information about purchase prices is shown separately for each region on a district level. In the last ten years, prices increased ranging from 27% to 34% in Belgian districts. In the Dutch district prices increased with 59% (Midden-Limburg) and 60% (Zuid-Limburg). In Region Aachen prices increased most extensively with increase ranging from 65% to 100% in the different districts.

Recommendations

By studying the where and why of data gaps, a complementary vision can be formed to further enrich the cross-border housing monitor with all the valuable insights of this project. The online portal developed in this context should act as a growth-model to inspire and stimulate regions to come to mutual and uniform understandings and complement the existing data gaps where possible. Prioritizing indicators by type of data gap and indicator is important so the portal can be enriched with valuable information in a structured manner. Active communication with end-users stays important, also after completing the developing phase, to ensure continuation and structural use of the Housing Monitor EMR in the future.

1 Introduction

Up until now it proved difficult and time consuming to gather and combine data about the housing market for the EMR regions, as different data sources, definitions and availability play a role. The primary goal of this project is to create an integrated statistical database filled with indicators about the housing market, available as an online portal for (housing market) professionals in the EMR region. Here, relevant cross-border housing market information is available in one place, free of charge and up to date. To develop such a portal it is important to obtain insight in the data availability of indicators that need to be included in the portal. The second goal is therefore to create an overview of the desired indicators and their availability.

Data gathering and harmonization has been an important step in the developing process of this integral portal. The project partners decided to include various indicators divided into two primary themes, based on the demand and supply side of the housing market. On the demand side many indicators about population, households and forecast are integrated into the portal. On the supply side different indicators about the housing stock and housing market are taken into account.

The EMR housing monitor is based on existing freely available data. Gathering data for the specified indicators, from various sources, for three countries and five regions and dealing with different definitions turned out to be a big challenge in this project. It is outside the scope of this project to provide unambiguous, comparable data for all the included indicators and all regions, due to time and budgetary limitations. It is important for the continuation of this project to start an interregional discussion about the way data is collected, based on the derived experience in the developing phase of this project. The developed portal should be seen as a starting point for this discussion by exposing the existing data gaps. Insight in the background of these data gaps can result in more harmonized data collection between the regions, filling the data gaps step-by-step, while using the monitor as a growth-model.

In the next chapter of this report the data and data availability will be discussed. This will include a detailed overview of the indicators per theme, as well as the data availability per indicator. Different sorts of data gaps will be explained, together with examples as found in the indicator set used for the cross-border housing monitor.

In the remaining chapters the main conclusions regarding some core indicators are presented and discussed. Per main theme (Population, Households, Housing, Housing market) core indicators are chosen that are mostly comparable between the regions. The structure of these chapters will be roughly the same for each indicator. First a regional comparison between the five included regions is shown (Region Aachen, province of Limburg (NL), province of Liège, province of Limburg (BE), Ostbelgien). In addition to the regional comparison, information is also benchmarked between the different districts within the five regions. For certain indicators, also the top-5 and bottom-5 municipalities will be highlighted. For the province of Limburg (NL) only those municipalities that are actually part of the EMR region are included in the analysis. In the analysis of the different indicators it is sometimes decided to exclude a certain region from the analysis, if information is not completely available. In these cases the element of cross-border comparison has more priority than showing incomparable data for the separate regions. For an extensive overview of the included regions, districts and municipalities, see appendix 8.1.1. In appendix 8.12 also a metadata file is included, giving more insight in the availability, data source and definitions of the indicators taken into consideration for this project.

This report is concluded with a reflection, together with some recommendations for the future.

2 Data availability

An important part of the project was to include as many predetermined indicators as possible in the portal. For many of these indicators it was not possible to include a complete cross-border overview, because of various types of data gaps that were found while gathering the data. Despite these harmonization issues, as many indicators as possible are integrated in the portal. This decision broadened the scope of the project from purely a monitoring portal into a portal that can be used a growth-model, giving insight in the interregional potential, harmonization problems and data gaps. As a growth-model the portal can stimulate the regions to question the way their data is collected and to find improvements for cross-border comparisons.

A data gap means that data is not unambiguously available between the EMR regions due to different issues. The types of data gaps are divided into five categories.

- **Years**
  No recent years are available or only data at a certain moment in time is available. It can also occur that different years are available between the regions, which makes comparison impossible. For some indicators only data in one specific year is available (e.g. households in Region Aachen in 2011), while other regions have more up-to-date data.
- **Harmonization**
  Data is available between the regions. However, definitions and/or classifications used between the sources differ, which makes it impossible to harmonize and thus compare the indicator. For example, social spending includes different types of social spending between the regions, making it difficult to interpret and compare numbers between the regions.
- **Scale level**
  Data is not in all sources available on a municipality level, but only at a higher scale level, such as district, EMR region or even at a country level. For example, for population and household forecast, data is only available on a district level for the Region Aachen.
- **Not available**
  Data is simply not available for one or some of the regions, making a complete cross-border comparison impossible.
- **Combination of data gaps**
  For some indicators a combination of multiple data gaps exists.

Figure 2.1 shows an overview of which data gap exists for which indicator. Figure 2.2 summarizes this information by showing the distribution of data gaps. For 17 out of a total of 57 indicators (30%) data is unambiguously available for all EMR regions. In the other 40 indicators (70%) one or more data gaps exist, making it difficult to execute a complete cross-border comparison for these indicators. Table 2.1 shows the occurrence of the different types of data gaps per indicator theme. This table shows that there is especially a lot to gain within the housing theme, as only 15% of indicators is completely available in this theme.

Although data is not unambiguously available for all indicators, 33 of 57 indicators will be implemented in the portal. Selection of indicators to include in the monitor is based on the level of comparability between the regions, (unforeseen) technical implementation issues and the amount of manual work involved. For indicators that are not included in the portal, reasons for exclusion are explained in Table 2.2.

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Categorization of datagaps per indicator

Legend: All data available · DG: years · DG: scale level · DG: harmonization · DG: combination · DG: not available
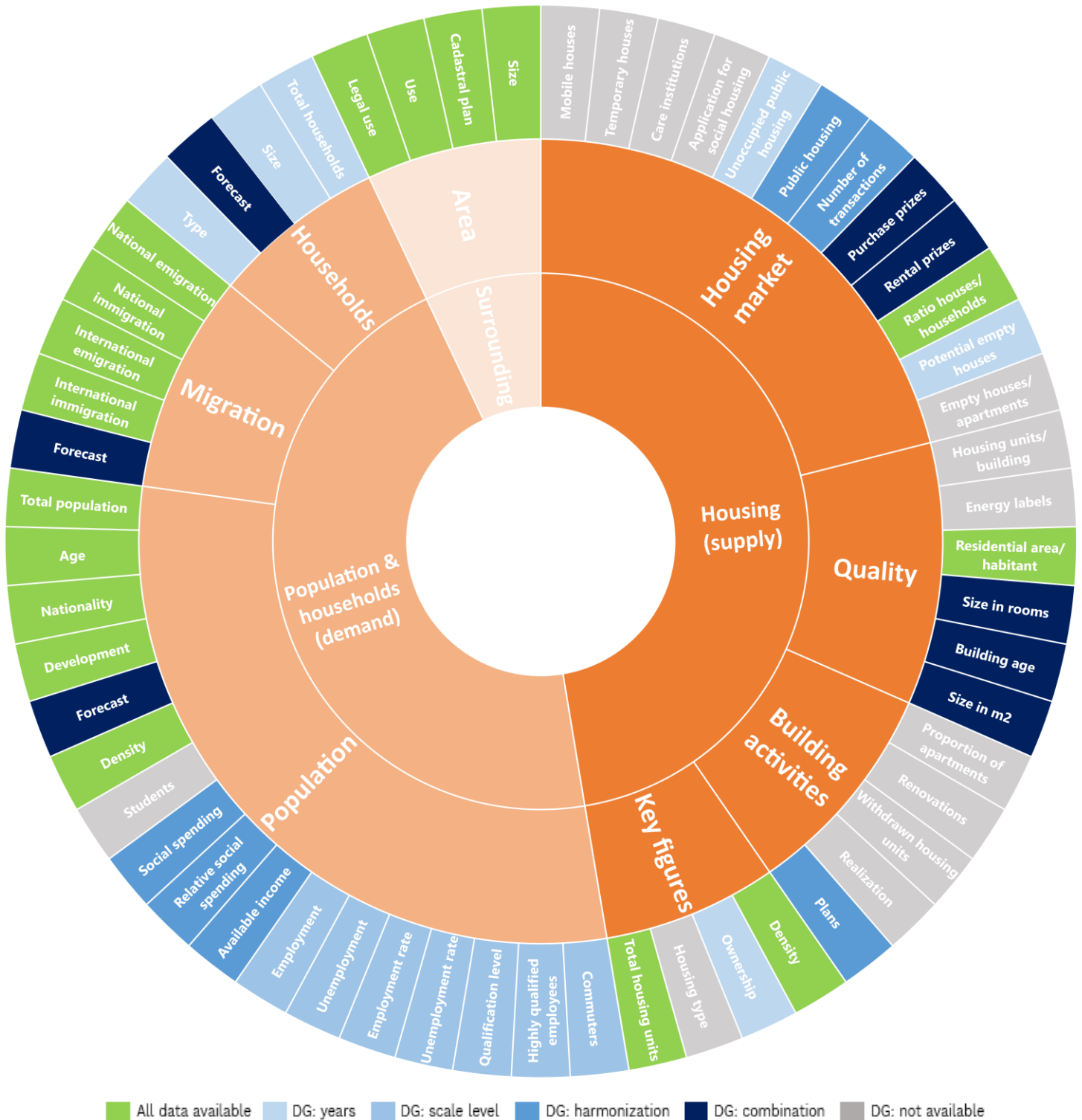
Figure 2.1: Visualization of the occurrence of data gaps (DG) for the different indicators per theme (Population & Households, Housing and Surrounding) and subtheme, indicated in the two inner circles of the diagram. In the outer ring the colors per indicator correspond to a type of data gap further described in this chapter.

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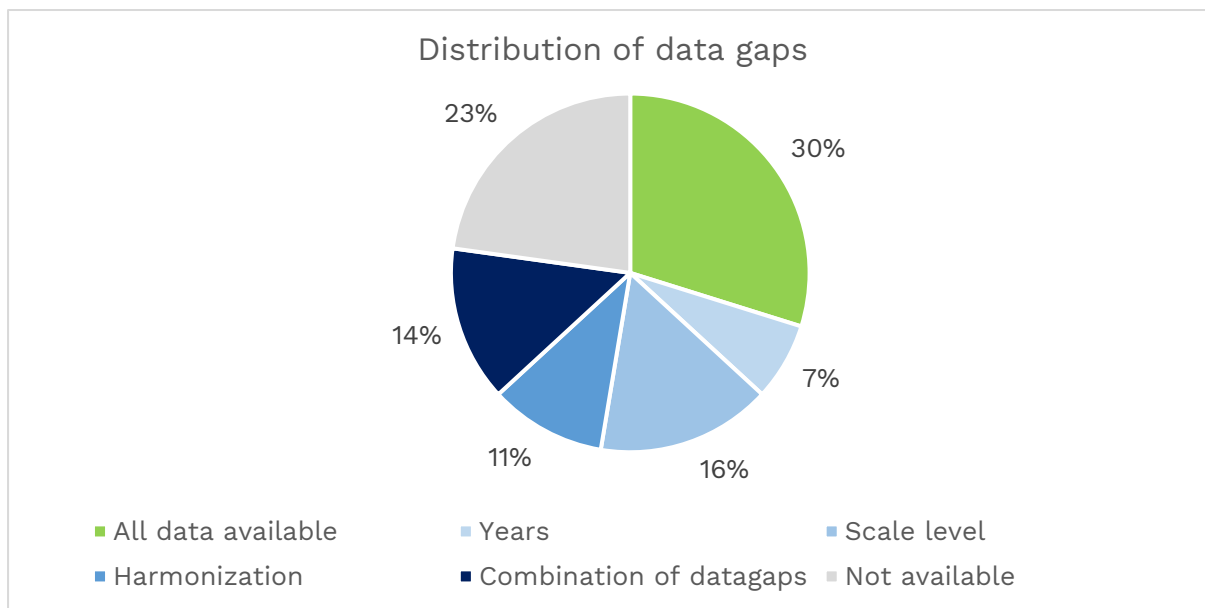
Figure 2.2: Distribution of types of data gaps.

Table 2.1: Overview of the occurrence of the different types of data gaps per theme.

Theme	Data gap	Occurrence	Occurence (in %)
Housing (supply)	All data available	4	15%
	Data gap: years	1	4%
	Data gap: harmonization	3	11%
	Data gap: scale level	2	7%
	Data gap: not available	12	44%
	Data gap: combination	5	19%
	Total	**27**	**100%**
Population & households (demand)	All data available	9	35%
	Data gap: years	3	12%
	Data gap: harmonization	3	12%
	Data gap: scale level	7	27%
	Data gap: not available	1	4%
	Data gap: combination	3	12%
	Total	**26**	**100%**
Surrounding	All data available	4	100%
	Total	**4**	**100%**
Total		**57**	

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Table 2.2: Overview of reasons for exclusion for the 25 indicators that are not implemented in the online portal.

Theme	Indicator	Reason for exclusion
Population	Students	Not available in all regions. Much manual work involved for importing, editing and updating.
	Social spending	Definitions different for all regions. Not comparable. Much manual work involved for importing, editing and updating.
	Social spending (%)	Definitions different for all regions. Not comparable. Much manual work involved for importing, editing and updating.
Housing	Size in m²	Categorization different for all regions. Not comparable.
	Size in rooms	Many different data gaps. Region Aachen and Belgian regions only available in 2011. In Belgian and Dutch regions only on district level. In Dutch regions only 3-year intervals.
	Withdrawn housing units	Not available in Belgium. Definition unclear for Region Aachen. Much manual work involved for importing, editing and updating.
	Renovations	Not available in Region Aachen and Provincie Limburg (NL). Much manual work involved for importing, editing and updating.
	Proportion of apartments	Not available for Region Aachen and Provincie Limburg (BE). Definitions differ between available regions. Much manual work involved for importing, editing and updating.
	Housing units per building	Not available for Liège, Ostbelgien and Provincie Limburg (NL). In Region Aachen only available in 2011. Categorizations differ between available regions.
	Empty houses	Definitions differ between regions. Not comparable. Not available in the Belgian regions.
	Potential empty apartments	Due to definition differences in households forecasts and housing stock, mismatch exists leading to negative outcomes. Including this indicator will lead to wrong conclusions.
	Ratio houses/ households	Due to definition differences in households and housing stock, mismatch exists leading to negative outcomes. Including this indicator will lead to wrong conclusions.
	Energy labels	Not available for Region Aachen and Provincie Limburg (BE). Data for Liège and Ostbelgien is outdated (2018). Much manual work involved for importing, editing and updating.
	Interest rates	Only available on a country level. Manual work involved for importing, editing and updating.
	Public housing	Definitions different for all regions. Not comparable. Much manual work involved for importing, editing and updating.
	Unoccupied public housing	Definitions different for all regions. Not comparable. In Region Aachen only available on a district level. Much manual work involved for importing, editing and updating.
	Application for social housing	Definitions different for all regions. Not comparable. Not available for Provincie Limburg (NL). Much manual work involved for importing, editing and updating.
	Care institutions	Only available in Provincie Limburg (NL).
	Temporary houses	Only available in Provincie Limburg (NL).
	Mobile houses	Only available in Provincie Limburg (NL).
Labour market	Qualification level	Not available for the Belgian regions. Definitions differ between Region Aachen and Provincie Limburg.
	Highly qualified employees	Not available for the Belgian regions. Definitions differ between Region Aachen and Provincie Limburg.
Area	Cadastral plan	Different data types between the regions. Much manual work involved for importing, editing and updating.
	Legal assignment	Different data types between the regions. Much manual work involved for importing, editing and updating.

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3 Population & households

EMR region

To get more insight in the demand side of the housing market, various population indicators are taken into account. In this chapter the core indicators of the population & households theme are highlighted. Included data describes the development in 2021 and the situation on 1/1/2022.

In this chapter the following indicators will be represented:

- **Population**
  The population is determined through multi-year intervals, using results of natural population movements and of migration statistics. Live births and immigrants are added to the population, while deaths and emigrants are subtracted from the population.

- **Population development**
  Development is calculated from absolute population numbers as the development with respect to the previous year in both absolute and relative (%) numbers.

- **Population density**
  Density is calculated by dividing the population of each year by the area (km²) of the latest available year (1/1/2022).

- **Population forecast**
  The forecast per region is determined using different forecasting models, based on different decision rules.

- **Households total**
  For this indicator the private households are taken into account, therefore disregarding collective (or institutional) households.

- **Households development**
  Development is calculated from absolute population numbers as relative development according to the previous year.

- **Households forecast**
  The forecast per region is determined using different forecasting models, based on different decision rules.

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3.1 Population

3.1.1   Main characteristics

To obtain more insight into the demand side of the EMR region first several population characteristics are described.

Table 3.1 shows the total population and absolute and relative average development in the last 10 years per district in the different EMR regions. The total EMR region has a population of 4,002,939 inhabitants. The largest EMR region is Region Aachen (1,276,451), followed closely by the district of Liège (1,032,385). The Dutch and Belgian provinces of Limburg have a population of respectively 885,951 and 729,548 inhabitants. The smallest EMR region is the region Ostbelgien with a total population of 78,604.

For the total EMR region population developed with an average of 0.2% in the last ten years. Only the Dutch district of Zuid-Limburg shows a negative average development in the past ten years. The largest relative development can be seen in the arrondissement Waremme, which showed an average growth of 0.7% in the last ten years.

Table 3.1: Population characteristics per district in the EMR regions. Population on 1/1/2022 and the absolute and relative annual development averages are shown.

EMR region	District	Population (1/1/2022)	Development (10 years annnual avg)	Development % (10 years annual avg)
Ostbelgien	Bezirk Verviers	78,604	248	0.3%
	Total	**78,604**	**248**	**0.3%**
Limburg (BE)	Arr. Hasselt	424,190	1,995	0.5%
	Arr. Maaseik	254,645	918	0.4%
	Arr. Tongeren	207,116	742	0.4%
	Total	**885,951**	**3,655**	**0.4%**
Limburg (NL)	Midden-Limburg	135,501	198	0.1%
	Zuid-Limburg	594,047	-1,317	-0.2%
	Total	**729,548**	**-1,118**	**-0.2%**
Liège	Arr. Huy	114,942	521	0.5%
	Arr. Liège	624,524	1,178	0.2%
	Arr. Waremme	83,012	575	0.7%
	Arr. Verviers	209,907	237	0.1%
	Total	**1,032,385**	**2,511**	**0.2%**
Region Aachen	Düren	266,771	825	0.3%
	Euskirchen	194,701	690	0.4%
	Heinsberg	258,306	1,015	0.4%
	StädteRegion Aachen	556,673	1,515	0.3%
	Total	**1,276,451**	**4,044**	**0.3%**
Total		**4,002,939**	**9,340**	**0.2%**

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3.1.2 Population density

Figure 3.1 shows the density of the entire EMR region relative to the separate EMR regions. The total EMR region has a population density of 371 inhabitants per km². Per square kilometer twice as many inhabitants live in the Dutch province of Limburg compared to the total EMR region, defining it the most densely populated region of the EMR. The region Ostbelgien (or Deutschsprachige Gemeinschaft (DG)) has the least amount of inhabitants per square km (93 per km²), making it the most sparsely populated area in the EMR region.
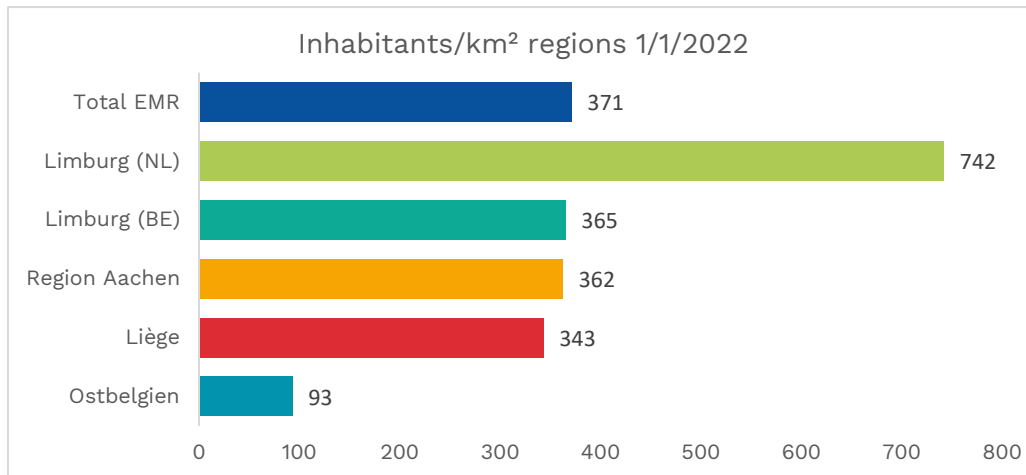
Figure 3.1: Population density in amount of inhabitants per km² for the EMR region as a whole, as well as the different regions.

Figure 3.2 describes the population density in more detail per district. Especially Zuid-Limburg, one of two districts in Limburg (NL), shows a high density with 899 inhabitants/km². The two most densely populated districts next to Zuid-Limburg are StädteRegion Aachen (787 inhabitants/km²) and the Arrondissement of Liège (785 inhabitants/km²), both regions with a large urban area.
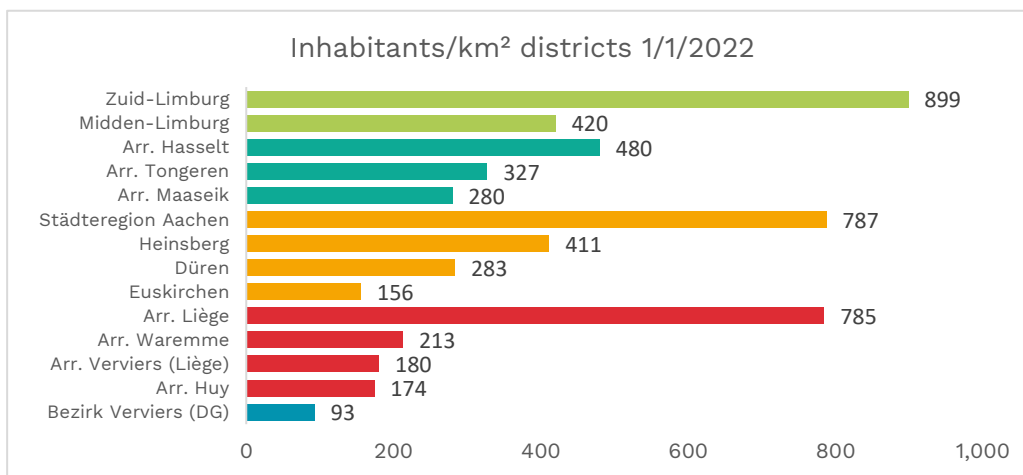

Figure 3.2: Population density in amount of inhabitants per km² for the districts of the different EMR regions.

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Table 3.2 shows that three out of the top-5 most dense municipalities are located in Zuid-Limburg (Kerkrade, Maastricht, and Heerlen), underlining the fact that Zuid-Limburg is a densely populated district. **Fout! Ongeldige bladwijzerverwijzing.** also shows that the two most densely populated, as well as the least densely populated municipalities are located in the arrondissement of Liège. This indicates that this region includes a mix of urban and rural areas.

Table 3.2: Top-5 and bottom-5 municipalities in terms of population density on 1/1/2022

EMR regio	District	Municipality	Density (inhabitants / km²)
Top-5			
Liège	Arr. Liège	Saint-Nicolas (Liège)	3,529
Liège	Arr. Liège	Liège	2,845
Limburg (NL)	Zuid-Limburg	Kerkrade	2,046
Limburg (NL)	Zuid-Limburg	Maastricht	2,015
Limburg (NL)	Zuid-Limburg	Heerlen	1,907
Bottom-5			
Liège	Arr. Verviers	Stoumont	29
Ostbelgien	Bezirk Verviers	Burg-Reuland	36
Ostbelgien	Bezirk Verviers	Bullange	36
Liège	Arr. Verviers	Trois-Ponts	37
Liège	Arr. Verviers	Lierneux	39

Besides the top-5 and bottom-5 municipalities in terms of population density, also a complete overview of population density in the EMR region is shown in Figure 3.3. This figure visualizes population density on 1/1/2022 per municipality on the map. Municipalities are numbered on the map. The municipality corresponding to a specific number can be found in appendix 8.1.1. Urban areas stand out on the map as here the highest amount of inhabitants per km² can be found. The more rural areas in the south of the EMR region are least densely populated.

The largest urban areas that can be disclosed from Figure 3.3 are the areas around the cities of Liège (nr. 80), Aachen (158), Heerlen (136) and Maastricht (142). Especially in the region around Heerlen and Aachen, a lot of municipalities are densely populated.

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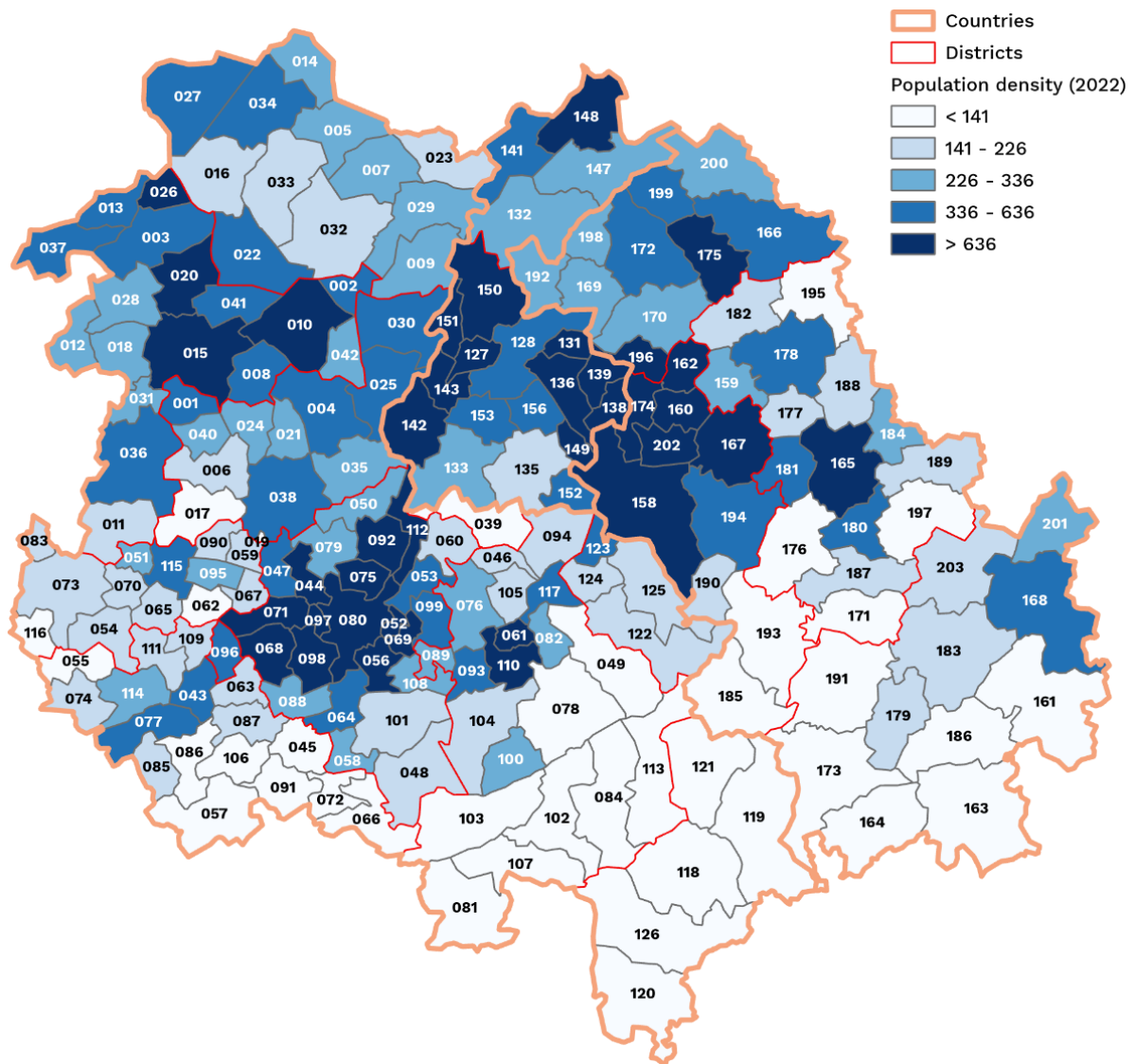
Figure 3.3: Population density on 1/1/2022 per municipality visualized on a map. Borders per district are given in red, borders per EMR country in orange. Total number of housing units are divided into categories according to quantiles. Numbers in the map correspond to municipalities as shown in appendix 8.1.1.

3.1.3 Population development

Analyzing the population development in the last 10 years for the total EMR region, two obvious developments are visible in Figure 3.4. A large increase of the population shows in 2015, which can be explained by the ongoing refugee crisis at that moment. This crisis partly led to the increase of the EMR population with 22,159 inhabitants, more than double the amount in the previous year (+9,718 in 2014).

The second obvious development shows in 2020, where the lowest population increase in the last ten years can be seen. The population in the EMR only increased with 1.709 inhabitants this year. In the beginning of 2020 the world was hit by the first wave of the COVID-19 pandemic[1], resulting in a higher number of deaths and less migration movements. In 2021 the development of the population increases again.

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[1] Zibaseresht, "How to respond to the ongoing pandemic outbreak of the coronavirus disease (COVID-19)", *EJBPS* Jun 1 2020, Vol 7 Issue 6

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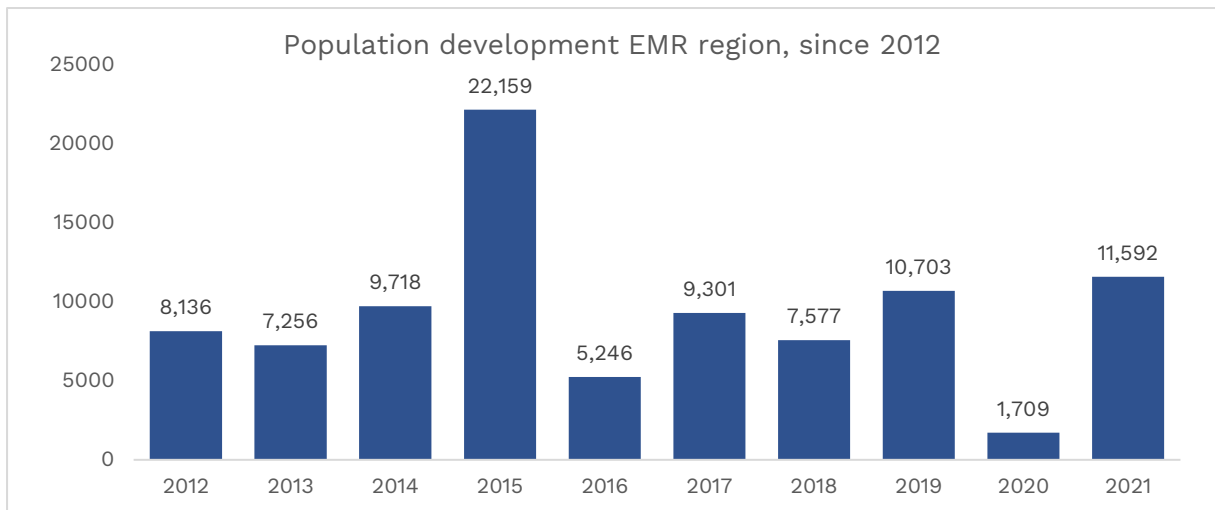
Figure 3.4: Population development in the total EMR region, since 2012

Figure 3.5 and Figure 3.6 show the population development per region in the EMR in respectively absolute and relative numbers. The two obvious developments seen in Figure 3.4 are also shown in the regional analysis (Figure 3.5 and Figure 3.6). The large increase in population in 2015 for the total EMR region is mainly due to a population development of +16,240 inhabitants (+1.3%) in the Region Aachen in the same year. A direct relation can be seen with international migration numbers in chapter 4 (Figure 4.1). After the large increase in 2015, a negative population development can be seen in 2016 in Region Aachen, which is partly explained by a low international migration balance in 2016, visible in Figure 4.3.

As already seen in Table 3.1, the Dutch province of Limburg is the only region that shows a population decrease for most years, with an average decrease of +0.2% in 10 years. Even in the year 2015, when population numbers increased extremely in the EMR region, population in Limburg (NL) decreased with 1,199 inhabitants (-0.2%). The other regions do show an increase of the population in 2015, however not as high as in the Region Aachen.

As seen in Figure 3.4 population development reached a low point in 2020. Also the regional analysis shows this phenomenon. Population development shows a dip in all regions in the year 2020, which is especially visible when comparing relative numbers. This effect is the lowest in the Belgian province of Limburg. The decrease of the population development can probably be explained by the outbreak of the COVID-19 virus, which resulted in an increase of deaths and a decrease of migration movements.
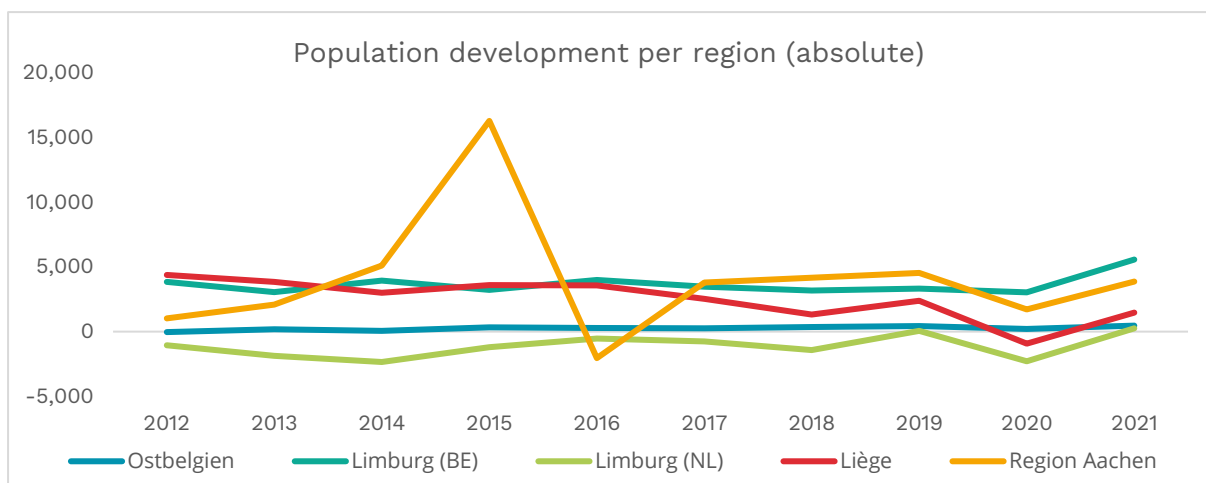
Figure 3.5: Population development since 2012 in absolute numbers. Development is computed relative to previous year.
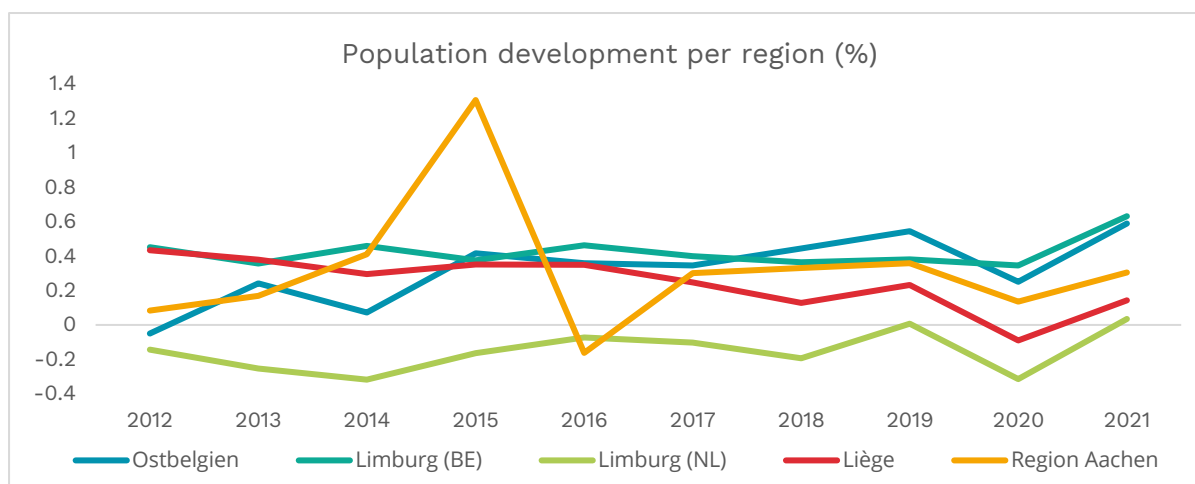
Figure 3.6: Relative population development since 2012 in percentages relative to the previous year.

3.1.4 Population forecast

Population forecasts are determined using different prognosis models, based on different decision rules for the different regions. This has to be taken into account when evaluating the comparisons made in this chapter. Population forecasts until 2030 are taken into account. For this indicator, separate data for the region Ostbelgien is not available, but is included in the province of Liège.

Table 3.3 gives an overview of the total population numbers and the relative development for the separate EMR regions, comparing the years 2023-2030. The relative development for each year is calculated taking 2023 as base year. For one region, the Dutch province of Limburg, a negative population development is predicted of respectively 0.08% in the year 2030. With an increase of 0.17% the province of Liège shows the highest population increase until 2030. For Region Aachen it is predicted that the population will have increased with 0.13% by the year 2030.

Table 3.3: Population forecast. Both predicted population in specific year as well as relative development respective to base year 2023 are shown.

EMR region	Year	Population	Relative development (%)
Limburg (NL)	2023	732,100	
	2025	733,900	0.07%
	2030	732,500	-0.08%
Limburg (BE)	2023	890,588	
	2025	889,073	-0.09%
	2030	892,960	0.04%
Liège	2023	1,119,821	
	2025	1,119,744	-0.01%
	2030	1,129,390	0.17%
Region Aachen	2023	1,027,091	
	2025	1,030,459	0.16%
	2030	1,037,799	0.13%

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These findings are also visualized in Figure 3.7. This figure shows clearly that the regions use different prognosis models, as forecasts follow different trends. These findings emphasize the fact that comparing forecasts between the regions is difficult.
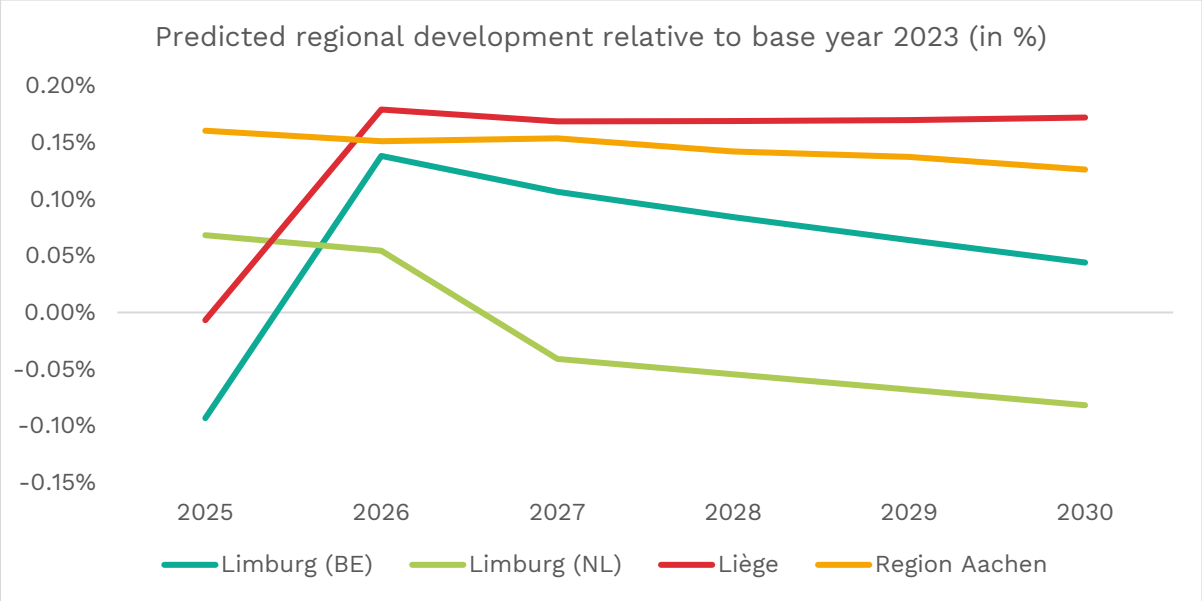
Figure 3.7: Predicted regional development. Development is computed as relative development with respect to base year 2023.

The relative development per district for the period 2023-2030 is shown in Figure 3.8. Arrondissement Waremme and arrondissement Huy show a clearly higher predicted increase of the population compared to the other districts with respectively an increase of 4.9% and 3.3%. In contrary, the arrondissement of Maaseik shows a large predicted negative population development of -1.7%.
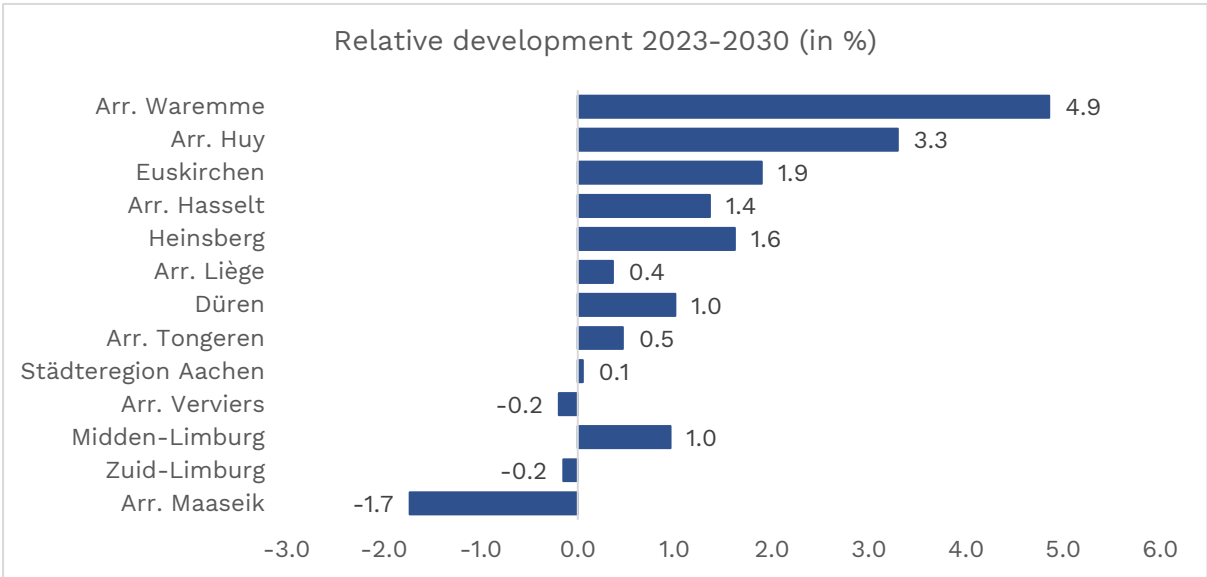
Figure 3.8: Predicted relative development per district for the years 2023-2030.

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3.2 Households

3.2.1 Main characteristics

It has to be noted that this part of the chapter only includes information about private households. Collective or institutional households are thus disregarded. Household data for the Region Aachen is available in different sources. Data for 2011 is available from the 2011 EU Census. Data for more recent years is available from annual micro census researches. This data shows very large inexplicable annual fluctuations that extremely affect the household numbers in the EMR region. Therefore, in this report only household data for 2011 for the Region Aachen is included.

Table 3.4 describes the main characteristics of private households for each EMR region, except the region of Aachen. Excluding the Region Aachen, 1,293,316 private households exist in the EMR region on 1/1/2022. In all regions the number of households has increased in the years 2012-2022, with the highest increase in Ostbelgien (0.7%) and Limburg (BE) (0.9%). It is remarkable to see that, on average population the numbers decreased during this period in the Dutch province of Limburg (-0.2%), while the amount of households increased with 0.4%, meaning a decrease in the number of inhabitants per household has occurred in the last years.

Table 3.4: Private household numbers for 1/1/2022 and average absolute and relative development for the years 2012-2022.

| EMR region	District	Households (1/1/2022)	Development (10 years av.)	Development (%) (10 years av.)
Ostbelgien	Bezirk Verviers	34,839	239	0.7%
	Total	**34,839**	**239**	**0.7%**
Limburg (BE)	Arr. Hasselt	181,150	1,643	1.0%
	Arr. Maaseik	107,075	1,006	1.0%
	Arr. Tongeren	87,965	711	0.8%
	Total	**376,190**	**3,360**	**0.9%**
Limburg (NL)	Midden-Limburg	63,313	377	0.6%
	Zuid-Limburg	300,155	961	0.3%
	Total	**363,468**	**1,338**	**0.4%**
Liège	Arr. Huy	49,675	371	0.8%
	Arr. Liège	288,104	399	0.1%
	Arr. Waremme	35,321	351	1.1%
	Arr. Verviers	91,719	327	0.4%
	Total	**464,819**	**1,448**	**0.3%**
Region Aachen	Düren			
	Euskirchen			
	Heinsberg	NA		
	StädteRegion Aachen			
	Total			
Total (excluding Region Aachen)		**1,239,316**	**6,384**	**0.5%**

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Household numbers for 2011 are compared in Figure 3.9, where it can be seen that highest number of households corresponds to regions where population numbers are also highest (Region Aachen, province of Liège).
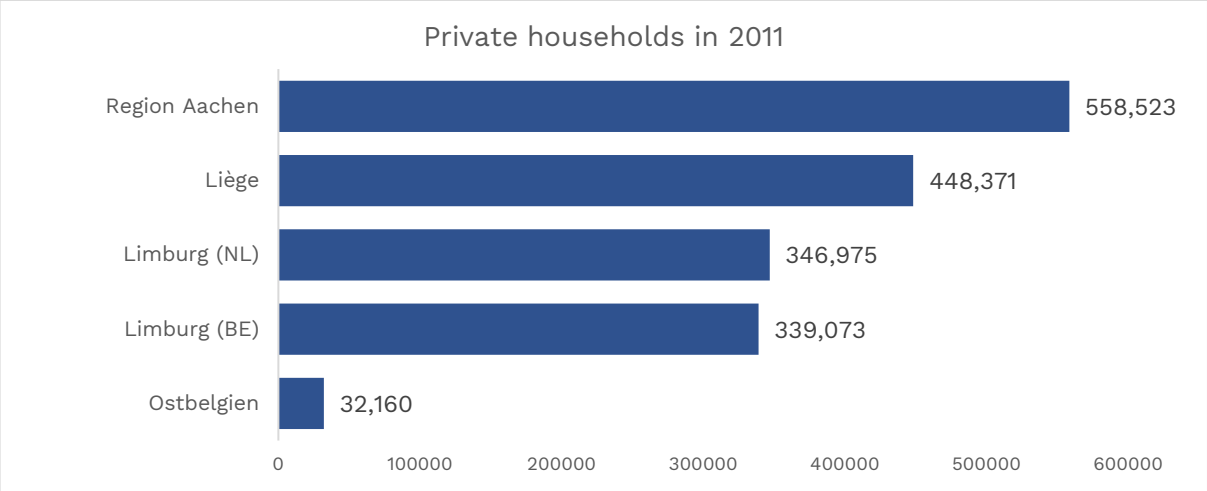
Figure 3.9: Number of private households between the different EMR regions in 2011.

Figure 3.10 shows the relation between the population and the amount of households in 2011 for all the regions. The average amount of persons per household is highest in the Belgian province of Limburg (2.5 persons per household) and lowest in the Dutch province of Limburg with 2.1 persons per household.
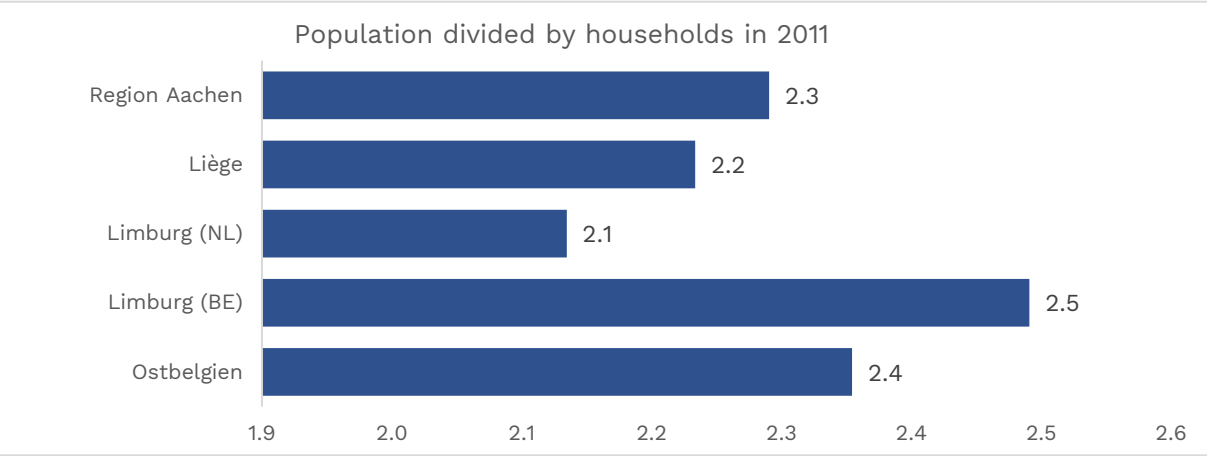
Figure 3.10: Population divided by the amount of households for the year 2011, different EMR regions.

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3.2.2 Households development

As for the region of Aachen accurate data is only available for 2011, it was not possible to determine the household development for this region. In this paragraph, development numbers only include the regions Limburg (BE), Ostbelgien, Liège and Limburg (NL).

Figure 3.11 shows the total development of private households in these four regions. Development fluctuates throughout the last ten years with maximum developments in 2016 and 2021, of respectively 8,114 and 8,958 inhabitants. As seen in Figure 3.5 and Figure 3.6, regional developments can have a large influence on the aggregated numbers.
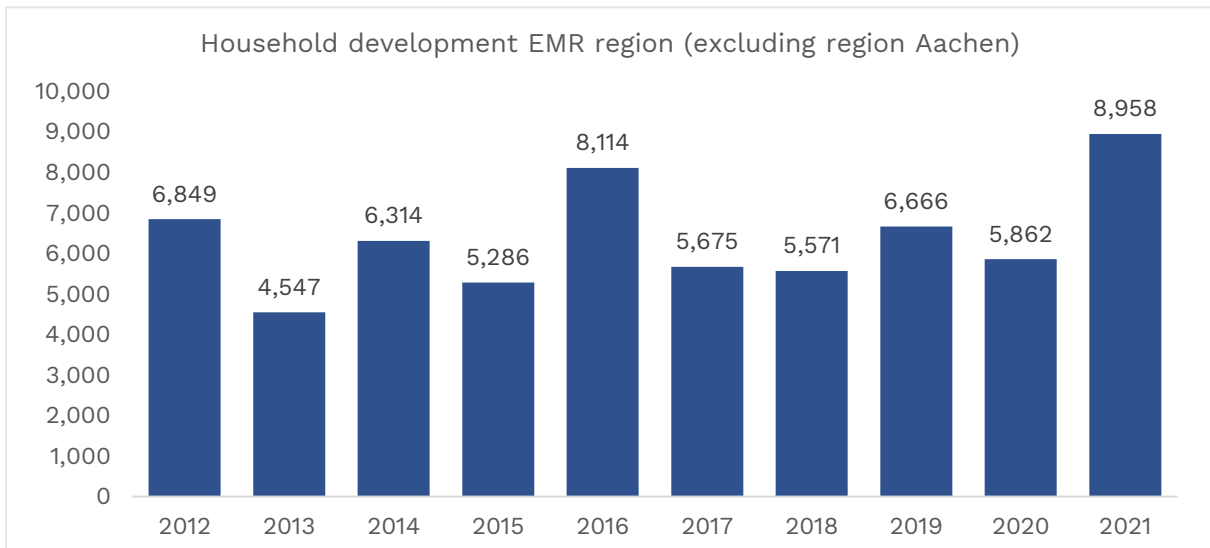
Figure 3.11: Development of private households in the EMR region in absolute numbers. Region Aachen is excluded as no data is available for the last ten years.

The household development (in %) relative to the previous year per region is visualized in Figure 3.12. Also the regional developments show quite some fluctuation. Especially, Limburg (NL) shows a lot of fluctuation in development of households, ranging from peak developments above 0.7% of total population (2012, 2016, 2021) to a negative development in 2020. Development of Liège is relatively steady with a minimum development of 0.3% and a maximum of 0.5% of the total population.
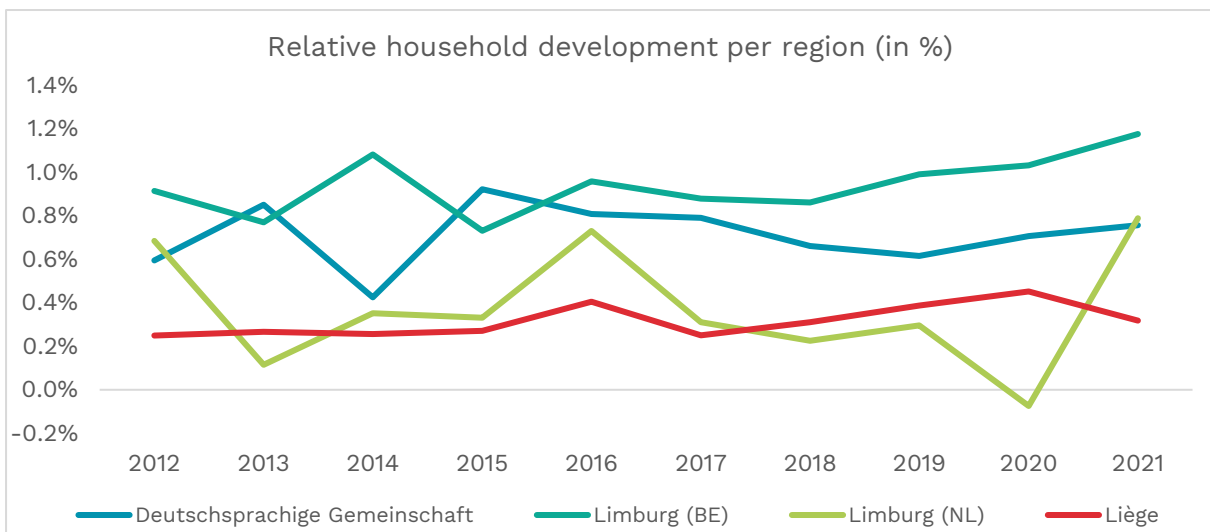
Figure 3.12: Household development (in %) relative to previous year.

Figure 3.13 describes the relative household development to base year 2012 in the years 2013–2022. With an increase of 9.8%, the Belgian province of Limburg shows strongest the strongest increase in the last ten years. Households in the region Ostbelgien have increased with 7.4% since 2012. For Limburg (NL) and the region of Liège the relative development in the last ten years is nearly the same, with respectively an increase of 3.8% and 3.2%.
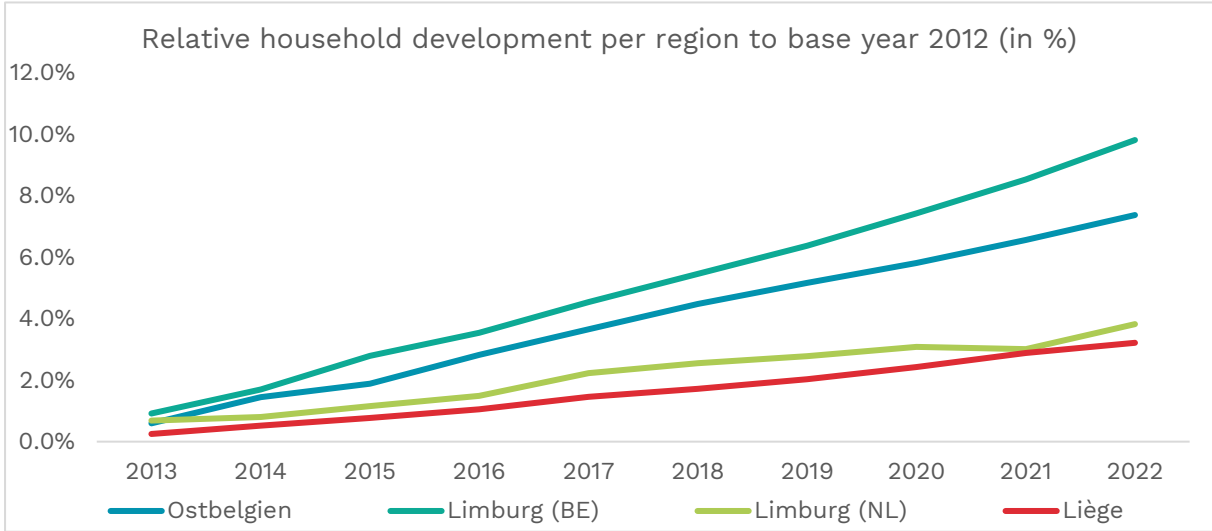
Figure 3.13: Relative household development per region to base year 2012 (in %). Data for region Aachen is not available.

3.2.3 Households forecast

Household forecasts are determined using different prognosis models, based on different decision rules for the different regions. This has to be taken into account when evaluating the comparisons made in this chapter. Household forecasts until 2030 are taken into account. For this indicator, separate data for the region Ostbelgien is not available, but is included in the province of Liège. For the Dutch and Belgian regions the amount of households on 1/1/2021 is taken as base for the forecast. For the Region Aachen this is the household situation on 1/1/2017.

Table 3.5 gives an overview of the total household numbers and the relative development for the separate EMR regions, comparing the years from 2020 to 2030. In addition, the ratio of the predicted population and the predicted amount of households is determined. The relative development for each year is calculated taking 2020 as base year.

For the Dutch province of Limburg, a decrease of households in the year 2030 is predicted (-0.1%). Limburg (BE) shows the highest relative increase in 2030 with 5.7%. The region of Liège also shows a large increase of 4.6%. Region Aachen shows a smaller growth of 1.6%. The ratio between predicted population and households in 2030 remains equal to 2025 in all the regions.

Table 3.5: Households forecast. Predicted amount of households in specific year as well as relative development respective to base year 2020 are shown. The ratio of predicted population and household numbers is also shown.

EMR region	Year	Households	Relative development (%)	Population / households
Limburg (NL)	2020	360,891		
	2025	361,816	0.3%	2.0
	2030	360,533	-0.1%	2.0
Limburg (BE)	2020	368,013		
	2025	380,714	3.5%	2.3
	2030	388,828	5.7%	2.3
Liège	2020	495,592		
	2025	507,382	2.4%	2.2
	2030	518,193	4.6%	2.2
Region Aachen	2020	640,100		
	2025	647,300	1.1%	1.6
	2030	650,600	1.6%	1.6

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Findings from Table 3.5 are also visualized in Figure 3.14. As data is only available for five year intervals in the Region Aachen, only development for 2025 and 2030 relative to base year 2020 is shown in the figure. The figure shows clearly that each country shows its own predication curvature, which can be explained by the fact that each country uses different methods and decision rules for their prediction models. It is therefore difficult to analyze the comparisons for the household forecasts.
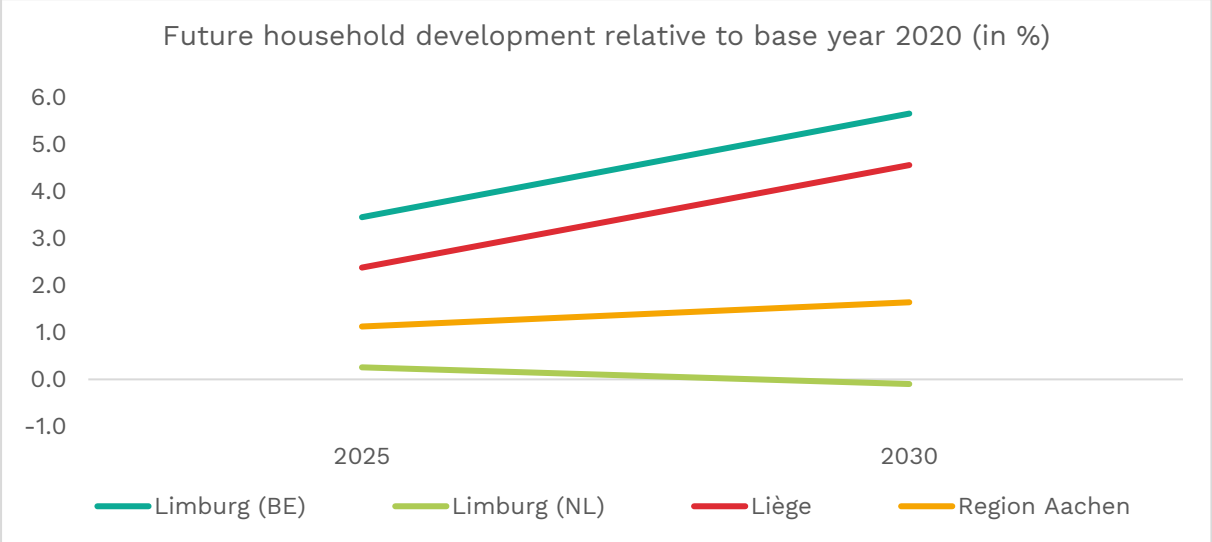
Figure 3.14: Future development of households per region relative to base year 2020 (in %).

Figure 3.15 shows prediction of households development in 2030 for the different districts. Only Zuid-Limburg shows a negative development of 1.2% relative to base year 2020. The arrondissement of Waremme has the largest predicted development, with an increase of 11% in the year 2030, which corresponds to the large increase in population, as shown in Figure 3.8.
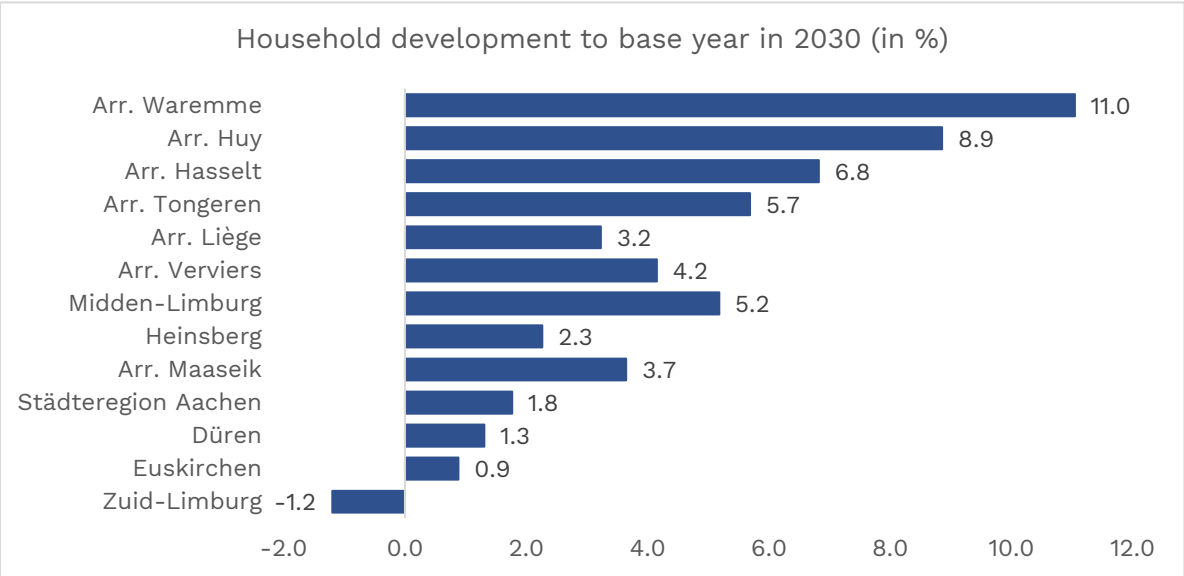
Figure 3.15: Relative household development in 2030 relative to base year 2020 per district (in %).

4 International migration

EMR region

To get more insight in the demand side of the housing market, also international migration movements are taken into account. This chapter describes the development in 2021 and the situation on 1/1/2022.

The following indicators will be represented:

- **International migration**
  International migration is divided into international immigration and emigration. From these numbers the international migration balance is determined.
  Immigration is defined as the amount of persons that are registered in the research area, and not previously registered in another municipality within the same country.
  Emigration is determined as the amount of persons who gave up their residence in the federal territory, while not registering in another municipality in the same country.

- **Migration & population**
  To increase comparability between the different regions relative migration numbers are shown, which are determined as the ratio of international migration relative to the total population in the research area.

4.1.1 International migration

Main characteristics of international migration for the total EMR region as well as the separate regions are shown in Table 4.1. Main characteristics include the ten years averages of immigration, emigration and migration balance (in absolute numbers). Also the ten years average of the international migration balance relative to the population (in %) is shown, increasing the indicator's comparability between the different regions.

On average there was an increase of 12,622 people of the population in the EMR in the last ten years (2012-2021) resulting from international migration flows. International migration numbers are highest in the Region Aachen, both in absolute (balance = 4,786 people) as well as relative numbers (balance relative to population = +0.38%). International migration is lowest in the region Ostbelgien, also both in absolute (balance = 193 people) as well as relative numbers (balance relative to population = +0.25%).

Table 4.1: Main characteristics of international migration in the EMR regions. Ten years averages are given for respectively immigration, emigration, international migration balance and the international migration balance relative to the total population (in %).

EMR region	International migration - ten years averages			
	Immigration	**Emigration**	**Balance**	**Balance relative to population (in %)**
Ostbelgien	+1,340	−1,148	+193	+0.25%
Limburg (BE)	+8,223	−5,491	+2,732	+0.31%
Limburg (NL)	+10,525	−8,507	+2,018	+0.27%
Liège	+10,576	−7,683	+2,893	+0.28%
Region Aachen	+19,094	−14,308	+4,786	+0.38%
Total*	**+49,759**	**−37,137**	**+12,622**	**+0.32%**

*Total international migration numbers include immigration and emigration from and to regions within the EMR region.

Figure 4.1 describes the international migration for the total EMR region in the period 2012-2021. International immigration, emigration and balance are shown separately.

Migration data show similar trends as those already seen in the population development in paragraph 0. In 2015 a large increase in international migration can be seen, mainly due to the large increase of immigrants that year, corresponding to the international refugee crisis that took place.[2] In 2016 international migration balance drops again. With 55,504 immigrants, immigration numbers in 2016 are lower than in 2015 (60,268 immigrants), but still higher than before the peak (46,118 in 2014). Emigration numbers show a delayed peak in 2016, indicating that the high influx of immigrants in 2015, resulted in a higher outflow of people as a response.

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[2] Spindler, "2015: The year of Europe's refugee crisis", *UNHCR* Dec 5 2015

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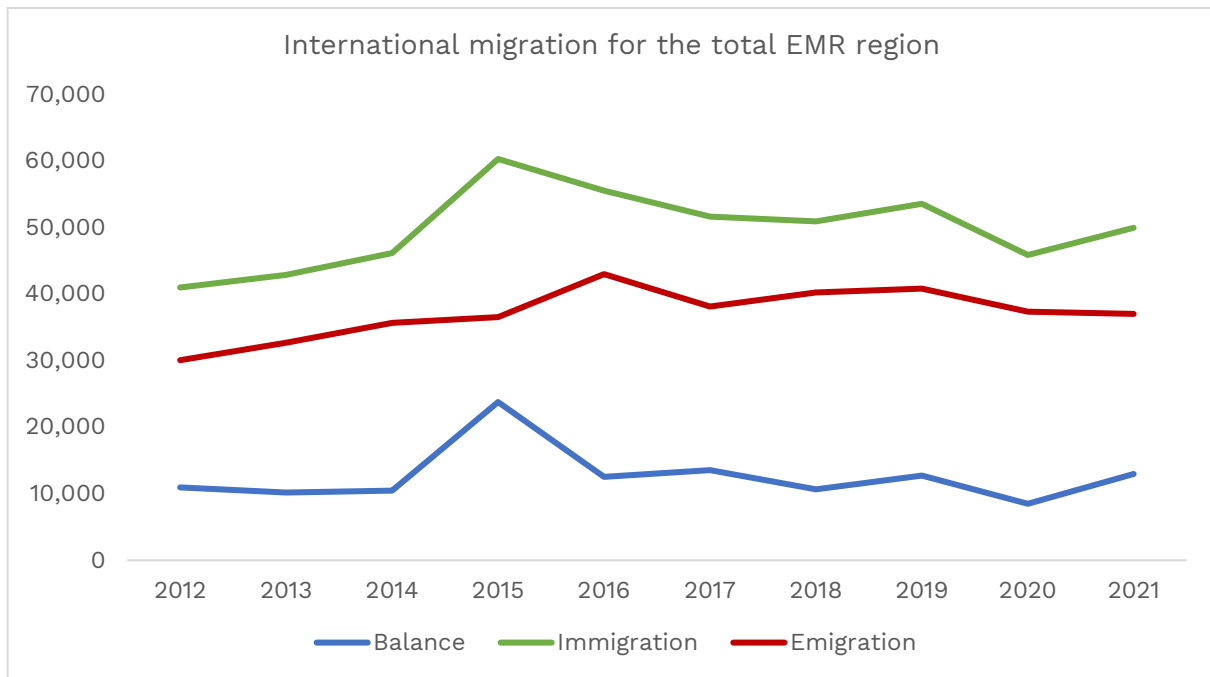
Figure 4.1: International migration, divided into immigration, emigration and the migration balance in absolute numbers for the total EMR region in the period 2012-2021.

In 2020 immigration numbers decreased compared to previous years, which is probably a side effect of the COVID-19 pandemic which struck that year. Strict travel restrictions, such as the closure of borders, slowed down the international migration movements worldwide.[3] These restrictions also effected the emigration numbers, which also decreased in 2020. This decrease is less strong than the decrease of immigration numbers which resulted in the lowest balance of international migration in the last ten years (8,481 in 2021). As can be seen in figure 4.1, in 2021 the number of immigrants increased again, while the number of emigrants kept decreasing (even though on a slower rate than the year before).

The large net influx of migrants in the Region Aachen is directly visible when analyzing the international migration balance in more detail for each region in Figure 4.2. This migration peak explains the large increase in population already seen in paragraph 0. During the refugee crisis of 2015, Germany adopted a very welcoming immigration policy resulting in a high intake of refugees, which is clearly visible in the graph.[4] The drop in migration balance that follows in 2016 in the Region Aachen can be explained by taking a more detailed look in the migration movements in the Region Aachen in Figure 4.3. In 2016 immigration is lower than in 2015, but still quite high (23,360 immigrants), however there is a peak in the amount of persons who emigrated the region (20,572 emigrants), resulting in a decrease in international migration compared to previous years. This can be explained by a change in policy in Germany, resulting in more people leaving Germany voluntarily and more people being expelled from the country.[5]

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[3] United Nations Department of Economic and Social Affairs, "International Migration 2020: Highlights", Jan 2021

[4] Zehfuss, "'We can do this': Merkel, Migration and the Fantasy of Control", *IPS* 2020, Volume 15, Issue 2, Pages 172-189

[5] Goldman, "Fewer Migrants Entered Germany in 2016, and Rejections Increased", *NYT* Jan 12 2017, Section A, Page 10

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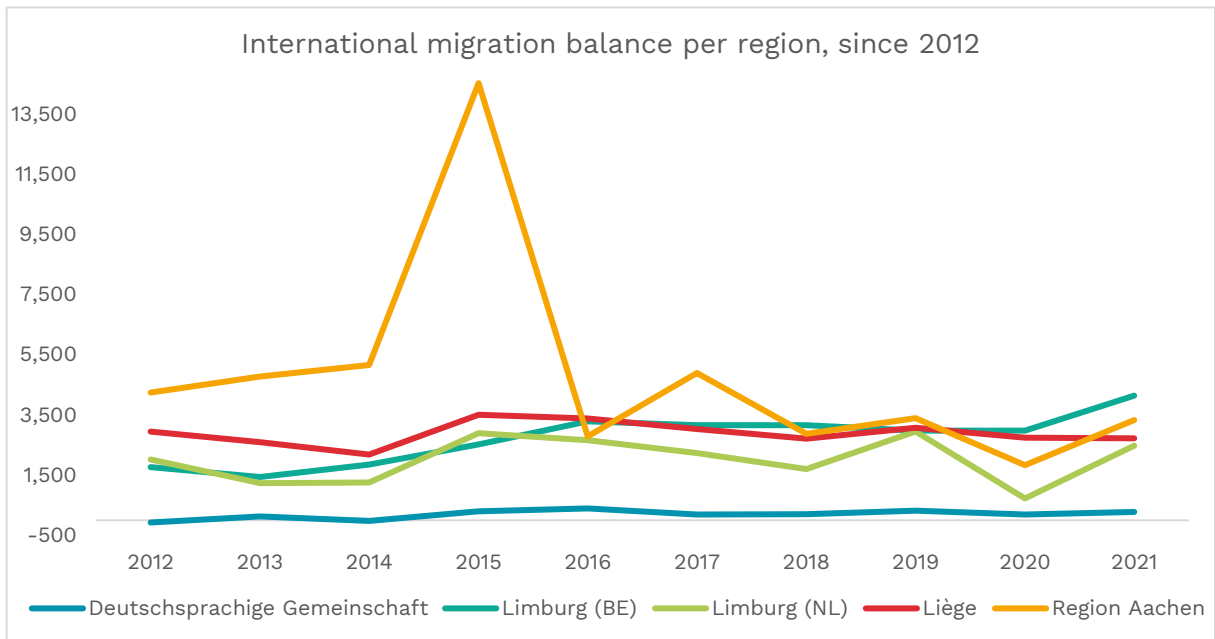
Figure 4.2: International migration balance in absolute numbers for the separate EMR regions in the period 2012-2021.
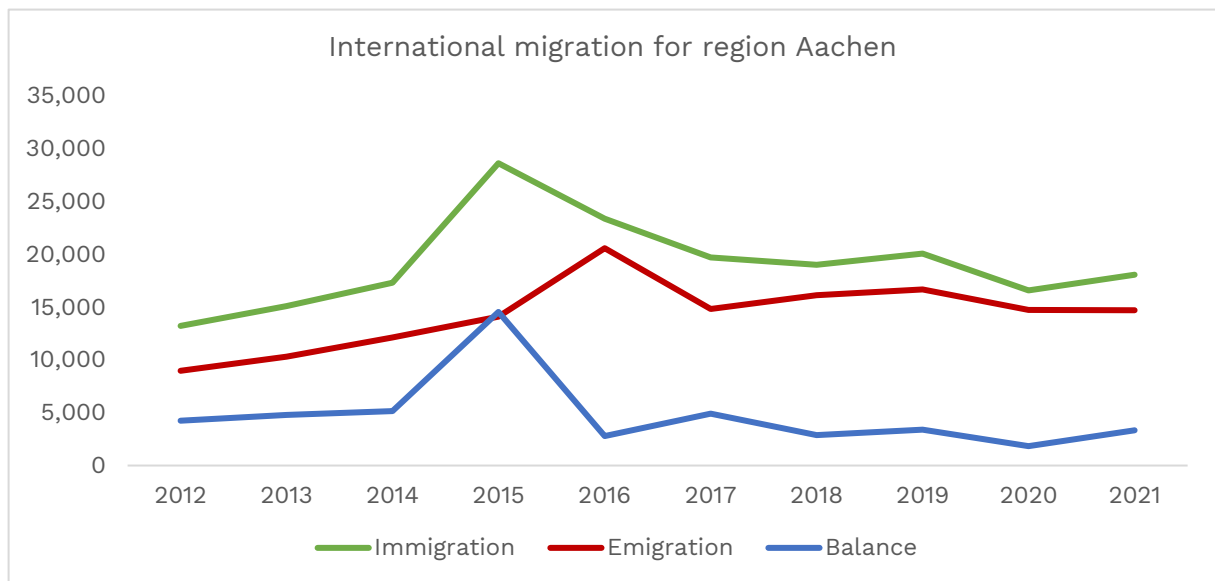
Figure 4.3: International migration, divided into immigration, emigration and the balance for the region Aachen in the period 2012–2021.

4.1.2 International migration relative to population

To benchmark international migration balance between the regions in a more comparable manner, this paragraph goes more into depth by showing relative migration numbers. These relative numbers are determined by dividing the international migration balance by the population numbers of the specified area, to give insight in the extent of migration in terms of the population. Figure 4.4 shows the ten years average for this ratio for the total EMR region, as well as the separate regions. In the total EMR region, the average international migration for the last ten years is 0.32% of the population. Only the Region Aachen has a higher average with 0.38%, indicating that international migration plays a more dominant role in this region compared to the other regions. The region Ostbelgien shows the lowest ratio of international migration in terms of the population with 0.25%.
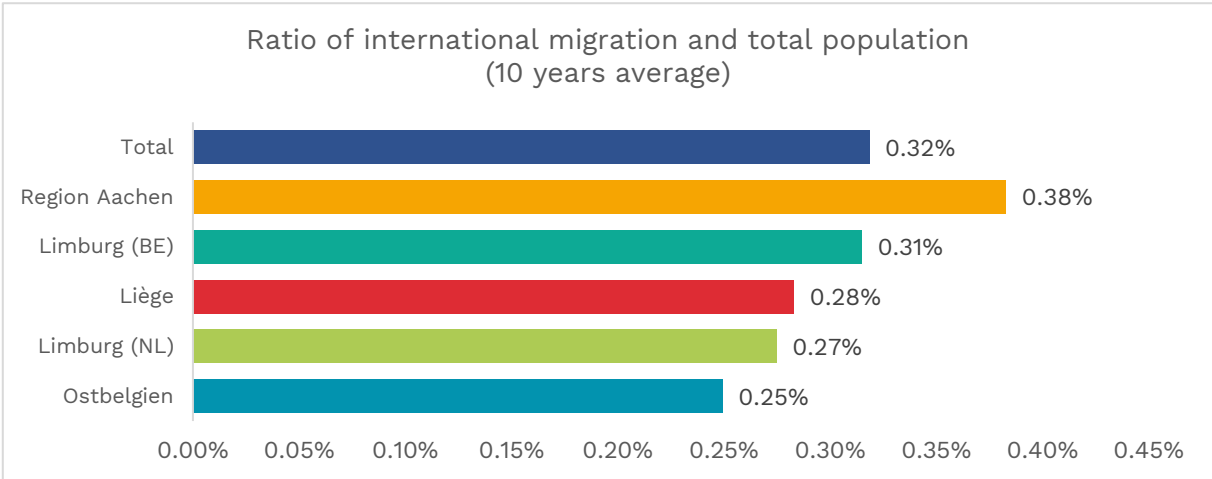
Figure 4.4: Ratio of international migration and total population (10 years average) for the total EMR region and the separate regions (in %).

Figure 4.5 shows the ratio between international migration and population in more detail for the different districts. In each region, the urban districts (StädteRegion Aachen, Liège and Zuid-Limburg) show highest migration numbers relative to population, with respectively 0.47%, 0.39% and 0.28%. In the arrondissements of Warreme (0.06%) and Huy (0.04%) ratios are the lowest of the EMR region.
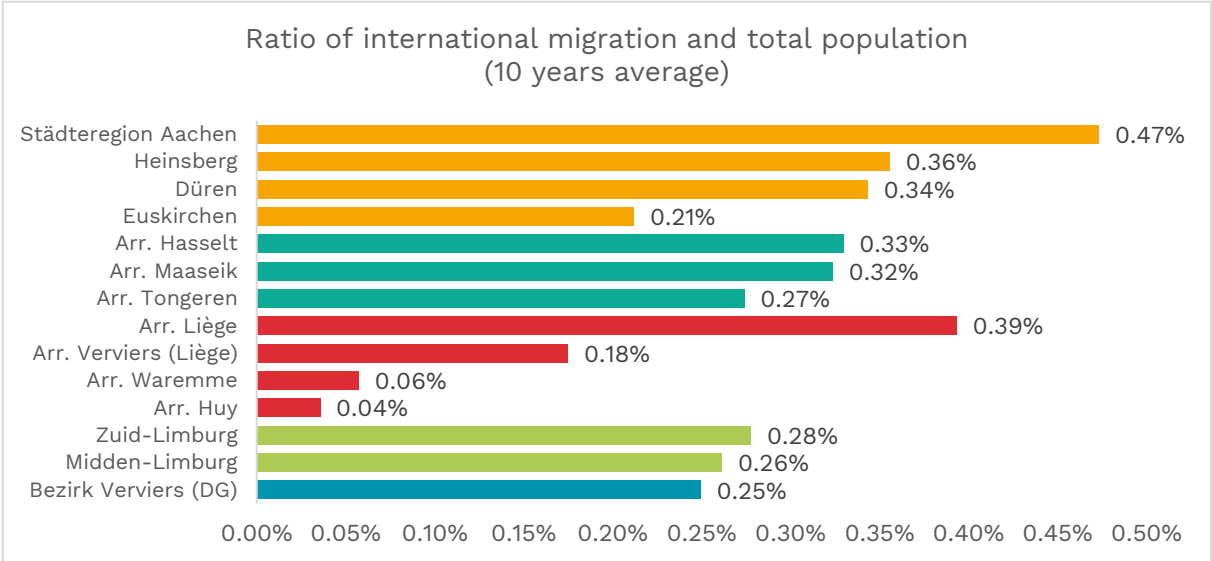
Figure 4.5: Ratio of international migration and total population (10 years average) per district in the EMR region (in %).

The international migration/population ratio is shown for the different municipalities in the year 2021 in Figure 4.6. Blue colors correspond to a positive migration balance, red colors to a negative migration balance relative to population numbers. Data on a municipality level is not available for the Region Aachen and is therefore not visualized on the map. Most municipalities in the Belgian province of Limburg show a positive migration to population ratio, except the municipality of Kortessem (024) which has a ratio of -2.4%, indicating that 2.4% of total population in Kortessem moved out the municipality due to international migration movements. In the rest of Dutch and Belgian areas a mix of positive and negative migration/population ratios can be seen. Around the city of Liège (080) ratios are higher than in the rest of the region (ratio > 0.2%). Municipalities of Bitsingen (050), Dalhem (060), Geer (070), Plombières (094) and Amblève (118) show the largest negative international migration balances, with ratios below -0.2%
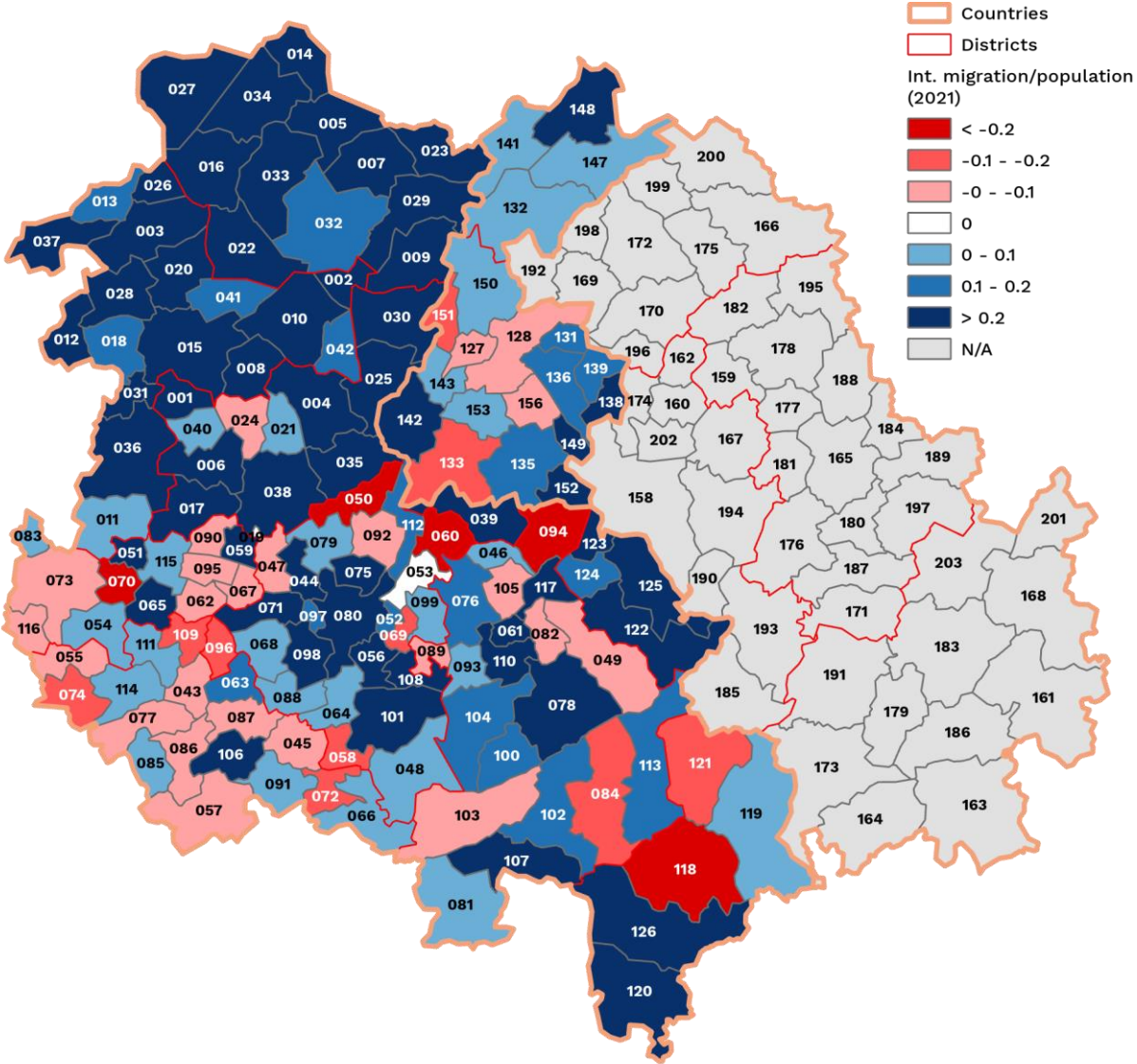
Figure 4.6: International migration relative to population numbers per municipality visualized on a map for the year 2021. Borders per district are given in red, borders per EMR country in orange. The migration/population ratio is either shown in blue (positive migration balance) or in red (negative migration balance). Numbers in the map correspond to municipalities as shown in appendix 8.1.1. Data for the region Aachen is not available on a municipality level.

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5   Housing

EMR region

To get more insight into the supply side of the housing market, this chapter will describe the main characteristics about the housing stock, such as housing total, development, ownership and type. This chapter describes the development in 2021 and the situation on 1/1/2022.

The following indicators will be represented:

- **Housing stock**
  The housing stock is defined as the amount of independent housing units in a specific region. Multiple housing units can exist in a building.

- **Housing development**
  Development is calculated from absolute housing numbers as the development with respect to the previous year in both absolute and relative (%) numbers.

- **Housing stock**
  Three categories are distinguished within the indicator housing ownership: owner-occupied, rental houses and other houses. What is included in the category 'other' is dependent on the source of the data. For this indicator only occupied housing units are taken into account.

- **Housing type**
  Five categories are distinguished within the indicator housing type: apartments, closed, half-open, open and other houses. What is included in the category 'other' is dependent on the source of the data.

5.1.1 Main characteristics & development

In this report data from 2015-2022 is visualized and compared, as no data before the year 2015 is available for the Dutch province of Limburg.

A total of 1,912,142 independent housing units exist in the total EMR region on January 1, 2022. Most housing units are situated in the Region Aachen (606,447), followed by the province of Liège (501,840) and the Belgian province of Limburg (409,990). Since 2015 the housing stock has grown on average with 13,047 housing units per year in the EMR, resulting in an average relative development of +0.7% per year.

On average, the region Ostbelgien showed the highest relative annual increase in the period 2015-2022 (1.2%). In the Dutch province of Limburg the relative increase is the lowest of the EMR region (0.3%). Taking into account the separate districts within the EMR regions, the arrondissement of Waremme shows the highest relative development (annual average increase of 1.3% in the last years) and Zuid-Limburg shows the lowest relative development (annual average of +0.2% in the last years).

Table 5.1: Main characteristics housing stock, including the amount of houses on 1/1/2022 and the average absolute and relative annual development between 2015-2022. Average development is determined as the average of annual development in the period 2015-2022.

EMR region	District	Housing stock 1/1/2022	Development annual average (2015-2022)	Development (%) annual average (2015-2022)
Ostbelgien	Bezirk Verviers	38,308	+429	+1.2%
	Total	**38,308**	**+429**	**+1.2%**
Limburg (BE)	Arr. Hasselt	196,590	+1,758	+0.9%
	Arr. Maaseik	117,544	+1,070	+0.9%
	Arr. Tongeren	95,856	+896	+1.0%
	Total	**409,990**	**+3,724**	**+0.9%**
Limburg (NL)	Midden-Limburg	63,251	+360	+0.6%
	Zuid-Limburg	292,306	+576	+0.2%
	Total	**355,557**	**+936**	**+0.3%**
Liège	Arr. Huy	52,718	+584	+1.2%
	Arr. Liège	310,522	+1,923	+0.6%
	Arr. Waremme	36,813	+465	+1.3%
	Arr. Verviers	101,787	+903	+0.9%
	Total	**501,840**	**+3,875**	**+0.8%**
Region Aachen	Düren	122,517	+774	+0.6%
	Euskirchen	90,920	+771	+0.9%
	Heinsberg	119,529	+1,152	+1.0%
	StädteRegion Aachen	273,481	+1,387	+0.5%
	Total	**606,447**	**+4,083**	**+0.7%**
Total		**1,912,142**	**+13,047**	**+0.7%**

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Figure 5.1 shows the housing stock on 1/1/2022 per municipality on the map for the EMR region. Urban areas stand out on the map as here the highest amount of housing units can be found. The more rural areas in the south of the EMR region show the least amount of houses.
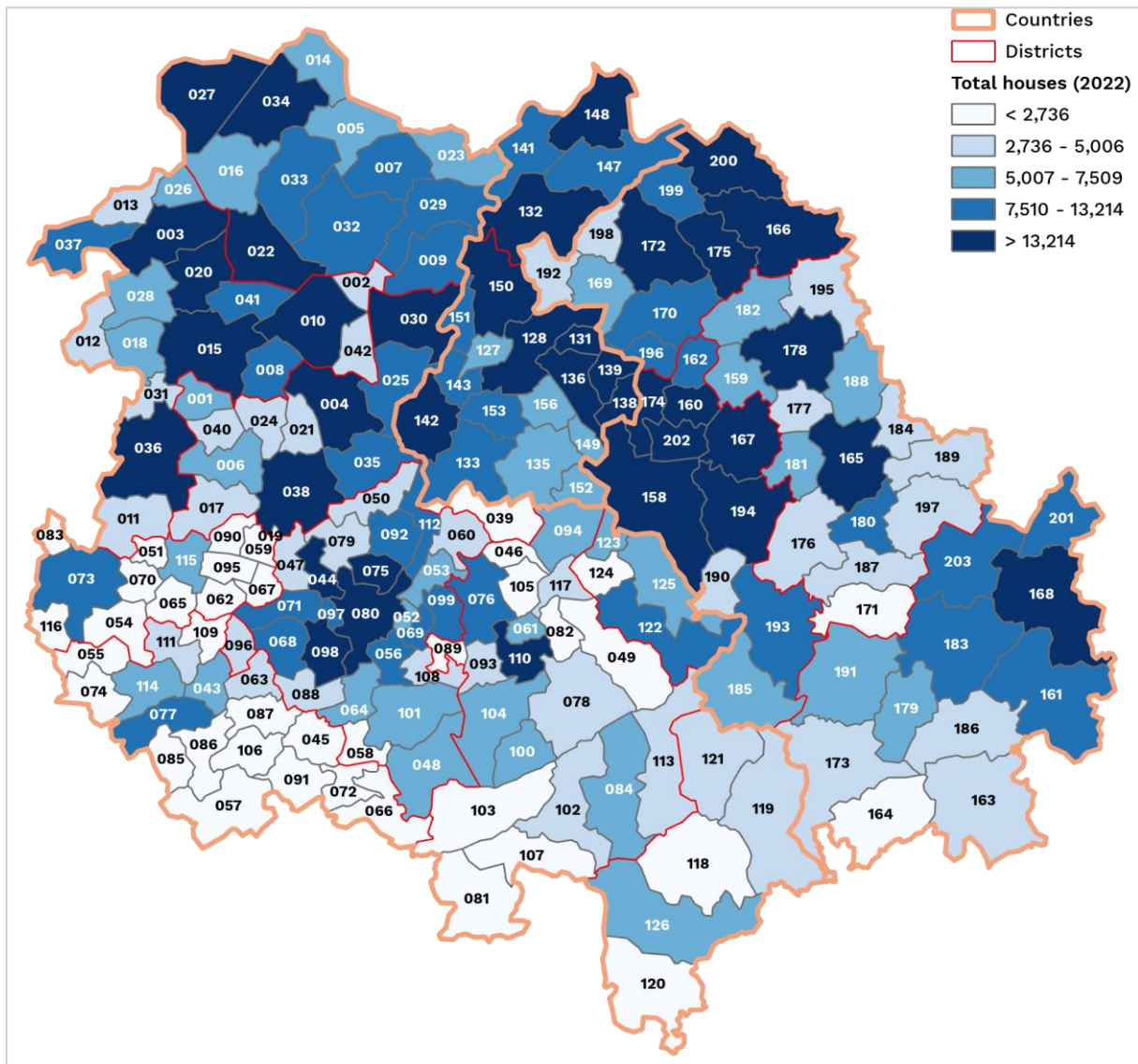
Figure 5.1: Housing total on 1/1/2022 per municipality visualized on a map. Borders per district are given in red, borders per EMR country in orange. Total number of housing units are divided into categories according to quantiles. Numbers in the map correspond to municipalities as shown in appendix 8.1.1.

The cumulative development per region, relative to the base year 2015, is visualized in Figure 5.2. The overall housing stock increased for all regions. However, in some regions the increase is stronger than in other regions. Housing total in the region Ostbelgien increased with 8.5% in the period 2015-2022, making it the region with the highest increase. The Dutch province of Limburg shows the lowest relative development, with a total development of +1.9% in 2015-2022. The regions of Liège, Limburg (BE) and Aachen follow trends in between the development of Ostbelgien and Limburg (NL).
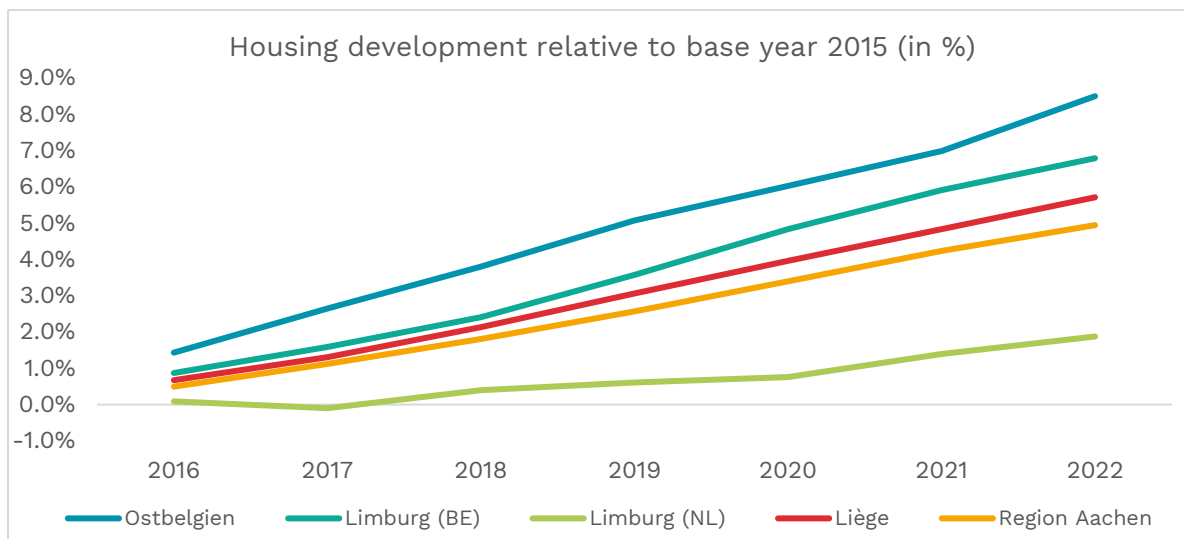
Figure 5.2: Housing development per year, relative to base year 2015 (in %) for the separate EMR regions.

Figure 5.3 analyzes housing development in more detail for the different districts in the EMR regions. The arrondissement Waremme shows the highest relative development in the years 2015-2022 with +9.7%. Zuid-Limburg shows the lowest development with +1.4% relative to base year 2015, corresponding to the overall low development in Limburg (NL) seen in Figure 5.2.
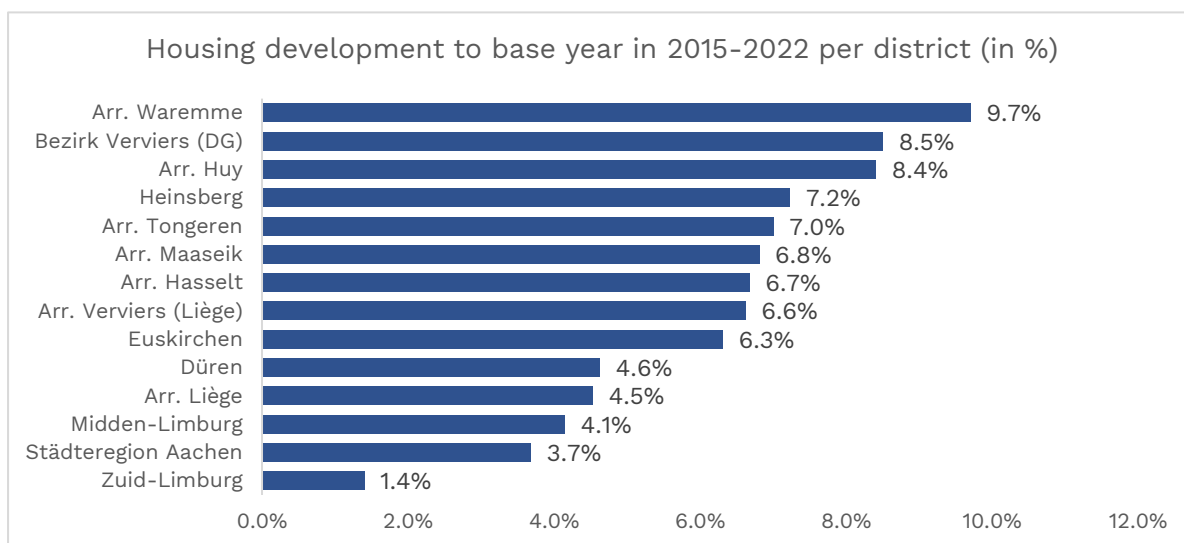
Figure 5.3: Housing development from 2015-2022, relative to base year 2015 for the districts in the EMR regions.

Table 5.2 describes the top- and bottom-5 municipalities in terms of relative development between 2015-2022. The municipalities of Crisnée and Donceel in the arrondissement Waremme show highest relative developments of respectively +14.0% and +13.9%. This corresponds to the fact that the total region of Waremme shows highest development of all districts (Figure 5.3). Four out of five municipalities in the bottom-5 are located in Zuid-Limburg, which corresponds to the low regional development.

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Table 5.2: Top-5 and bottom-5 municipalities in the EMR region based on relative housing development between 2015-2022. Also the amount of housing units on 1/1/2022 and the absolute development between 2015-2022 are shown.

EMR region	District	Municipality	Housing units 1/1/2022	Development 2015-2022	Development 2015-2022 (in %)
Top-5					
Liège	Arr. Waremme	Crisnée	1,509	+185	**+14.0%**
Liège	Arr. Waremme	Donceel	1,379	+168	**+13.9%**
Liège	Arr. Verviers	Baelen	2,025	+244	**+13.7%**
Liège	Arr. Verviers	Welkenraedt	4,648	+545	**+13.3%**
Liège	Arr. Liège	Juprelle	4,201	+488	**+13.1%**
Bottom-5					
Limburg (NL)	Zuid-Limburg	Brunssum	14,217	-153	**-1.1%**
Limburg (NL)	Zuid-Limburg	Kerkrade	23,555	-92	**-0.4%**
Limburg (NL)	Zuid-Limburg	Landgraaf	17,838	-67	**-0.4%**
Limburg (NL)	Zuid-Limburg	Gulpen-Wittem	6,723	-22	**-0.3%**
Limburg (BE)	Arr. Tongeren	Herstappe	34	+0	**+0.0%**

5.1.2 Housing ownership

To gain more insight in the distribution of the housing stock, three categories are distinguished within the indicator housing ownership: owner-occupied, rental houses and other houses. The category 'other houses' may include houses where ownership is unknown (NL), housing units that are not registered (BE) or units used as holiday homes (D). For this indicator only housing units that are occupied are taken into account.

Table 5.3 describes the absolute and relative division of housing units by type of ownership per district and EMR region. As for the Belgian and German regions no data is available besides 2011 and data in the Netherlands is available since 2012, for the sake of comparison two reference dates are compared in this table. Data for Belgium and Germany is of 1/1/2011, while data for the Netherlands is of 1/1/2012.

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Table 5.3: Housing units divided by type of ownership in both absolute as relative numbers. As for the Belgian and German regions no data is available besides 2011 and data in the Netherlands is available since 2012, for the sake of comparison two reference dates are compared in this table. Data for Belgium and Germany is of 1/1/2011, while data for the Netherlands is of 1/1/2012.

EMR region	District	Number of housing units 1/1/2011 (BE/D) 1/1/2012 (NL)			Relative housing units (in %) 1/1/2011 (BE/D) 1/1/2012 (NL)		
		Owner-occupied	Rental	Other	Owner-occupied	Rental	Other
Ostbelgien	Bezirk Verviers	19,869	10,039	515	65%	33%	2%
	Total	**19,869**	**10,039**	**515**	**65%**	**33%**	**2%**
Limburg (BE)	Arr. Hasselt	118,853	41,940	1,440	73%	26%	1%
	Arr. Maaseik	74,202	20,678	810	78%	22%	1%
	Arr. Tongeren	59,606	19,016	1,252	75%	24%	2%
	Total	**252,661**	**81,634**	**3,502**	**75%**	**24%**	**1%**
Limburg (NL)	Midden-Limburg	36,757	19,828	151	65%	35%	0%
	Zuid-Limburg	152,799	112,746	875	57%	42%	0%
	Total	**189,556**	**132,574**	**1,026**	**59%**	**41%**	**0%**
Liège	Arr. Huy	31,771	11,699	415	72%	27%	1%
	Arr. Liège	155,647	105,234	2,836	59%	40%	1%
	Arr. Waremme	23,072	6,998	476	76%	23%	2%
	Arr. Verviers	50,725	30,643	1,590	61%	37%	2%
	Total	**261,215**	**154,574**	**5,317**	**62%**	**37%**	**1%**
Region Aachen	Düren	63,782	52,438	259	55%	45%	0%
	Euskirchen	50,894	32,481	881	60%	39%	1%
	Heinsberg	62,081	45,699	135	58%	42%	0%
	StädteRegion Aachen	99,984	167,692	582	37%	63%	0%
	Total	**276,741**	**298,310**	**1,857**	**48%**	**52%**	**0%**
Total EMR		**1,000,042**	**677,131**	**12,217**	**59%**	**40%**	**1%**

The relative distribution of housing units by type of ownership is also visualized in Figure 5.4 for both the total EMR region as well as the separate regions. In the total EMR region 59% of occupied housing units is owner-occupied, 40% is a rental house and 1% is defined as the category 'other'. The Belgian province of Limburg relatively has most owner-occupied houses of the total EMR region, with 75% of the housing units being owner-occupied. In the Region Aachen the amount of owner-occupied houses is lowest with 48%.

Figure 5.5 analyzes this indicator on a lower scale level for the different districts in the EMR region. The three districts in the Belgian province of Limburg (Maaseik, Tongeren and Hasselt) all show high amounts of owner-occupied houses (respectively 78%, 75% and 73%), which corresponds to the data in Figure 5.4. The district StädteRegion Aachen is the only region where more rental than owner-occupied housing units are located (63% vs 37%). This can be explained by the urban nature of the area. However, other urban areas such as the district of Liège and Zuid-Limburg show a different distribution of type of ownership.

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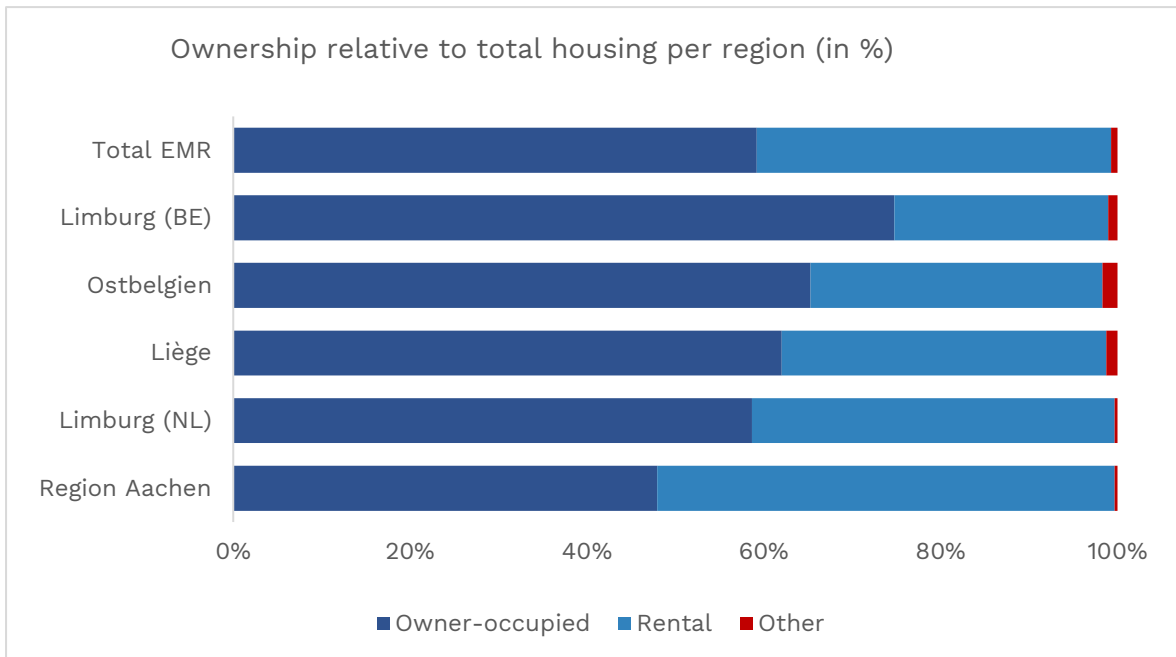
Figure 5.4: Ownership relative to total housing for the total EMR region as well as the separate regions. Reference date for Belgium and Germany is 1/1/2011 and 1/1/2012 for the Netherlands.
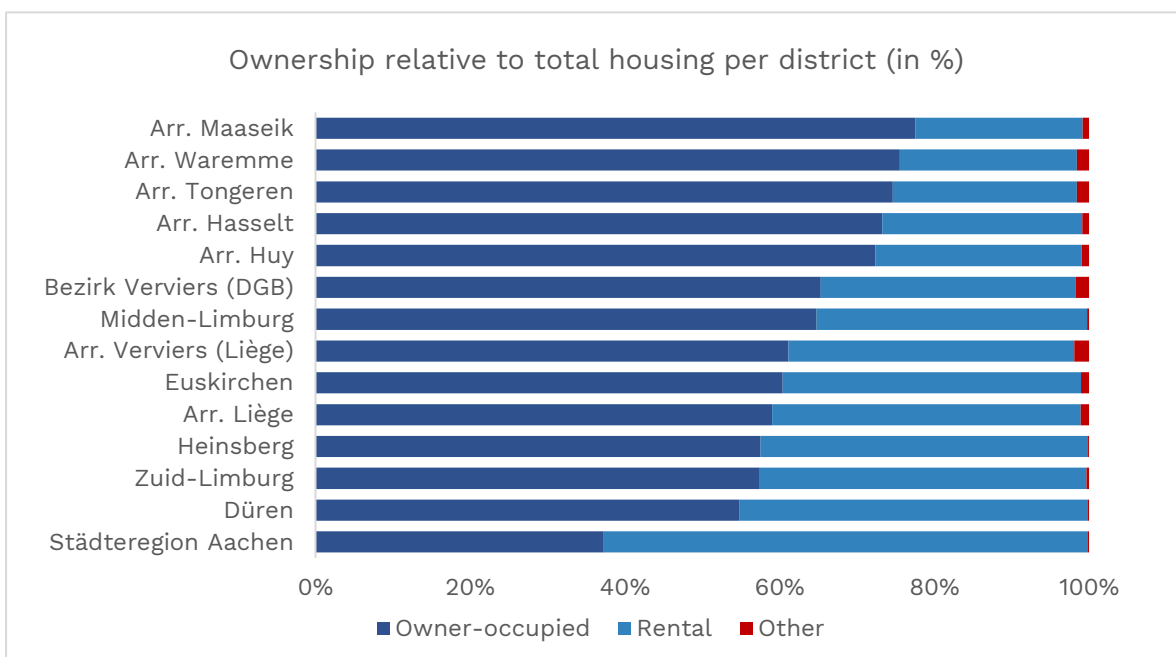
Figure 5.5: Ownership relative to total housing for districts in the EMR region. Reference date for Belgium and Germany is 1/1/2011 and 1/1/2012 for the Netherlands.

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5.1.3 Housing type

In addition to describing the housing stock according to the type of ownership, a similar breakdown can be made according to housing type. Information about housing type is not available for the Region Aachen and is therefore not included in the analysis of this paragraph. Housing units are divided into five categories: apartments, closed, half-open, open and other housing.

Table 5.4 describes the main characteristics of housing stock divided into the different categories. The amount of housing units per type on 1/1/2022 is shown, as well as the absolute and relative development in the period 2015-2022. Data is shown per separate EMR region and the EMR region as a whole. The relative development of the different housing types per region for the period 2015-2022 is also visualized in Figure 5.6. The figure shows that especially the amount of apartments has increased strongly in the last eight years. This increase is highest in region Ostbelgien, with an increase in apartments of 50% since 2015. In the Dutch province of Limburg the relative increase of apartments since 2015 is only 7%. For the other housing types (closed, half-open and open housing) relative development ranges between -2% (closed, Liège) and +6% (half-open, Limburg (BE)).
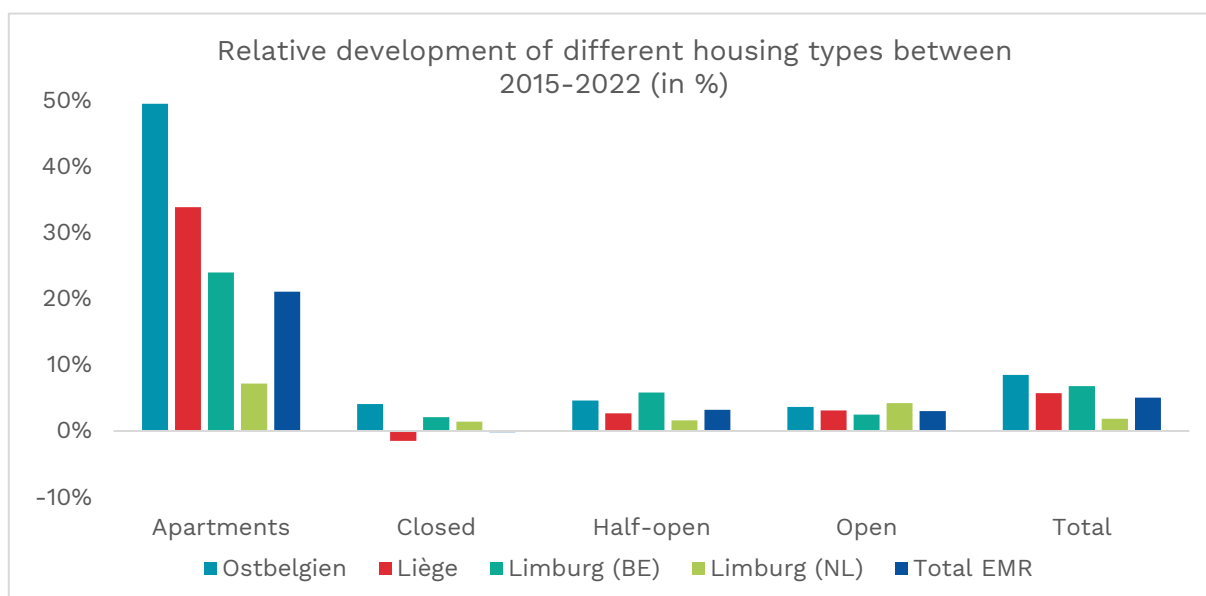
Figure 5.6: Relative development of different housing types per region for the period 2015-2022 (in %).

Table 5.4: Main characteristics of housing units by type for the different EMR regions as well as the total EMR. Housing units on 1/1/2022 and absolute and relative development between 2015 and 2022 are shown. The Region Aachen is not included as this information is not available for this region.

EMR region	Type	Housing units 1/1/2022	Development (2015-2022)	Relative development (in %) (2015-2022)
Ostbelgien	Apartments	5,817	1,927	50%
	Closed	2,997	118	4%
	Half-open	8,288	364	5%
	Open	19,395	683	4%
	Other	1,811	-91	-5%
	Total	**38,308**	**3,001**	**8%**
Limburg (BE)	Apartments	92,483	17,888	24%
	Closed	35,076	724	2%
	Half-open	92,907	5,121	6%
	Open	169,783	4,094	2%
	Other	19,741	-1,757	-8%
	Total	**409,990**	**26,070**	**7%**
Limburg (NL)	Apartments	102,338	6,859	7%
	Closed	66,402	940	1%
	Half-open	119,232	1,893	2%
	Open	63,231	2,559	4%
	Other	4,354	-753	-15%
	Total	**355,557**	**6,550**	**2%**
Liège	Apartments	104,166	26,361	34%
	Closed	144,954	-2,209	-2%
	Half-open	104,611	2,725	3%
	Open	123,638	3,708	3%
	Other	24,471	-3,461	-12%
	Total	**501,840**	**27,124**	**6%**
Total EMR	Apartments	304,804	53,035	21%
	Closed	249,429	-427	0%
	Half-open	325,038	10,103	3%
	Open	376,047	11,044	3%
	Other	50,377	-6,062	-11%
	Total	**1,305,695**	**62,745**	**5%**

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Figure 5.7 and Figure 5.8 show the division of the different housing types on 1/1/2022 in percentage of the total housing stock, per region and per district. In the region of Ostbelgien relatively most open houses are found (51%), followed by the Limburg (BE) (41%), Liège (25%) and Limburg (NL) (18%). In the region of Liège the different housing types are spread most equally with 25% open houses, 21% half-open houses, 29% closed houses and 21% apartments. In the region of Limburg (NL) most half-open (34%) and closed houses (29%) can be found. These patterns can also be seen in Figure 5.8, where Zuid-Limburg, the arrondissement of Liège and Midden-Limburg show the lowest amount of open housing and relatively a high share of apartments.
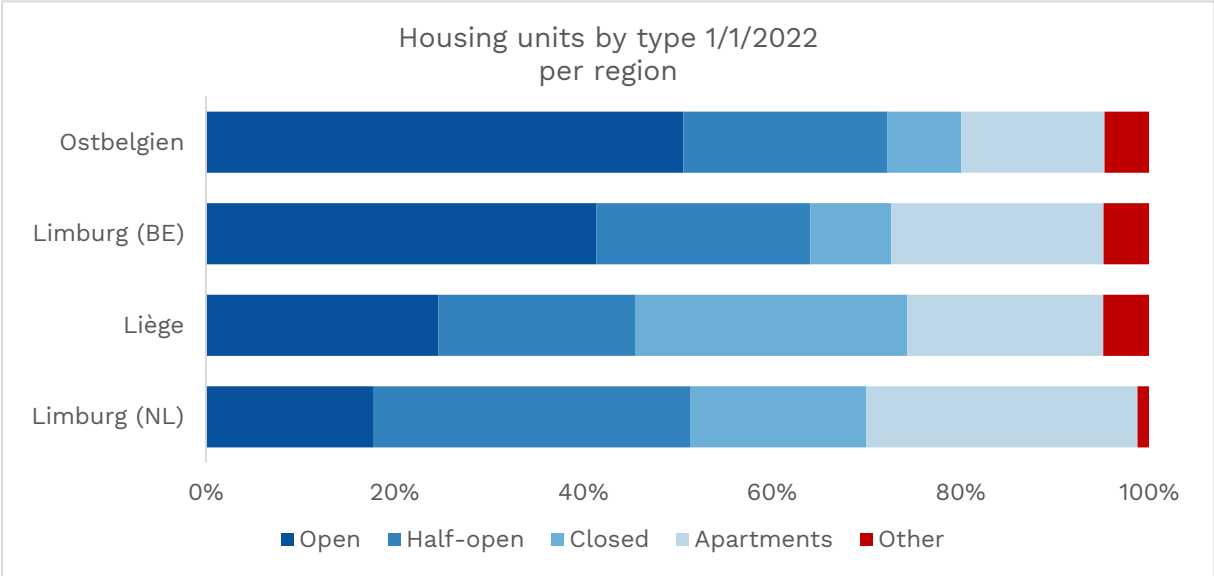
Figure 5.7: Housing units per type relative to the total housing stock per region on 1/1/2022. Data for region Aachen is not available.
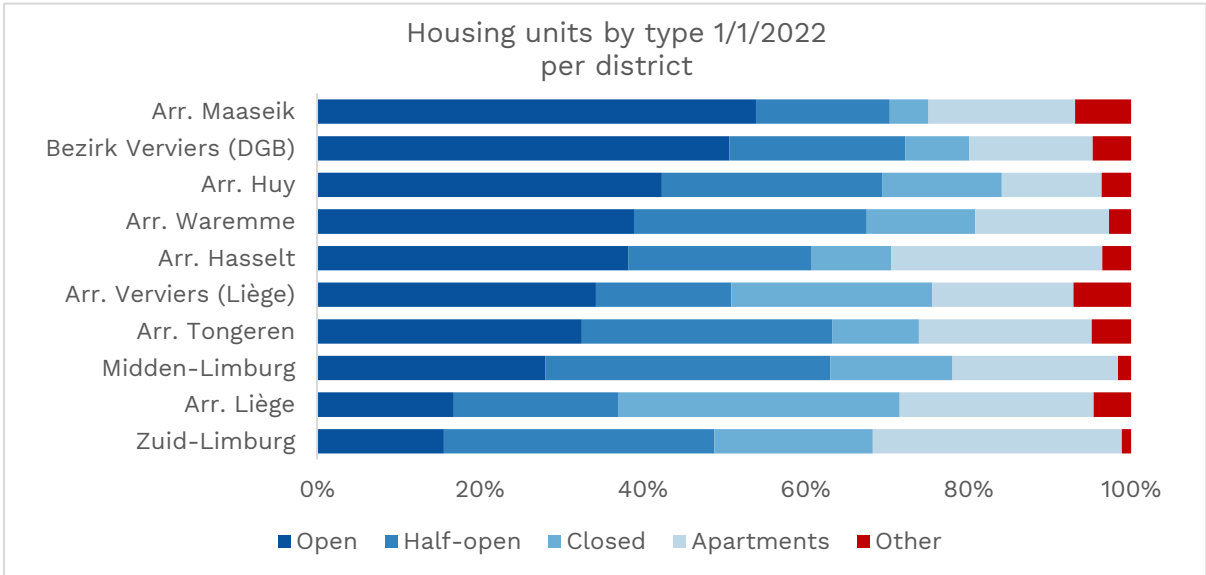
Figure 5.8: Housing units per type relative to the total housing stock per district on 1/1/2022. Data for region Aachen is not available.

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6 Housing market
EMR region

To get more insight in the supply side of the housing market, this chapter will describe housing market characteristics, such as transactions and purchase price, elaborating on the development in 2021 and the situation on 1/1/2022.

In this chapter the following indicators will be represented:

- **Housing transactions**
  The total number of registered transactions of sold houses.

- **Purchase prices**
  Definitions are different for all three regions. In Belgium the median transaction price is used. In the Netherlands the mean transaction price is used and in Germany the mean demand price is used. Therefore data is shown for the separate regions.

6.1.1 Transactions

While comparing the transactions between the regions it has to be taken into account that transactions for Region Aachen are defined by evaluating the online offer of owner-occupied housing units. This is a different approach than used in the Belgian and Dutch regions, where the actual transactions are known.

Table 6.1 describes some of the main characteristics of housing transactions in the period 2014-2021. There were 35,892 registered transactions in 2021 in the total EMR. The average number of transactions in the years 2014-2021 is 34,963. In the Belgian and Dutch regions and districts the average annual development is positive for the past eight years. In Zuid-Limburg this average is highest of the EMR with 6.9%. Region Aachen shows a negative development since 2014, with an annual average of -6.9%. This decrease in transactions is highest in Euskirchen, where on average transactions decreased with 7.1% per year.

Table 6.1: Main characteristics of transactions in the years 2014-2021 per district and region. The number of transactions in 2021, the average number of transactions in the years 2014-2021 and the average annual relative development in the years 2014-2021 is shown. Development is calculated relative to the previous year.

EMR region	District	Transactions 2021	Transactions Average 2014-2021	Development (in %) Annual average 2014-2021
Ostbelgien	Bezirk Verviers (DGB)	543	473	5.6%
	Total	**543**	**473**	**5.6%**
Limburg (BE)	Arr. Hasselt	4,420	4,083	3.6%
	Arr. Maaseik	2,557	2,271	4.4%
	Arr. Tongeren	2,319	2,011	5.6%
	Total	**9,296**	**8,365**	**4.2%**
Limburg (NL)	Midden-Limburg	1,730	1,573	6.9%
	Zuid-Limburg	7,534	6,812	6.6%
	Total	**9,264**	**8,385**	**6.6%**
Liège	Arr. Huy	1,261	1,160	3.1%
	Arr. Liège	6,988	6,329	3.5%
	Arr. Waremme	870	758	3.8%
	Arr. Verviers (Liège)	1,836	1,714	1.9%
	Total	**10,955**	**9,961**	**3.2%**
Region Aachen	Düren	1,374	1,803	-6.8%
	Euskirchen	897	1,264	-7.1%
	Heinsberg	1,343	1,744	-7.0%
	Städteregion Aachen	2,220	2,969	-6.6%
	Total	**5,834**	**7,780**	**-6.9%**
Total		**35,892**	**34,963**	**1.3%**

To increase comparability between the regions, the share of transactions relative to the total housing stock in the research area is calculated. This relative transaction indicator is visualized for the years 2015-2021 for the separate EMR regions in Figure 6.1. For all years except 2019, the Dutch province of Limburg has the highest amount of relative transactions, ranging between 1.9% and 2.8%. This corresponds to the high average annual relative development already seen in Table 6.1. Limburg (BE) shows a peak in the relative amount of transactions in 2019 with the number of transactions being 2.7% of the total housing stock in that region.

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The region of Liège shows a quite stable relative amount of transactions over the years, ranging from 1.9% in 2015 to 2.2% in 2018, 2019 and 2021. Region Aachen and Ostbelgien show the lowest relative number of transactions over the years. From 2018 onwards, relative transactions in Region Aachen decrease further and are lowest of the different EMR regions.
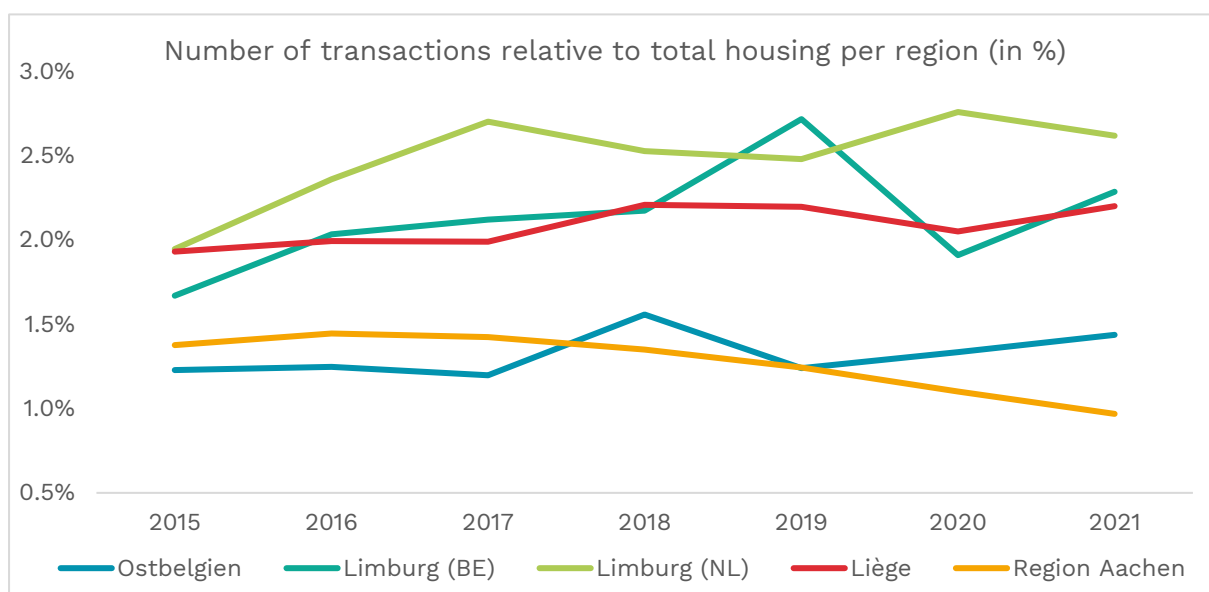
Figure 6.1: Number of transactions relative to total housing per region (in %). The number of transactions in a year are divided by the total housing stock on the first of January that year.

Table 6.2 shows the top and bottom-5 municipalities for transactions relative to the total housing stock for 2021. The top-5 municipalities are divided over five different districts, with percentages ranging from 5.7% in the municipality of Herstappe to 3.0% in the municipality of Hamont-Achel. All municipalities in the bottom-5 are located within the Region Aachen, divided over the districts of Düren, Euskirchen and Städteregion Aachen.

Table 6.2: Top and bottom-5 municipalities of transactions in 2021 relative to the total housing stock on 1/1/2021.

EMR region	District	Municipality	Transactions 2021	Houses 1/1/2021	Transactions relative to houses
Top-5					
Limburg (BE)	Arr. Tongeren	Herstappe	2	35	5.7%
Limburg (NL)	Zuid-Limburg	Brunssum	471	14,139	3.3%
Limburg (BE)	Arr. Hasselt	Gingelom	123	3,722	3.3%
Liège	Arr. Waremme	Geer	43	1,408	3.1%
Limburg (BE)	Arr. Maaseik	Hamont-Achel	194	6,366	3.0%
Bottom-5					
Region Aachen	Düren	Inden	20	3,126	0.6%
Region Aachen	Euskirchen	Nettersheim	23	3,585	0.6%
Region Aachen	St. Aachen	Würselen	129	17,988	0.7%
Region Aachen	Düren	Niederzier	44	6,062	0.7%
Region Aachen	St. Aachen	Aachen	946	127,831	0.7%

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6.1.2 Purchase prices

Data about purchase prices is not comparable between the different regions as different definitions are used in each region. In the Belgian regions the median transaction price is collected. In Limburg (NL) the mean transaction price is available. In Region Aachen the mean demand purchase price is determined, based on the online offer of houses for sale. As for transactions, this can mean not all transactions are taken into account. Due to the different definitions, in this chapter data is shown separate for each region on a district level.

Liège & Limburg (BE)

For this indicator, no separate data is available for the region Ostbelgien, but data for this region is included in data of the Arrondissement of Verviers. Purchase prices are available as median transaction price in the Belgian regions. Table 6.3 describes the median transaction price for 2021, the average median price in the period 2012-2021 and the development of the median transaction price between 2012 and 2021 per district. Most expensive houses in 2021 can be found in the Arrondissement of Maaseik with a median transaction price of 245,000€. In the the Arrondissement of Liège houses are cheapest with a median purchase price of 172,500€. The districts in the Belgian regions all show an increase of the median transaction price in the last ten years, ranging from a 27% increase (Arrondissement of Verviers) to a 34% increase (Arrondissement of Waremme).

Table 6.3: Median transaction price for 2021, the average median price in the period 2012-2021 and the development of the median price in % between 2012-2021 for the districts in the Belgian regions.

EMR region	District	Median price 2021	Median price Av. 2012-2021	Development (in %) 2012-2021
Limburg (BE)	Arr. Hasselt	240,000€	204,250€	30%
	Arr. Maaseik	245,000€	208,475€	28%
	Arr. Tongeren	220,000€	188,200€	28%
Liège	Arr. Huy	200,000€	165,975€	33%
	Arr. Liège	172,500€	145,540€	33%
	Arr. Waremme	222,500€	183,575€	34%
	Arr. Verviers	195,000€	165,685€	27%

Figure 6.2 describes the development of the median transaction price in the period 2012-2021 for the districts in the regions of Liège and Limburg. In the figure it can be seen that in the last ten years, median transaction prices were lowest every year in the Arrondissement of Liège. Median prices in the Arrondissements of Hasselt and Maaseik have been close in the last ten years and make for the two most expensive districts of the Belgian regions. The increase in prices is quite steady in the period 2012-2021 and follows the same trend in all regions.

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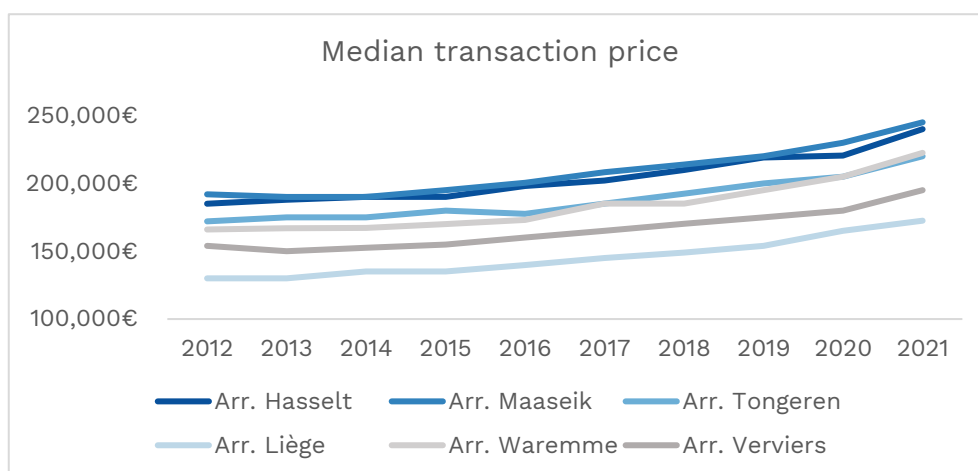
Figure 6.2: Development of the median transaction price in the districts of the Belgian region in the period 2012-2021.

Provincie Limburg (NL)

Purchase prices are available as the mean transaction price in the Provincie Limburg (NL). Table 6.4 describes the mean transaction price for 2021, the average mean price in the period 2012-2021 and the development of the mean transaction price between 2012 and 2021 per district. In the Dutch EMR region only two districts are taken into account: Midden-Limburg and Zuid-Limburg. Mean transaction price in 2021 is highest in Midden-Limburg with 306,494€ relative to a mean price of 285,474€ in Zuid-Limburg.

Table 6.4: Mean transaction price for 2021, the average mean price in the period 2012-2021 and the development of the mean price in % between 2012-2021 for the districts in the province of Limburg (NL).

EMR region	District	Mean price 2021	Mean price Av. 2012-2021	Development (in %) 2012-2021
Limburg (NL)	Midden-Limburg	306,494€	221,606€	59%
	Zuid-Limburg	285,474€	209,081€	60%

The development of the mean transaction price is visualized in figure 6.3. From the figure it can be seen that transaction prices have increased exponentially in the last ten years, resulting in an increase of 59% in Midden-Limburg and a 60% increase in Zuid-Limburg between 2012 and 2021.
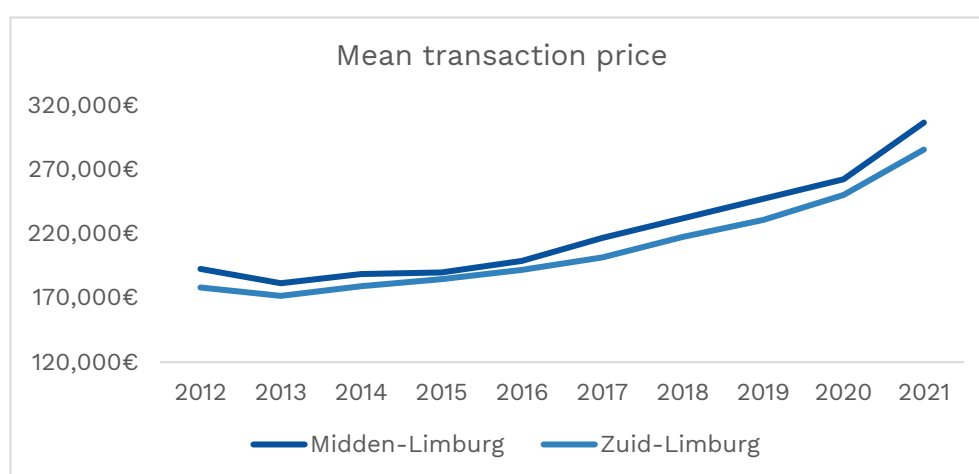
Figure 6.3: Development of the mean transaction price in the districts of the province of Limburg in the period 2012-2021.

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Region Aachen

Purchase prices are available as the mean demand price in the Region Aachen. Table 6.5 describes the mean demand price for 2021, the average mean price in the period 2012-2021 and the development of the mean demand price between 2012 and 2021 per district. In 2021 the mean demand price was highest in Städteregion Aachen with 385,482€ and lowest in Heinsberg with 333,613€. In the last ten years a large increase in housing prices can be seen in table 6.5, ranging from 65% in Städteregion Aachen to a 100% increase in the district of Düren. This means houses in Düren are double as expensive in 2021 as they were in 2012. This effect is also visible in figure 6.4 where the development of the mean demand price is shown for the last ten years. Houses in the district of Aachen have been most expensive in the last ten years. It has to be taken into account that purchase prices in the Region Aachen are determined based only on the online offer of houses and not the actual sold houses in this region.

Table 6.5: Mean demand price for 2021, the average mean price in the period 2012-2021 and the development of the mean price in % between 2012-2021 for the districts in the Region Aachen.

EMR region	District	Mean price 2021	Mean price Av. 2012-2021	Development (in %) 2012-2021
Region Aachen	Düren	354,979€	237,711€	100%
	Euskirchen	364,634€	236,694€	92%
	Heinsberg	333,613€	239,077€	81%
	Städteregion Aachen	385,482€	289,381€	65%
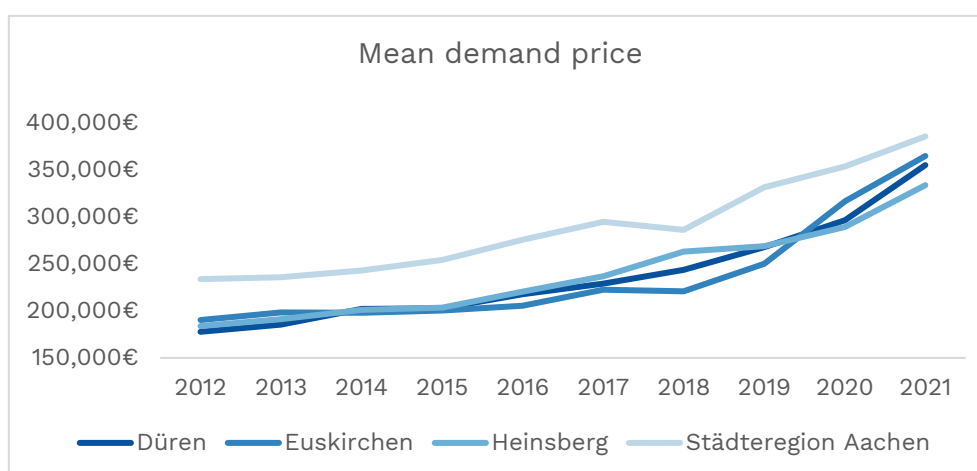
Figure 6.4: Development of the mean demand price in the districts of the Region Aachen in the period 2012-2021.

Conclusion

Due to the different definitions of purchase prices used in the different regions it is difficult to compare prices between the regions. Looking at the developments within the regions it could be concluded that prices in Region Aachen show the highest increase in the last ten years (ranging from 65% to 100%) and that prices in the Belgian districts show the lowest increase (ranging from 27% to 34%).

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7 Recommendation

Up until now it proved difficult to gather and combine data about the housing market for the EMR regions, as different data sources, definitions and availability play a role. With this project a geographical online portal[6] is developed where relevant cross-border housing market information is available in one place, free of charge and up to date for municipalities in the EMR region. This portal focuses on indicators that describe the demand (population and households) and supply side (housing market), as well as including some information about the surroundings of the living environment. A housing market monitor needs harmonized information in order to make reliable cross-border comparisons between the different regions in the EMR. As already described in chapter 2, gathering comparable information for each indicator in each region turned out to be quite the challenge, however the developed portal can partially fulfill this requirement. Different types of data gaps are encountered during this process:

- No recent data or no comparable reference year is available between the regions.
- Data is available for all regions, but definitions and/or classifications differ, making it hard to harmonize and thus compare the data.
- Data is not available on a common scale level.
- Data is just not available in a region.
- A combination of these data gaps

The existence of these different data gaps, also visualized in Figure 2.1, is an important outcome of this project. Although at this moment data gaps complicate a structural analysis of the included indicators in the EMR region, their findings should be used as a starting point for follow-up research about cross-border housing market information. By studying the where and why of data gaps, a complementary vision can be formed to further enrich the cross-border housing monitor with all the valuable insights of this project. The online portal developed in this context should act as a growth-model to inspire and stimulate regions to come to mutual and uniform understandings.

To increase the potential of the portal for analysis and comparability, the nature of the different data gaps per indicator should be studied, so data gaps can be complemented in the future. It is recommended to prioritize indicators that contribute to an improved monitoring of cross-border housing market issues. To ensure a manageable follow-up process, the scope of the project should be reduced by creating a shortlist of high priority housing market indicators. To decide which indicators should be included in this shortlist, one should ask the following questions:

- What is the nature of the data gap?
- Are there already any ongoing (European) projects that work on harmonizing data for the specific indicator, so it can be easily included in the housing monitor?
- Is data for this indicator available in other regions? If so, use the portal as a learning tool: How is data gathered in the other regions? Can we adopt the same methods for data gathering and harmonizing in the region where data is not available?
- If data is not available on the lowest scale level (municipality level), one should wonder if it is really needed to include data on a municipality level? For specific indicators, information on higher scale level (district) suffices to answer the underlying research question.
- Is it possible to increase availability on a more detailed scale level based upon information on a higher scale level?

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[6] Link to online portal: www.housing-emr.eu

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- Is it really necessary to include most recent data for a specific indicator to answer the research questions or does comparable data from other years suffice?[7]
- Which institutions need to be consulted in order to achieve further harmonization of the indicator? For instance, if one region lacks the availability of an indicator: which institution can contribute to providing the required data?

The prioritizing of desired indicators needs to be done by and in close consultation with the project partners in the EMR region. To start this process some recommendations will follow.

It is strongly advised to take into account these indicators that directly support to match the demand and supply side of the housing market. Indicators about the surroundings have less priority.

The data gap for households in the Region Aachen is remarkable. As a fundamental part of the demand side it is recommended to increase the availability and improve the quality of the already available data for this indicator.

Forecasts (and especially household forecasts) play a significant role in providing insight in the demand side of the housing monitor. Information about the predicted development of households is needed to direct and guide the required volume of the future housing stock. Availability of this important indicator is scattered between the regions. Forecasts are not available at a municipality level for all regions. Furthermore, different forecasting models are used between the regions, making it difficult to create a complete unambiguous regional overview. It is advised to use a uniform euregional prediction model taking the already available population and household data as input.

To ensure continuation of the EMR housing monitor and structural use of the online portal by municipalities for either policy making or stimulation of cross-border discussions, it is important to actively support the further development of the portal and to keep communicating with the end-users. Developing such a portal is an iterative process, integrating improvements step-by-step. The exposed data gaps act as guideline for this process.

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[7] For instance data from the census 2011 research; a study collecting main characteristics of population & housing data that is typically conducted every ten years.

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8 Appendix

To get more insight in the included regions and indicators an overview of the geographical areas included in the report and indicators that are considered for the portal are summarized in this appendix.

- **Included regions, district and municipalities**
  Overview of the included regions, districts and municipalities that are analyzed in this report.

- **Metadata**
  Overview of availability, definition, data source and possible issues are summarized in tables per theme (Population, Households, Migration, Housing, Housing market, Special housing, Labour market, Area).

8.1.1 Included regions, districts, municipalities

This appendix gives an overview of the included regions, districts and municipalities that are analyzed in this report. The municipalities are accompanied with a map reference number that corresponds to the numbers that are used in the maps that are used throughout this report.

Map reference nr.	Municipality code	Municipality	EMR region	NUTS3 code	District
001	73001	Alken	Limburg (BE)	BE223	Arr. Tongeren
002	71002	As	Limburg (BE)	BE221	Arr. Hasselt
003	71004	Beringen	Limburg (BE)	BE221	Arr. Hasselt
004	73006	Bilzen	Limburg (BE)	BE223	Arr. Tongeren
005	72003	Bocholt	Limburg (BE)	BE222	Arr. Maaseik
006	73009	Borgloon	Limburg (BE)	BE223	Arr. Tongeren
007	72004	Bree	Limburg (BE)	BE222	Arr. Maaseik
008	71011	Diepenbeek	Limburg (BE)	BE221	Arr. Hasselt
009	72041	Dilsen-Stokkem	Limburg (BE)	BE222	Arr. Maaseik
010	71016	Genk	Limburg (BE)	BE221	Arr. Hasselt
011	71017	Gingelom	Limburg (BE)	BE221	Arr. Hasselt
012	71020	Halen	Limburg (BE)	BE221	Arr. Hasselt
013	71069	Ham	Limburg (BE)	BE221	Arr. Hasselt
014	72037	Hamont-Achel	Limburg (BE)	BE222	Arr. Maaseik
015	71022	Hasselt	Limburg (BE)	BE221	Arr. Hasselt
016	72038	Hechtel-Eksel	Limburg (BE)	BE222	Arr. Maaseik
017	73022	Heers	Limburg (BE)	BE223	Arr. Tongeren
018	71024	Herk-de-Stad	Limburg (BE)	BE221	Arr. Hasselt
019	73028	Herstappe	Limburg (BE)	BE223	Arr. Tongeren
020	71070	Heusden-Zolder	Limburg (BE)	BE221	Arr. Hasselt
021	73032	Hoeselt	Limburg (BE)	BE223	Arr. Tongeren
022	72039	Houthalen-Helchteren	Limburg (BE)	BE222	Arr. Maaseik
023	72018	Kinrooi	Limburg (BE)	BE222	Arr. Maaseik
024	73040	Kortessem	Limburg (BE)	BE223	Arr. Tongeren
025	73042	Lanaken	Limburg (BE)	BE223	Arr. Tongeren
026	71034	Leopoldsburg	Limburg (BE)	BE221	Arr. Hasselt
027	72020	Lommel	Limburg (BE)	BE222	Arr. Maaseik
028	71037	Lummen	Limburg (BE)	BE221	Arr. Hasselt

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Map reference nr.	Municipality code	Municipality	EMR region	NUTS3 code	District
029	72021	Maaseik	Limburg (BE)	BE222	Arr. Maaseik
030	73107	Maasmechelen	Limburg (BE)	BE223	Arr. Tongeren
031	71045	Nieuwerkerken (Hasselt)	Limburg (BE)	BE221	Arr. Hasselt
032	72042	Oudsbergen	Limburg (BE)	BE222	Arr. Maaseik
033	72030	Peer	Limburg (BE)	BE222	Arr. Maaseik
034	72043	Pelt	Limburg (BE)	BE222	Arr. Maaseik
035	73066	Riemst	Limburg (BE)	BE223	Arr. Tongeren
036	71053	Sint-Truiden	Limburg (BE)	BE221	Arr. Hasselt
037	71057	Tessenderlo	Limburg (BE)	BE221	Arr. Hasselt
038	73083	Tongeren	Limburg (BE)	BE223	Arr. Tongeren
039	73109	Fourons	Limburg (BE)	BE223	Arr. Tongeren
040	73098	Wellen	Limburg (BE)	BE223	Arr. Tongeren
041	71066	Zonhoven	Limburg (BE)	BE221	Arr. Hasselt
042	71067	Zutendaal	Limburg (BE)	BE221	Arr. Hasselt
043	61003	Amay	Liège	BE331	Arr. Huy
044	62003	Ans	Liège	BE332	Arr. Liège
045	61079	Anthisnes	Liège	BE331	Arr. Huy
046	63003	Aubel	Liège	BE335	Arr. Verviers
047	62006	Awans	Liège	BE332	Arr. Liège
048	62009	Aywaille	Liège	BE332	Arr. Liège
049	63004	Baelen	Liège	BE335	Arr. Verviers
050	62011	Bitsingen	Liège	BE332	Arr. Liège
051	64008	Berloz	Liège	BE334	Arr. Waremme
052	62015	Beyne-Heusay	Liège	BE332	Arr. Liège
053	62119	Blegny	Liège	BE332	Arr. Liège
054	64015	Braives	Liège	BE334	Arr. Waremme
055	61010	Burdinne	Liège	BE331	Arr. Huy
056	62022	Chaudfontaine	Liège	BE332	Arr. Liège
057	61012	Clavier	Liège	BE331	Arr. Huy
058	62026	Comblain-au-Pont	Liège	BE332	Arr. Liège
059	64021	Crisnée	Liège	BE334	Arr. Waremme
060	62027	Dalhem	Liège	BE332	Arr. Liège
061	63020	Dison	Liège	BE335	Arr. Verviers

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Map reference nr.	Municipality code	Municipality	EMR region	NUTS3 code	District
062	64023	Donceel	Liège	BE334	Arr. Waremme
063	61080	Engis	Liège	BE331	Arr. Huy
064	62032	Esneux	Liège	BE332	Arr. Liège
065	64076	Faimes	Liège	BE334	Arr. Waremme
066	61019	Ferrières	Liège	BE331	Arr. Huy
067	64025	Fexhe-le-Haut-Clocher	Liège	BE334	Arr. Waremme
068	62120	Flémalle	Liège	BE332	Arr. Liège
069	62038	Fléron	Liège	BE332	Arr. Liège
070	64029	Geer	Liège	BE334	Arr. Waremme
071	62118	Grâce-Hollogne	Liège	BE332	Arr. Liège
072	61024	Hamoir	Liège	BE331	Arr. Huy
073	64034	Hannuit	Liège	BE334	Arr. Waremme
074	61028	Héron	Liège	BE331	Arr. Huy
075	62051	Herstal	Liège	BE332	Arr. Liège
076	63035	Herve	Liège	BE335	Arr. Verviers
077	61031	Hoei	Liège	BE331	Arr. Huy
078	63038	Jalhay	Liège	BE335	Arr. Verviers
079	62060	Juprelle	Liège	BE332	Arr. Liège
080	62063	Luik	Liège	BE332	Arr. Liège
081	63045	Lierneux	Liège	BE335	Arr. Verviers
082	63046	Limburg	Liège	BE335	Arr. Verviers
083	64047	Lijsem	Liège	BE334	Arr. Waremme
084	63049	Malmedy	Liège	BE335	Arr. Verviers
085	61039	Marchin	Liège	BE331	Arr. Huy
086	61041	Modave	Liège	BE331	Arr. Huy
087	61043	Nandrin	Liège	BE331	Arr. Huy
088	62121	Neupré	Liège	BE332	Arr. Liège
089	63057	Olne	Liège	BE335	Arr. Verviers
090	64056	Oerle	Liège	BE334	Arr. Waremme
091	61048	Ouffet	Liège	BE331	Arr. Huy
092	62079	Oupeye	Liège	BE332	Arr. Liège
093	63058	Pepinster	Liège	BE335	Arr. Verviers
094	63088	Plombières	Liège	BE335	Arr. Verviers

Map reference nr.	Municipality code	Municipality	EMR region	NUTS3 code	District
095	64063	Remicourt	Liège	BE334	Arr. Waremme
096	64065	Saint-Georges-sur-Meuse	Liège	BE334	Arr. Waremme
097	62093	Saint-Nicolas (Luik)	Liège	BE332	Arr. Liège
098	62096	Seraing	Liège	BE332	Arr. Liège
099	62099	Soumagne	Liège	BE332	Arr. Liège
100	63072	Spa	Liège	BE335	Arr. Verviers
101	62100	Sprimont	Liège	BE332	Arr. Liège
102	63073	Stavelot	Liège	BE335	Arr. Verviers
103	63075	Stoumont	Liège	BE335	Arr. Verviers
104	63076	Theux	Liège	BE335	Arr. Verviers
105	63089	Thimister-Clermont	Liège	BE335	Arr. Verviers
106	61081	Tinlot	Liège	BE331	Arr. Huy
107	63086	Trois-Ponts	Liège	BE335	Arr. Verviers
108	62122	Trooz	Liège	BE332	Arr. Liège
109	61063	Verlaine	Liège	BE331	Arr. Huy
110	63079	Verviers	Liège	BE335	Arr. Verviers
111	61068	Villers-Le-Bouillet	Liège	BE331	Arr. Huy
112	62108	Wezet	Liège	BE332	Arr. Liège
113	63080	Weismes	Liège	BE335	Arr. Verviers
114	61072	Wanze	Liège	BE331	Arr. Huy
115	64074	Borgworm	Liège	BE334	Arr. Waremme
116	64075	Wasseiges	Liège	BE334	Arr. Waremme
117	63084	Welkenraedt	Liège	BE335	Arr. Verviers
118	63001	Amblève	Ostbelgien	BE336	Bezirk Verviers (DG)
119	63012	Bullange	Ostbelgien	BE336	Bezirk Verviers (DG)
120	63087	Burg-Reuland	Ostbelgien	BE336	Bezirk Verviers (DG)
121	63013	Butgenbach	Ostbelgien	BE336	Bezirk Verviers (DG)
122	63023	Eupen	Ostbelgien	BE336	Bezirk Verviers (DG)
123	63040	La Calamine	Ostbelgien	BE336	Bezirk Verviers (DG)
124	63048	Lontzen	Ostbelgien	BE336	Bezirk Verviers (DG)
125	63061	Raeren	Ostbelgien	BE336	Bezirk Verviers (DG)
126	63067	Saint-Vith	Ostbelgien	BE336	Bezirk Verviers (DG)
127	GM0888	Beek	Limburg (NL)	NL423	Zuid-Limburg

Map reference nr.	Municipality code	Municipality	EMR region	NUTS3 code	District
128	GM1954	Beekdaelen	Limburg (NL)	NL423	Zuid-Limburg
131	GM0899	Brunssum	Limburg (NL)	NL423	Zuid-Limburg
132	GM1711	Echt-Susteren	Limburg (NL)	NL422	Midden-Limburg
133	GM1903	Eijsden-Margraten	Limburg (NL)	NL423	Zuid-Limburg
135	GM1729	Gulpen-Wittem	Limburg (NL)	NL423	Zuid-Limburg
136	GM0917	Heerlen	Limburg (NL)	NL423	Zuid-Limburg
138	GM0928	Kerkrade	Limburg (NL)	NL423	Zuid-Limburg
139	GM0882	Landgraaf	Limburg (NL)	NL423	Zuid-Limburg
141	GM1641	Maasgouw	Limburg (NL)	NL422	Midden-Limburg
142	GM0935	Maastricht	Limburg (NL)	NL423	Zuid-Limburg
143	GM0938	Meerssen	Limburg (NL)	NL423	Zuid-Limburg
147	GM1669	Roerdalen	Limburg (NL)	NL422	Midden-Limburg
148	GM0957	Roermond	Limburg (NL)	NL422	Midden-Limburg
149	GM0965	Simpelveld	Limburg (NL)	NL423	Zuid-Limburg
150	GM1883	Sittard-Geleen	Limburg (NL)	NL423	Zuid-Limburg
151	GM0971	Stein	Limburg (NL)	NL423	Zuid-Limburg
152	GM0981	Vaals	Limburg (NL)	NL423	Zuid-Limburg
153	GM0994	Valkenburg aan de Geul	Limburg (NL)	NL423	Zuid-Limburg
156	GM0986	Voerendaal	Limburg (NL)	NL423	Zuid-Limburg
158	05334002	Aachen	Region Aachen	DEA2D	StädteRegion Aachen
159	05358004	Aldenhoven	Region Aachen	DEA26	Düren
160	05334004	Alsdorf	Region Aachen	DEA2D	StädteRegion Aachen
161	05366004	Bad Münstereifel	Region Aachen	DEA28	Euskirchen
162	05334008	Baesweiler	Region Aachen	DEA2D	StädteRegion Aachen
163	05366008	Blankenheim	Region Aachen	DEA28	Euskirchen
164	05366012	Dahlem	Region Aachen	DEA28	Euskirchen
165	05358008	Düren	Region Aachen	DEA26	Düren
166	05370004	Erkelenz	Region Aachen	DEA29	Heinsberg
167	05334012	Eschweiler	Region Aachen	DEA2D	StädteRegion Aachen
168	05366016	Euskirchen	Region Aachen	DEA28	Euskirchen
169	05370008	Gangelt	Region Aachen	DEA29	Heinsberg
170	05370012	Geilenkirchen	Region Aachen	DEA29	Heinsberg
171	05358012	Heimbach	Region Aachen	DEA26	Düren

Map reference nr.	Municipality code	Municipality	EMR region	NUTS3 code	District
172	05370016	Heinsberg	Region Aachen	DEA29	Heinsberg
173	05366020	Hellenthal	Region Aachen	DEA28	Euskirchen
174	05334016	Herzogenrath	Region Aachen	DEA2D	StädteRegion Aachen
175	05370020	Hückelhoven	Region Aachen	DEA29	Heinsberg
176	05358016	Hürtgenwald	Region Aachen	DEA26	Düren
177	05358020	Inden	Region Aachen	DEA26	Düren
178	05358024	Jülich	Region Aachen	DEA26	Düren
179	05366024	Kall	Region Aachen	DEA28	Euskirchen
180	05358028	Kreuzau	Region Aachen	DEA26	Düren
181	05358032	Langerwehe	Region Aachen	DEA26	Düren
182	05358036	Linnich	Region Aachen	DEA26	Düren
183	05366028	Mechernich	Region Aachen	DEA28	Euskirchen
184	05358040	Merzenich	Region Aachen	DEA26	Düren
185	05334020	Monschau	Region Aachen	DEA2D	StädteRegion Aachen
186	05366032	Nettersheim	Region Aachen	DEA28	Euskirchen
187	05358044	Nideggen	Region Aachen	DEA26	Düren
188	05358048	Niederzier	Region Aachen	DEA26	Düren
189	05358052	Nörvenich	Region Aachen	DEA26	Düren
190	05334024	Roetgen	Region Aachen	DEA2D	StädteRegion Aachen
191	05366036	Schleiden	Region Aachen	DEA28	Euskirchen
192	05370024	Selfkant	Region Aachen	DEA29	Heinsberg
193	05334028	Simmerath	Region Aachen	DEA2D	StädteRegion Aachen
194	05334032	Stolberg (Rhld.)	Region Aachen	DEA2D	StädteRegion Aachen
195	05358056	Titz	Region Aachen	DEA26	Düren
196	05370028	Übach-Palenberg	Region Aachen	DEA29	Heinsberg
197	05358060	Vettweiß	Region Aachen	DEA26	Düren
198	05370032	Waldfeucht	Region Aachen	DEA29	Heinsberg
199	05370036	Wassenberg	Region Aachen	DEA29	Heinsberg
200	05370040	Wegberg	Region Aachen	DEA29	Heinsberg
201	05366040	Weilerswist	Region Aachen	DEA28	Euskirchen
202	05334036	Würselen	Region Aachen	DEA2D	StädteRegion Aachen
203	05366044	Zülpich	Region Aachen	DEA28	Euskirchen

8.1.2 Metadata

In this appendix the metadata for all indicators is shown in an extensive table. The metadata can act as a guide for the further developing of the portal, as in this data difficulties and data gaps are explained. The indicators are categorized by theme in a table. Per indicator information about availability, definitions and the source of data is shown. Where difficulties exist for an indicator this is explained in the remarks.

The availability of the indicator is shown with a background color. Green indicators are (partly) available, blue indicators have to be computed from other indicators and for red indicators data is not available for the specific region. Often only a part of the data is available or definitions between the regions are not alike. These issues are then mentioned in the remarks.

Within the source it is mentioned when data is only available through an Excel or CSV file. In those cases, data has to be manually imported and updated in the portal. As no sufficient budget for manual updating is available, it is possible that some of these indicators will not be updated in the coming years. If no specific file format is mentioned in the source, it is possible to import and update the data through an API into the portal, making it possible to update these indicators automatically.

Theme - Population (1)

Indicator	Description	Definition			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Total	Total population in the research area	**Absolute numbers.** The population is determined through multi-year intervals, using results of natural population movements and of migration statistics.	**Absolute numbers.** The population is determined through multi-year intervals, using results of natural population movements and of migration statistics.	**Absolute numbers.** The population is determined by the number of registered persons in the RRNP.	**IT.NRW** - 12411-01i: Bevölkerungsstand - Gemeinden - Stichtag	**CBS** - 84727NED Bevolking; geslacht, leeftijd, nationaliteit en regio, 1 januari	**Statbel** Bevolking naar woonplaats, nationaliteit (Belg/niet-Belg), burgerlijke staat, leeftijd en geslacht.	
By age	Population split up by age groups	**In groups of 5 years** (0-5, 5-10, 10-15 (..) 85-90, >90)	**Absolute numbers** (<1 years old, 1, 2, 3 (..), 93, 94 - >95 years old)	**Absolute numbers** (<1 years old, 1, 2, 3 (..), 98, 99, - >100 years old)	**IT.NRW** - 12411-05ir: Bevölkerungsstand nach 5er- Altersgruppen (19) - Gemeinden - Stichtag	**CBS** - 84727NED Bevolking; geslacht, leeftijd, nationaliteit en regio, 1 januari	**Statbel** Bevolking naar woonplaats, nationaliteit (Belg/niet-Belg), burgerlijke staat, leeftijd en geslacht.	
By nationality	National vs international	**Absolute numbers** (German vs non-German)	**Absolute numbers** (Western, non-Western, per continent, unknown)	**Absolute numbers** (Belgiums vs. Non-Belgiums)	**IT.NRW** - 12411-04ir: Bevölkerungsstand nach Nationalität und Geschlecht - Gemeinden - Stichtag	**CBS** - 84727NED Bevolking; geslacht, leeftijd, nationaliteit en regio, 1 januari	**Statbel** Bevolking naar woonplaats, nationaliteit (Belg/niet-Belg), burgerlijke staat, leeftijd en geslacht.	Due to definitions differences between countries only division to international and national population is shown in the portal.
Development	Population development	**Absolute numbers** (balance of births and deaths, internal and international migrations)	**Absolute numbers** (balance of births and deaths, internal and international migrations and changes of nationality)	**Absolute numbers** (balance of births and deaths, internal and international migrations and changes of nationality)	**IT.NRW -** 12491-01ir: Bevölkerungsstand und - bewegung (ab 1962) - Gemeinden - Jahr	**CBS** - 37230ned Bevolkingsontwikkeling; regio per maand.	**Statbel (Excel)** Loop van de bevolking	
Forecast	Population forecast	**Absolute numbers** (yearly between 2021-2050).	**Absolute numbers** (yearly from 2019 - 2050)	**Absolute numbers** (yearly until 2070).	**IT.NRW** - 12422-02ir: Bevölkerungsvorausberechnung 2021 bis 2050 (Gemeinden) nach Altersjahren und Geschlecht - Gemeinden - Stichtag	**Etil/Progneff**	**Statbel (Excel)** Bevolkingsvooruitzichten - Loop van de bevolking per arondissement	Different regiosn use different forecasting models! Only available on a district level for Belgian regions.
Density	Population per km²	**Absolute numbers** (inhabitants per km2)	**Absolute numbers** (inhabitants per km2)	**Absolute numbers** (inhabitants per km2) --> calculated with population numbers and cadastral area	**IT.NRW** - 12411-15ir: Katasterfläche (qkm), Bevölkerung und Bevölkerungsdichte - Stichtag - Gemeinden	**CBS** - 70072ned Regionale kerncijfers Nederland	**Statbel** Population and cadastral area	Calculated for Belgian regions

Theme - Population (2)

Indicator	Description	Definition			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Students	Number of students **living** in the research area	**Not available**	**Absolute numbers.** All types of students from middle school. (age 12>) registered by living place	**Absolute numbers.** Number of students who are enrolled at higher education institutes living in the research area .		**CBS** - 71450ned Leerlingen, deelnemers en studenten; onderwijssoort, woonregio.	**Vlaanderen - Dataloep** Gemeente rapporten hoger onderwijs **ARES** Higher Education Registrations 2014-15 to 2021-22	
Students	Number of student **studying** in the research area	**Absolute numbers.** Includes the registered student of the universities within NRW. **The list of universities has to be linked to the municipality where the establishment is settled.**	**Absolute numbers.** Students from university of applied sciences and university. **The list of universities has to be linked to the municipality where the establishment is settled.**	**Absolute numbers.** Number of students who are enrolled at higher education institutes living in the research area .	**IT.NRW -** 21311-01ai: Anzahl der Studierenden nach Hörerstatus, Geschlecht und Hochschulen - Land - Wintersemester (ab WS 1998/1999)	**DUO** Inschrijvingen in het Hoger Onderwijs.	**Vlaanderen - Dataloep** Gemeente rapporten hoger onderwijs **ARES** Higher Education Registrations 2014-15 to 2021-22	A lot of manual work involved due to linking different universities to municpality where establishment is settled.
Social spending	Population receiving social spendings	**Absolute numbers.** Number of recipients to receive help for Livelihood; available per gender and age group. (Hilfe zum Lebensunterhalt nach Kapitel 3 SGB XII in Nordrhein-Westfalen)	**Absolute numbers.** Number of recipients to receive help for Livelihood; available per gender, age group, migration background or by type of spending (WW and Bijstand)	**Absolute numbers.** Number of recipients to receive help for livelihood, available per nationality, age, gender and living situation (Leefloon).	**IT.NRW** - 22121-02ir: Empfänger von laufender Hilfe zum Lebensunterhalt nach Altersgruppen (6) - kreisfreie Städte und Kreise - Stichtag (Wohnortprinzip)	**CBS** - 80794NED Personen met een uitkering; uitkeringsontvangers per regio.	**SPP Intégration Sociale** Export through dashboard Maatschappelijke Integratie - Leefloon	Definition of help for livelihood is different in each region. Difficult to compare this indicator.
Relative social spending	Relative amount of people receiving social spendings from total population	**Relative number.**	**Relative number.**	**Relative number.**	**IT.NRW**	**CBS**	**SPP Intégration Sociale**	Calcutaled
Available income	Disposable income of private households per inhabitant	**Absolute numbers (Euros).** Disposable income of private households per inhabitant.	**Absolute numbers (Euros).** Average personal income (based on population with income)	**Absolute numbers (Euros).** Average income per inhabitant and per tax payer is available.	**IT.NRW -** 82411-01i: Umverteilungsrechnung: Verfügbares Einkommen der privaten Haushalte - Gemeinden - Jahr (ab 2004)	**CBS** - 84867NED Inkomen van personen; persoonskenmerken, regio (indeling 2020)	**Statbel** Fiscale statistiek van de inkomsten onderworpen aan de belasting van de natuurlijke personen per woonplaats.	Definition differs between the regions.

Theme – Households

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Total	Total number of households in the research area	**Absolute numbers** Private households	**Absolute numbers** Private households	**Absolute numbers** Both private and collective households (separate)	**IT.NRW -** 12111-19i: Zensus 2011, Haushalte nach Haushaltsgrößen - Stichtag 09.05.2011 - Gemeinden	**CBS** - 71486NED Huishoudens; samenstelling, grootte, regio, 1 januari.	**Statbel (Excel)** - Aantal huishoudens volgens type per gemeente	For Region Aachen only data from 2011 available.
Size	Persons per Household	**Absolute numbers** 1, 2, 3, 4, 5, 6 and more (private households)	**Absolute numbers** 1, 2, 3, 4, 5 or more (private households)	**Absolute numbers** 1,2,3-5,6 and more (private households)	**IT.NRW -** 12111-19i: Zensus 2011, Haushalte nach Haushaltsgrößen - Stichtag 09.05.2011 - Gemeinden	**CBS** - 71486NED Huishoudens; samenstelling, grootte, regio, 1 januari.	**Statbel (Census 2011)** C57: Particuliere huishoudens volgens verblijfplaats (gemeente), type particulier huishouden (A) en grootte particulier huishouden (A)	For Region Aachen and the Belgian regions only data for 2011 available.
Forecast	Households forecast from key date until...	**Absolute numbers of private households** (2018,2020,2025,2030,2035 and 2040) available per household size	**Absolute numbers private households** (yearly from 2019 - 2050)	**Absolute numbers private households** (yearly until 2071)	**IT.NRW (pdf)** Statistische Berichte Modellrechnung zur Entwicklung der Privathaushalte in Nordrhein-Westfalen 2018 bis 2040	**Etil/Progneff**	**Statbel (Excel)** Particuliere huishoudens per arrondissement, op 1 januari 1992-2071	Different regions use different forecasting models! For Region Aachen only district level available.
Type	Households split up by types of households	**Absolute numbers.** Single-person households, Couples without a child, Couples with child(s), Single parents, Multi-person households without a nuclear family	**Absolute numbers.** Single-person households, couples without a child, couples with child(s), single parent with children, other households	**Absolute numbers.** Single-person households, couples without a child, couples with child(s), single parents, other households, collective households	**IT.NRW -** 12111-20i Zensus 2011, Haushalte nach Haushaltstypen - Stichtag 09.05.2011 - Gemeinden	**CBS** - 71486NED Huishoudens; samenstelling, grootte, regio, 1 januari.	**Statbel (Excel)** Aantal huishoudens volgens type per gemeente	For Region Aachen only data from 2011 available.

Theme – Migration

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
National emigration	Emigrants from the research area to a national destination	**Absolute numbers.** De-registration is official when a person gives up his main residence within a municipality and registers in another municipality where he is registered as a new resident.	**Absolute numbers.** Amount of persons that have moved within The Netherlands to a different address (from a municipality within the research area to another municipality in the country).	**Absolute numbers.** Amount of persons that are removed from the register as they are now registered in another municipality in the country.	**IT-NRW -** 12711-01ir: Zu-/Fortgezogene Männer, Frauen, Deutsche und Ausländer über die Gemeindegrenzen - Gemeinden - Jahr	**CBS** - 37259ned Bevolkingsontwikkeling; levend geborenen, overledenen en migratie per regio.	**Statbel (Excel)** Loop van de bevolking.	
National immigration	Immigrations from a national source area to the research area	**Absolute numbers.** New arrivals are predominantly registered by means of registration forms. Immigration is considered moving into a community in which he is not already registered with a main residence.	**Absolute numbers.** Amount of persons that have moved within The Netherlands to a different address (from a municipality in the country to a municipality within the research area)	**Absolute numbers.** Amount of persons that are added to the register, as a result of moving in from another municipality in the country.	**IT.NRW -** 12711-01ir: Zu-/Fortgezogene Männer, Frauen, Deutsche und Ausländer über die Gemeindegrenzen - Gemeinden - Jahr	**CBS** - 37259ned Bevolkingsontwikkeling; levend geborenen, overledenen en migratie per regio.	**Statbel (Excel)** Loop van de bevolking.	
International emigration	Emigrants from the research area to an international destination	**Absolute numbers.** When moving abroad a person is only registered as emigrant when their residence within the federal territory has been given up.	**Absolute numbers.** People are removed from the register when the expected stay abroad is at least 8 months. Only emigration that is reported at the municipality is considered.	**Absolute numbers.** Amount of persons that are removed from the register, while not being registered in any other municipality in the country and have not passed away.	**IT.NRW -** 12711-61ir: Zu-/Fortgezogene Männer, Frauen, Deutsche und Ausländer aus dem/in das Ausland - kreisfreie Städte und Kreise - Jahr	**CBS** - 37259ned Bevolkingsontwikkeling; levend geborenen, overledenen en migratie per regio.	**Statbel (Excel)** Loop van de bevolking.	For Region Aachen multiple tables available, with different numbers. Numbers on district level comply with reporting found.
International immigration	Immigrations from an international source area to the research area	**Absolute numbers.** New arrivals are predominantly registered by means of registration forms. Immigration is considered moving into a community in which he is not already registered with a main residence.	**Absolute numbers**. Amount of persons that are added to the municipal registers. People are added when they are expected to stay in the Netherlands for at least 4 months.	**Absolute numbers.** Amount persons that are added to the register, while previously not being registered in another municipality or added because they were illegal staying within the country.	**IT.NRW -** 12711-61ir: Zu-/Fortgezogene Männer, Frauen, Deutsche und Ausländer aus dem/in das Ausland - kreisfreie Städte und Kreise - Jahr	**CBS** - 37259ned Bevolkingsontwikkeling; levend geborenen, overledenen en migratie per regio.	**Statbel (Excel)** Loop van de bevolking.	For Region Aachen multiple tables available, with different numbers. Numbers on district level comply with reporting found.
Forecast	Internal and external migration forecast	**Absolute numbers.** Only balance of immigration/emigration available. Annual prediction with 2021 as base until 2049.	**Absolute numbers.** Only sum of national and international migration. So not split up into emigration/immigration.	**Absolute numbers.** Internal and external migration, immigration and emigration available. Yearly until 2071.	**IT.NRW -** 12422-03ir Bevölkerungsvorausberechnung 2021 bis 2049 (Gemeinden) Bevölkerungsbewegung und Geschlecht - Gemeinden - Jahrdistrict - year	**Etil/Progneff** Bevolkingsprognoses tot 2050	**Statbel (Excel)** Loop van de bevolking per arondissement	For all regions, data is only available at district level

Theme – Housing (1)

Description	Characteristic			Source			Remark
	Region Aachen	**Provincie Limburg (NL)**	**Provincie Limburg (B) + Liège + Ostbelgien**	**Region Aachen**	**Provincie Limburg (NL)**	**Provincie Limburg (B) + Liège + Ostbelgien**	
Total number of housing units in the research area	**Absolute numbers.** Housing units in buildings with (also partial) housing purposes. A housing unit is to be understood as a room that is closed off from the outside, is intended for residential purposes and is usually located together and enables one to run one's own household. **'Wohnheime' (also student and care homes) are subtracted from the total.**	**Absolute numbers** based on the BAG (Basic Registration Addresses and Buildings) and processed by Etil. We only take 'independent' houses (housing units with their own bathroom, kitchen and living space) into account.	**Absolute numbers. It remains unclear what is included within 'housing units'.** The region itself describes the following definition: *A housing unit is a unit consisting of several rooms in which an independent household can be run.*	**IT.NRW** - 31231-07iz: Fortschr. Wohngebäude- u. Wohnungsbestand GWZ2011 Wohngebäude, Wohnungen und Wohnfläche nach Anzahl der Wohnungen - Gemeinden - Stichtag	**Etil** WoonPortaal Provincie Limburg	**Statbel** Kadastrale statistiek van het gebouwenpark, België en gewesten, bebouwde grondoppervlakte, 2022	
Buildings split up by the building's age	**Absolute numbers** to 1919, 1919-1948,1949-1978, 1979-1986, 1987-1990, 1991-1995, 1996-2000, 2001-2004, 2005-2008, since 2009.	**Absolute numbers** <1945, 1945-1965, 1965-1985, 1985-2005, >2005	**Absolute numbers** before 1900, 1900-1918, 1919-1945, 1946-1961, 1962-1970, 1971-1981, 1982-1991, 1992-2001, 2002-2011 and after 2011	**IT.NRW** - 31211-01i: Gebäude mit Wohnraum sowie Wohngebäude nach dem Baujahr (10) - Gemeinden - Stichtag	**Etil** WoonPortaal Provincie Limburg	**Statbel (Excel)** Kadastrale statistiek van het bestande van de gebouwen 1995-2022	For Region Aachen only available for 2011
Housing units split up by housing types	**Not available**	**Absolute numbers** Single-family, Multy-familie/ Apartment, 2 ^ 1 roof house, Detached house, Townhouse, Corner house, Unknown	**Absolute numbers** Closed type houses; half-closed type houses; open houses; appartments; trading houses; every other kind of buildings		**Etil** WoonPortaal Provincie Limburg	**Statbel (Excel)** Kadastrale statistiek van het bestande van de gebouwen 1995-2022	Not available for Region Aachen
Housing units split up by size categories in m²	**Absolute numbers** <40, 40-59, 60-79, 80-99, 100-119, 120-139, 140-159, 160-179, 180-199, 200+.	**Absolute numbers** 2-15m², 15-50m²,50-75m²,75-100m²,100-150m²,150-250m²,250-500m²,500-10000m² The usable area in m² is taken into account	**Absolute numbers** Area built on the ground <45m², 45-64,65-104,104<. In this indicator buildings are divided per area, not housing units.	**IT.NRW** - 31211-04i: Wohnungen in Gebäuden mit Wohnraum sowie in Wohngebäuden nach der Wohnfläche (10) - Gemeinden - Stichtag	**CBS** - 83704NED Voorraad woningen; woningtype, oppervlakteklasse, regio	**Statbel (Excel)** Kadastrale statistiek van het bestande van de gebouwen 1995-2022	For Region Aachen only available for 2011. For Belgium only available per building, not per housing units. Impossible to compare indicator due to different size classifications.
Housing units split up by the number of their rooms	**Absolute numbers** 1,2,3,4,5,6,7 and more. Also includes 'Wohnheime'; independent housing units (for example student and care homes).	**Absolute numbers** 2 and less, 3, 4, 5 and more	**Absolute numbers** 1,2,3,4,5,6,7,8,9,9 and more, unknown.	**IT.NRW** - 31231-05ir: Fortschr. Wohngebäude- u. Wohnungsbestand GWZ2011 Wohnungen in Wohn- und Nichtwohngebäuden nach Anzahl der Räume - Gemeinden - Stichtag	**WoON onderzoek CBS** - Woningvoorraad naar kenmerken 2018	**Statbel** C54: Bewoonde conventionele woningen volgens geografisch niveau (arrondissement), type gebouw, aantal bewoners (C), aantal kamers per bewoner en aantal kamers	For Region Aachen and Belgian regions only available for 2011. For Beglian regions only avaiable on a district level. In Limburg (NL) available for 2002-2018 with 3-year intervals.

Theme – Housing (2)

Description	Characteristic			Source			Remark
	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Housing units split up by their ownership	**Absolute numbers** Inhabited by owner, rented for residential purposes, holiday or leisure apartment, vacant.	**Absolute numbers** Owner-occupied houses, rented housing and collective houses.	**Absolute numbers** Owner-occupied houses, rented housing, unknown, other housing units or collective houses. Ownership per housing unit is taken into account.	**IT.NRW** - 31211-03i: Wohnungen in Gebäuden mit Wohnraum sowie in Wohngebäuden nach Art der Wohnungsnutzung (4) - Gemeinden - Stichtag	**Etil** WoonPortaal Provincie Limburg	**Census 2011 (Excel) -** 00.41A Woningen - Bewoonde woningen naar type eigendom.	For Region Aachen and Belgian regions only available for 2011. For Limburg (NL) available since 2012.
Planned housing units in the research area	**Absolute numbers** Building permits for housing units in residential and non-residential buildings together. Permits include both new constructions and construction work on existing buildings.	**Absolute numbers** Not based on permits, but on plancapacity arranged by the municipalities. In terms of definitions it will include planned housing units (new construction) in residential and non-residential buildings	**Absolute numbers** Provided building permits. Number of housing units only available for new construction in residential buildings.	**IT.NRW** - 31111-01ir: Baugenehmigungen (Neubau und Baumaßnahmen an bestehenden Gebäuden): Wohn- und Nichtwohngebäude, Wohnungen, Räume, Wohn- und Nutzfläche - Gemeinden - Jahr	**Etil** WoonPortaal Provincie Limburg	**Statbel** Bouwvergunningen jaarresultaten 1996-2022	Definitions between the regions differ, so comparing between the regions is almost impossible. No option for harmonization.
Realized housing plans in the research area	**Absolute numbers** Realized constructions for both buildings and housing units in residential and non-residential buildings together. Realizations include both new constructions and construction work on existing buildings.	**Absolute numbers** Realized housing units (new construction) in both residential and non-residential buildings		**IT.NRW -** 31121-01ir: Baufertigstellungen (Neubau und Baumaßnahmen an bestehenden Gebäuden): Wohn- und Nichtwohngebäude, Wohnungen, Räume, Wohn- und Nutzfläche - Gemeinden - Jahr	**Etil** WoonPortaal Provincie Limburg		Not available for Belgian regions
Demolition of housing units in the research area per year	**Absolute numbers** Definition unclear	**Absolute numbers** Withdrawn housing units for both residential and non-residential buildings		**NRW bank (Excel)**	**Etil** WoonPortaal Provincie Limburg		Only available in Limburg (NL) and Region Aachen. For Region Aachen data is not available directly at the source and has to be manually requested and updated each year
Proportion of renovated units compared to total authorized housing			**Relative numbers** Percentage of permits for renovations, in terms of total number of permits (both for new construction and renovations)			**IWEPS (CSV)** - 2160010 Part de logements autorisés en rénovation par rapport au total de logements autorisés	Not available for Region Aachen, Limburg (NL) and Limburg (BE).

Theme – Housing (3)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Density	Number of housing units per km² in the research area	***Number of housing units / total area***	***Number of housing units / total area***	***Number of housing units / total area***				Calculation with two indicators
Residential area per habitant	Residential area per habitant in m²	***Residential area / population in the research area*** Residential area: Parcels exclusibely or predominantly used for living	***Residential area / population in the research area*** Residential area: Land that is mainly used for residential purposes	***Residential area / population in the research area*** Residential area: including appartments, buildings, houses and farms & outbuildings				Calculation with two indicators
Proportion of appartments	Proportion of appartements among authorized housing (new construction)		**Relative number**	**Relative number**		**Etil** WoonPortaal Provincie Limburg	**IWEPS (CSV)** - 2160000 Part d'appartements parmi les logements autorisés (nouvelles constructions)	Not available for the region Aachen and for Limburg (BE)
Housing units per building	Number of housing units per building (min. 1)	**Absolute numbers** 1,2,3-6,7-12, 13 and more. For buildings that include living space.		**Avbsolute numbers** 1,2-5,6-10,>10. Housing units with residential function, includes: individual housing, appartments (also rooms and studios) and collective houses (also retirement homes)	**IT.NRW -** 31211-02i: Gebäude mit Wohnraum sowie Wohngebäude nach Zahl der Wohnungen (5) - Gemeinden - Stichtag		**Provincies.incijfers.be** Woongelegenheden naar woningtype en grootte	Only available in 2011 for Region Aachen. Not available for Limburg (NL), Liège and Ostbelgien. Categories do not comply, unless splitted in 1 and >1. Hard to compare outcome for this indicator.

Theme – Housing market (1)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Empty housing units	Number of empty housing units in the research area	**Absolute numbers** Only include empty rental houses	**Absolute numbers** Housing units (owner-occupied, rental and unknown) on which no one was registered at the GBA/BRP on January 1st		**NRW bank (Excel)**	**Etil** WoonPortaal Provincie Limburg		Only available in Limburg (NL) and Region Aachen. For Region Aachen data is not available directly at the source and has to be manually requested and updated each year. Also definitions are not the same between regions as Region Aachen only includes empty rental houses.
Potential empty housing units	Number of housing units that will be presumably empty in the next years, months,..	**Predicted amount of households – amount of houses in 2022**		**Predicted amount of households – amount of houses in 2022**				For Limburg (NL) there is a definition mismatch between households and housing, making it impossible to do this calculation. For Region Aachen, outcome is incorrect as households forecasts are outdated.
Ratio houses / households (added to indictor list)	Number of houses divided by number of households	**Number of independent housing units / number of private households**		**Number of independent housing units / number of private households**				For Limburg (NL) there is a definition mismatch between households and housing, making it impossible to do this calculation.

Theme – Housing market (2)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Energy labels	Share of registered energy labels from total amount of registered energy labels		**Absolute number** Amount of housing units per energy labels (A++ - F)			**Etil** WoonPortaal Provincie Limburg	**CEHD (Excel)** PEB par type de logement et période de construction	Not available for Region Aachen and Limburg (BE). Available as Excel for Liège and Ostbelgien until 2018.
Rental prices	Average rental prices for houses/apparments in the research area	**Absolute numbers in euros** Average rental price for rental houses that are offered online	**Absolute numbers in euros.** Average gross living expenses.	**Absolute number in euros.** Average rental price per month	**VALUE (Excel)**	**WoON onderzoek CBS** Bruto woonuitgaven (huur) per maand 2018	**IWEPS (Excel)** Le marché locatif sous la loupe. Mesurer les loyers dans communes Belges et Wallonnes.	Definitions differ between the regions. Data for Limburg (NL) only available from 2002-2018 with 3-year intervals. Available for Liège and Ostbelgien until 2015.
Purchase prices	Average purchase prices for houses/apparments in the research area	**Average demand price in euros** Average demand price for houses that are offered online	**Average purchase price in euros** For existing houses bought by a particular person (not specified house or appartment)	**Median purchase price in euros** For closed/half closed houses, open houses and apartments (new constructions excluded)	**VALUE (Excel)**	**Etil** WoonPortaal Provincie Limburg	**Statbel** Statistiek van de verkopen van gebouwen: aantal en verkoopprijs per datum, oppervlakte en type gebouw	Not comparable between the regions due to definition differences.
Interest rates	Average interest rates for mortgages	**Rate** Interest rates on housing loans (households)	**Rate** Deposits and loans from MFI's to households with interest rates (on new loans)	**Rate** Interest rates on new loans	**Deutsche Bundesbank**	**DNB**	**Nationale bank van België**	This is only available on a country scale level

Theme – Special housing (1)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Public housing	Share of houses that are publicly subsidised	**Absolute numbers** Publicly subsidised or price-controlled rental housing stock	**Absolute numbers** Rental houses owned by public housing institutes (including social housing)	**Absolute numbers** Social housing (SHM + SVK) Number of houses rented via AIS (= social housing agency, low rents) **Share** Public dwellings owned and leased by one of the SLSPs (public service housing companies)	**NRW Bank (Excel)** Geförderter Mietwohnungsbestand (Einkommensgruppen A & B)	**CBS** Voorraad woningen; eigendom, type verhuurder, bewoning, regio	**Provincies.incijfers.be** Sociale huurwoningen (SHM) **IWEPS** 8121000: AIS or 2442000: public SLSP	Definitions differ between the regions. In the Dutch and Belgian regions indicator includes houses offered by housing institutions. In Region Aachen these units can also be from private persons.
	Unoccupied public housing	**Absolute numbers** Unoccupied price-controlled rental housing stock (*preisgebundener Mietwohnungsbestand)*	**Absolute numbers** Unoccupied housing stock owned by corperation	**Absolute numbers** Unoccupied housing of units on the social rental market Number of non-rentable SLSP houses & Number of non-rented but rentable SLSP houses	**NRW Bank (Excel)** Leerstand	**CBS** Voorraad woningen; eigendom, type verhuurder, bewoning, regio	**Provincies.incijfers.be** Sociale huurwoningen - leegstand **IWEPS** 2442011, 2442012	Definitions differ between the regions. In the Dutch and Belgian regions indicator includes houses offered by housing institutions. In Region Aachen these units can also be from private persons.
	Application for social housing	**Absolute numbers** Number of applications of persons that are entitled to social housing (applications for *Wohnberechtigungsschein)*		**Absolute numbers** Amount of unique households on the waiting list for SHM with an addres in Brussels or Vlaanderen Number of applications for social housing managed by SLSP (only municipality of first choice is included)	**NRW Bank (Excel) -** Erteilte Wohnberechtigungsscheine		**Provincies.incijfers.be** Kandidaathuurders per domiciliegemeente **IWEPS** 2442020: Nombre de candidatures à un logement SLSP sur l'entité	Definitions differ between the regions. In the Dutch and Belgian regions indicator includes houses offered by housing institutions. In Region Aachen these units can also be from private persons.

Theme – Special housing (2)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Number of transactions	Total number of transactions (purchase houses) on the housing market in the research area per year	**Absolute numbers** Number of transactions of offered housing units	**Absolute numbers** Number of registered transactions of sold houses (by a particular person)	**Absolute numbers** Number of transactions	**VALUE**	**Etil** WoonPortaal Provincie Limburg	**Statbel** Statistiek van de verkopen van gebouwen: aantal en verkoopprijs per datum, oppervlakte en type gebouw	Definitions differ as in Region Aachen only online offered housing units are available, while in Belgium and the Netherlands all transactions are known.
Care institutions	Number of care institutions in the research area (care in a living situation) Etil: independent or dependent housing units used for care purposes		**Absolute numbers** Non-independent residential care units, independental residential care homes, elderly care	**Absolute numbers** Housing capacity in care institutions for elderly: living-care homes, short-stay, assisted living. Daycare is presented in amount of day care centra.		**Etil**	**Provincies.incijfers.be** Huidige capaciteit zorgaanbod	Not available in Region Aachen. Definitions or types of institutions differ between the regions.
Temporary houses			**Absolute numbers** Amount of temporary houses			**Etil**		Only available for Limburg (NL)
Mobile houses			**Absolute numbers** Amount of mobile houses			**Etil**		Only available for Limburg (NL)

Theme – Labour market (1)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Employment	Number of employees	**Absolute numbers** All emplyees subject to social security insurances	**Absolute numbers** Persons who have paid work	**Absolute numbers** Persons who have paid work	**ITNRW -** 13111-01i Sozialversicherungspflichtig Beschäftigte (Arbeitsort) - Gemeinden - Stichtag	**CBS** - 22001NED Arbeidsdeelname; regionale indeling 2021	**Steunpunt Werk (Excel)** Vlaamse Arbeidsrekening: Bevolking naar socio-economische positie	Only available till 2019 for Belgian regions.
Unemployment	Number of unemployed people	**Absolute numbers** Persons without paid work	**Absolute numbers** Persons without paid work, who have been looking for work recently and are immediately available to work.	**Absolute numbers** Persons without (officialy) paid work	**ITNRW -** 13211-05i Arbeitsmarktstatistik: Arbeitslose nach Geschlecht - Gemeinden - Jahr	**CBS** - 22001NED Arbeidsdeelname; regionale indeling 2021	**Steunpunt Werk (Excel)** Vlaamse Arbeidsrekening: Bevolking naar socio-economische positie	Only available till 2019 for Belgian regions.
Employment rate	Employment share of working age population (15-65)		**Rate** Employed persons relative to sum of labor and non-labor force (employed + unemployed persons + people unfit for work)	**Rate** Employed persons relative to sum of labor and non-labor force (employed + unemployed persons + people unfit for work)		**CBS** - 22001NED Arbeidsdeelname; regionale indeling 2021	**Steunpunt Werk (Excel)** Vlaamse Arbeidsrekening: Bevolking naar socio-economische positie	Not available for Region Aachen. Only available till 2019 for Belgian regions.
Unemployment rate	Unemployment as a percentage of working age population (15-65)	**Rate** Registered unemployed (AL) to the civilian labor force (EP = civilian workers + registered unemployed) (AL/EP*100)	**Rate** Unemployed persons relative to sum of labor force (employed + unemployed persons)	**Rate** Non-working people looking for a job as part of the total labor force	**ITNRW -** 13211-07ir Arbeitsmarktstatistik: Arbeitslosenquote bezogen auf alle zivilen Erwerbspersonen - Gemeinden - Jahr	**CBS** - 22001NED Arbeidsdeelname; regionale indeling 2021	**Steunpunt Werk (Excel)** Vlaamse Arbeidsrekening: Bevolking naar socio-economische positie	Only available till 2019 for Belgian regions.

Theme – Labour market (2)

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Qualification level	Educational level of employees	**Absolute numbers** Amount of employeers with no education, professional education and an academic degree	**Absolute numbers** Amount of employeers with low, middle and high education levels		**ITNRW** - 13111-44ir Sozialversicherungspflichtig Beschäftigte (Wohnort) nach Art des Berufsabschlusses (4) und Geschlecht - kreisfreie Städte und Kreise - Stichtag	**CBS** - 22001NED Arbeidsdeelname; regionale indeling 2021	**Steunpunt Netwerk** Only qualification level of job available	For Region Aachen available on a district level.
Highly qualified employees	Number of highly qualified workers in total employment	**Absolute numbers** Amount of employeers with an academic degree	**Absolute numbers** Number of employees with a high education level		**ITNRW** - 13111-44ir Sozialversicherungspflichtig Beschäftigte (Wohnort) nach Art des Berufsabschlusses (4) und Geschlecht - kreisfreie Städte und Kreise - Stichtag	**CBS** - 22001NED Arbeidsdeelname; regionale indeling 2021	**Steunpunt Netwerk** Only qualification level of job available	For Region Aachen available on a district level.
Commuters	Number of commuters that live or work in the EMR and their source or	**Absolute numbers** Employees that live and work in the EMR region	**Absolute numbers** Employees that live and work in the EMR region	**Absolute numbers** Employees that live and work in the EMR region	**CBS** - 22003NED Grenspendel werknemers; nationailiteit, woonland, werkregio (NUTS 3)	**CBS** - 22003NED Grenspendel werknemers; nationailiteit, woonland, werkregio (NUTS 3)	**CBS** - 22003NED Grenspendel werknemers; nationailiteit, woonland, werkregio (NUTS 3)	Only available at a district level.

Theme – Area

Indicator	Description	Characteristic			Source			Remark
		Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	Region Aachen	Provincie Limburg (NL)	Provincie Limburg (B) + Liège + Ostbelgien	
Size		**Absolute numbers** Total m2 (Ha) Residential area --> used exclusively or primarily for living.	**Absolute numbers** Total m2 of municipality Residential area --> area used for living	**Absolute numbers** Total m2 of municipality Residential area --> sum of area filled with building used for living purposes	**IT.NRW -** 33111-03ir: Bodenfläche nach Art der tatsächlichen Nutzung (2 und 3-Steller) - Gemeinden - Stichtag (ab 2016)	**CBS** - 70262ned Bodemgebruik; uitgebreide gebruiksvorm, per gemeente	**Statbel -** Bodembezetting op basis van het Kadasterregister per gemeente, gedetailleerde kadastrale aard en per jaar sinds 1982	Total area available for all regions. Residential area has to be created in Belgian regions by summing built area.
Cadastral plan	Land register	Outlines of every parcel	Outlines of every parcel	Outlines of every parcel	**Geoportal.nrw**	**Kadaster** Living atlas (Esri)	**Financien Belgium** ArcGIS project (Geoinformation)	Available as geodata.
Use	Actual use of parcels	**Absolute numbers** m2 of different types of use per municipality	**Absolute numbers** m2 of different types of use per municipality	**Absolute numbers** m2 of different types of use per municipality	**IT.NRW -** 33111-03ir: Bodenfläche nach Art der tatsächlichen Nutzung (2 und 3-Steller) - Gemeinden - Stichtag (ab 2016)	**CBS** - 70262ned Bodemgebruik; uitgebreide gebruiksvorm, per gemeente	**Statbel -** Bodembezetting op basis van het Kadasterregister per gemeente, gedetailleerde kadastrale aard en per jaar sinds 1982	
Legal assignement	Legal assignment of land and parcels	Flächennutzungsplan/Bebauungsplan	Bestemmingsplannen	Bestemmingsplannen	**Aachen.de** Ongoing urban development planning procedures in GIS	**Ruimtelijkeplannen.nl**	**geopunt.be** Kadastraal percelenplan Vlaanderen	Definitions of legal assignments differ between the different regions.