THEMATIC REPORT

THE LABOUR MARKET OF THE EUROPEAN INLAND NAVIGATION SECTOR

PUBLISHED IN

MARCH 2024

European Commission

CCNR
CENTRAL COMMISSION FOR THE NAVIGATION OF THE RHINE

Thematic report

THE LABOUR MARKET OF THE EUROPEAN INLAND NAVIGATION SECTOR

Published in
March 2024

Please find all our data at:
www.inland-navigation-market.org

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Central Commission for the Navigation of the Rhine (CCNR), in partnership with the European Commission, publishes annual and biannual reports dealing with the European inland navigation market. Thematic reports are also published and cover certain aspects of the inland navigation market.

The monitoring of labour market indicators in a given sector is particularly relevant to assess the situation of human capital in this sector and its future development. Human capital is one of the most important resources and a fundamental precondition for a high-quality performance and economic growth of a sector. Given that no report providing detailed data on this topic at the level of the European inland navigation sector is currently available, it was decided to draft a thematic report with the objective of improving knowledge and information about the European inland navigation sector labour market.

When investigating all possible sources (statistical offices, employment administration, social security organisations, waterway administrations, ministries of transport and of labour, etc.), detailed data about employment and labour market conditions in inland waterway transport were identified. However, given that several sources of data sometimes exist for one and the same country, data might be more or less different for the same country depending on the source used. This is mainly due to the different methodologies used by different organisations. Whenever possible, an explanation has been given in the report as to the type of source chosen and the reasons for choosing one source over another.

Based on quantitative data and qualitative information collected in the context of this report, the following main conclusions can be highlighted.

According to the Eurostat SBS, the total number of persons employed in the transport of goods and passengers on inland waterways in Europe amounted to approximately 41,923 in 2020, of whom around 44% are in passenger transport and the other 56% in freight transport. This figure is not available for 2021.

From 2011 to 2018, the number of persons employed in the passenger transport sector in Europe has continuously increased, as a result of several factors, including the increase in the number of cruise vessels in the European IWT market and the increase in demand for river cruises. However, in 2019 and 2020 almost all European countries registered a substantial decrease in workers, more marked in 2020. The outbreak of the global health crisis and the consequent containment measures established by the European Union and Member States' governments severely affected the transport of passengers. In terms of the labour force employed in the inland passenger transport sector, Germany is the leading country. The Netherlands, Switzerland and Italy also show high proportions of employment in the sector. Figures for the labour force in 2021 increased overall and per country compared to 2020, mirroring the progressive recovery of inland waterway passenger transport after the Covid-19 crisis. In the Netherlands, the number of employed persons slightly decreased between 2020 and 2021.

In inland waterways freight transport, the Netherlands is the leading country in terms of employed persons, followed by Germany, France, and Romania. There was a stable trend between 2008 and 2021. Unlike the passenger transport sector, the number of employed persons does not show substantial decreases in 2020. This indicates that the slowdown or the closure of the economic activities in the crucial months of the pandemic did not severely affect the employment of inland navigation freight transport.

The majority of IWT companies in Europe are registered in the Netherlands, followed by Germany and France, which also have a high share. On average, the Netherlands has a market structure composed mainly of small companies with an average of about three workers per company, compared to Germany which has a higher number of larger companies. Concerning both passenger and freight transport, a tendency towards more consolidation is reported by banks.

Overall, the number of passenger transport companies shows an increasing trend between 2012 and 2015, after which the number stabilised until 2020, when a slight decrease is registered. The year 2021 showed a clear increase in the number of companies.

Concerning inland navigation freight transport, a decreasing trend in the number of companies is observed between 2014 and 2021.

Several phenomena have affected the labour market in the inland waterway transport sector. The most noticeable are migration, the ageing process, staff shortage, climate conditions (water levels), and the macroeconomic and financial conditions. According to the Danube Commission, differences in salaries compared with the maritime sector is also a labour market influencing factor in the Danube region. Due to higher salaries in the maritime sector, a greater number of job starters/ seekers decide to choose this sector when starting their training.

In terms of regional distribution in Europe in regard to the degree of employment, the overall trend was rather negative in eastern Europe in the inland waterway freight transport sector. Potentially, one of the main reasons is the lower wage level. Compared to western Europe, wages in eastern Europe are very low. The statistical data suggest a high rate of migration of inland waterway workers from eastern Europe to western Europe. Germany is the major country of destination, in particular for Czech, Polish and Romanian IWT workers. Luxembourg welcomes a high number of IWT workers from the Czech Republic, Poland and Romania. Both Austria and Germany employ many Serbs and Hungarians.

Another phenomenon of the IWT labour market is the ageing process which somehow is correlated with the staff shortage phenomenon. Detailed long-run data for Belgium show that ageing is particularly a problem within the group of self-employed barge owner-operators. Based on information provided by interviews, it can be assumed that many young people favour land-based jobs with regular working hours and weekends at home. This factor is highly relevant, for example in western Europe, where around 80% of IWW freight companies are independent owner-operators, whose working hours often cannot be predicted in conformity with a regular schedule.

The factor described above leads to a certain shortage of labour in the sector both for passenger and freight inland navigation markets, which can be observed for qualified personnel at management level (boatmasters), which is even more pronounced in the liquid cargo segment. Other factors contributing to observed shortage of staff are of a technical nature. As the work required from crew members is becoming more and more technical, inland navigation companies often seek more specialised profiles than before, and which are also difficult to find.

In terms of economic phenomena, the macro-economic context of the previous years has been severely affected by three main crises. In 2020, the Covid-19 pandemic and its consequences weighted heavily on many economic sectors. The slowdown in global production

and international trade together with the restrictions on domestic and international mobility provoked a decline in both passenger and freight transport demands. Additionally, the Russian war of aggression against Ukraine caused the disruption of the supply of goods imported from Russia and Ukraine, and also led to a decrease in IWT cargo transport on the Rhine and the Danube for several goods segments.

Furthermore, the low water periods observed in 2018 and 2022 severely affected transport volumes and freight rates. In addition to a number of other IWT factors, the overall decrease in the freight inland navigation labour market can also be explained by the financial crisis, which had a negative impact on the volumes of goods transported and therefore on the demand for nautical personnel in the cargo sector.

© Port of Switzerland

01

INTRODUCTION

Inland navigation market observation activities are carried out by the CCNR in partnership with the EU Commission, the Danube Commission and IWT industry associations. In this context, the CCNR market observation team was tasked with the drafting of a study on the labour market in European IWT which was published in 2020. This report is therefore its second edition.

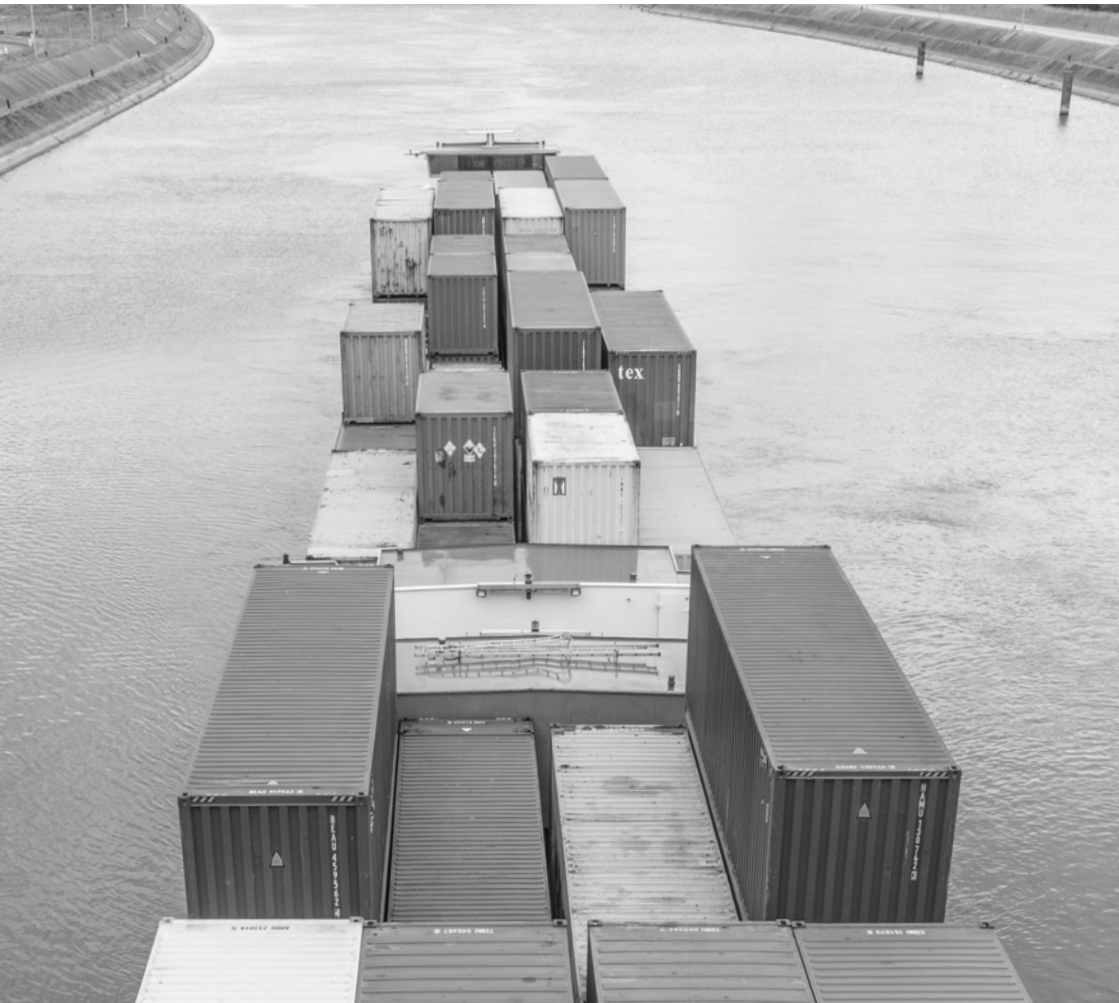
The objective of this report is to provide a European overview and where possible a more detailed country by country analysis of the IWT labour market in Europe, based on statistical data and qualitative information. Several aspects of the European IWT labour market were also examined, such as the main legislative development related to the European IWT labour market, the passenger and freight market structures, their respective economic and employment trends, education in the sector and its attractiveness, as well as company succession.

The years marked by the Covid-19 crisis are mostly captured within the dataset analysed in this report, enabling the assessment of the impact of the pandemic on the inland navigation labour market.

This report is prepared at a time when an unprecedented change in the legal framework has taken place at European level: Directive (EU) 2017/2397[1] (also recommended for the implementation in the Danube shipping) started to be applied in January 2022 and the new Regulations for Rhine navigation personnel[2] came into force on 1 April 2023. This paradigm shift implements a mutual recognition of professional qualifications across the EU, the Rhine and the Danube. This is meant as a facilitator for the mobility of workers. The new framework introduces new career paths and modernises the acquisition of the qualification. It also facilitates the conversion from the maritime sector to the IWT sector. These innovations may impact (on mid-term and long-term) the labour market. However, it is too soon at present to analyse the concrete effects of the new legal framework on the labour market.

[1] *Directive (EU) 2017/2397 of the European Parliament and of the Council of 12 December 2017 on the recognition of professional qualifications in inland navigation and repealing Council Directives 91/672/EEC and 96/50/EC: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017L2397*
[2] *CCNR modernises regulations for Rhine navigation personnel: https://www.ccr-zkr.org/files/documents/cpresse/cp20221128en.pdf and https://www.ccr-zkr.org/13020500-fr.html*

In the introduction to this report, it appeared important to outline the main difficulties encountered in the drafting process of this report. In particular, no exhaustive database is currently available to monitor all the labour market aspects of the European inland navigation sector. Depending on the countries, labour markets are also organised differently, and sometimes competent authorities are decentralised, or certain tasks are transferred to specific agencies. Identifying the right contact point, depending on the type of information requested and the geographical area under study, can therefore become a real challenge.



When many different sources for one and the same country were found, methodologies were sometimes different, making it difficult to deduce certain trends regarding the level of employment over time. Likewise, structural comparisons between different countries were not always possible, as the definition of an indicator or the exact breakdown of a variable sometimes differed from one country to another. Whenever possible, an explanation is given in the report as to the type of source chosen and the reasons for choosing one source over another. For instance, it was decided to use the Eurostat structural business statistics (SBS) dataset when providing an overview of the IWT labour market in Europe, as they allow for comparability of data between countries at the European level. However, the scope of such data is limited (i.e. employment in loading/unloading activities of goods in ports and employment in operation of transport infrastructure are not included; people working for companies with primary activities other than IWT are not counted as employed in IWW even if they work on a vessel) and can be incomplete in the case of some countries.

Another hurdle was the lack of reliability of service record books and certificates of qualification which was identified at first as an important source of information for this report. However, as it is explained in more detail in the report, such sources do not allow to differentiate between active and non-active workers and there is a high possibility that IWT workers who are registered in databases but not yet connected to the European Crew Database (ECDB) are counted twice, or even more. In this connection, the ECDB is expected to be of great added value to enhance the monitoring of employment indicators in the European inland navigation sector. It has been operational in some countries since 2021 (and officially from 17 January 2022, simultaneously with the implementation of the Directive) but could not be used for the purpose of this report as the information available on this database will remain fragmentary until all CESNI[3] Member States are fully connected to the ECDB.

In light of the above, while all efforts were deployed to obtain as much information as possible, it was not always feasible to gather data with the same level of detail and based on the same indicators and methodology for all European countries.

[3] *European Committee for Drawing up Standards in the field of Inland Navigation (CESNI)*

02

PASSENGER AND FREIGHT MARKET STRUCTURE, ECONOMIC AND EMPLOYMENT TRENDS

Information about the market structure, economic and employment trends, are essential in order to understand and interpret quantitative data available regarding the European inland navigation sector labour market.

RIVER CRUISE MARKET AND EMPLOYMENT STRUCTURE

River cruises in Europe have been in existence since the 1960s. Economically, the river cruise market is a flourishing sector, which is confirmed by analysing different indicators from the supply and demand side. On the supply side, the newbuilding rate has been following a wave-like pattern over the last 20 years, with a peak around 2014. In 2019 and 2020, 19 new river cruise vessels entered the market in the EU. The newbuilding rate was somehow smaller in 2021 (9) and 2022 (5), due to the Covid pandemic. The number of active cruise vessels on European rivers increased by 68% between 2012 and 2022, with 243 vessels in 2012 rising to 410 vessels in 2022.[4] In 1995, there were only 50 cruise vessels operational in Europe.

On the demand side, the number of persons who travel on a river cruise has been growing for several years, and between 2012 and 2019 this more than doubled, with up to 1.79 million passengers in 2019, highly driven by cruisers from non-European countries. River cruise vessel traffic has also increased. The yearly number of cruise vessels passing the lock of Iffezheim on the Upper Rhine has increased from 1,603 transits in 2012 to 2,737 transits in 2022 (+70%), with a peak in 2019 (almost 3,000 transits). The same peak in passenger transport was observed in the Danube region river cruise segment. The demand for river cruises in 2020 and 2021 was strongly affected by the Covid pandemic. Many vessels were “on hold” for an entire year, some of the oldest and less efficient vessels were even sold. For instance, in 2020, the number of cruise vessels operating on the Danube, Rhine and Moselle decreased by 91% (Danube), 82% (Rhine) and 70% (Moselle). The second semester of 2021 showed the first signs of recovery while pre-pandemic levels were achieved only in the first semester of 2022.[5]

[4] *See: Inland navigation in Europe, Market observation, 2023 annual report*
[5] *See: Inland navigation in Europe, Market observation, 2023 annual report*

Figures show that river cruises have been experiencing a boom since 2013 (except for the Covid years 2020 and 2021), mainly due to the large number of US tourists booking river cruise holidays and more recently Chinese tourists, with an ever-increasing passenger demand.

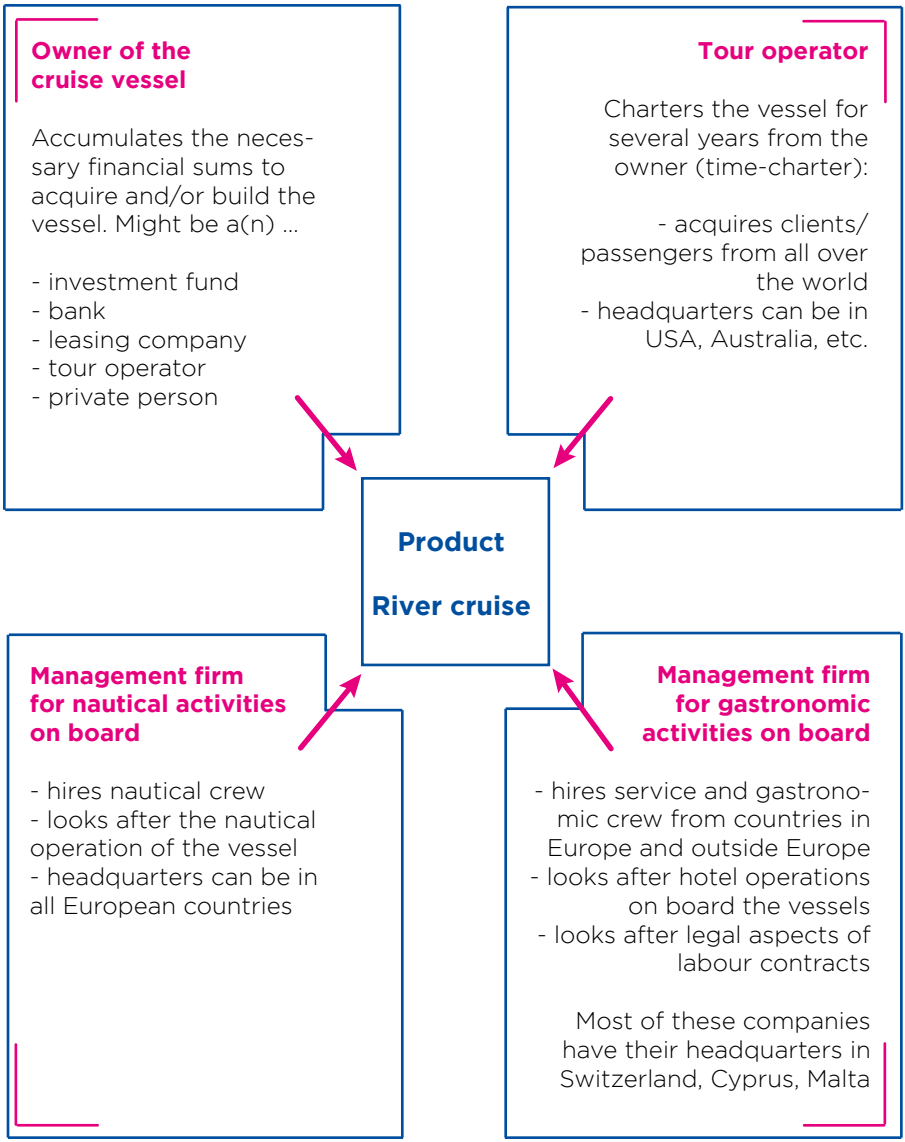
This positive evolution is reflected in employment figures for the whole passenger transport sector, which overall followed a positive trend in Europe until 2018. A remarkable decrease between 2019 and 2020 was noticeable as a result of the Covid-19 pandemic, which interrupted the positive trend observed since 2010. The number of employed persons in the EU numbered 17,895 in 2010, 23,100 in 2019 and 17,503 in 2020. By 2021, employment had recovered only to a limited extent, reaching 18,412 persons.

In light of available data, it is not possible to provide accurate figures on the number of persons employed in the accommodation and gastronomic activity on European river cruise vessels. IG RiverCruise estimates that the number of persons active in this field is five times higher than the number of persons working in the nautical field.

The river cruise industry is characterised by international and rather complex company structures. For example, a river cruise vessel may be registered in Switzerland, with a crew having Cypriot employment contracts, hosting guests from Europe and overseas, and then might cross several countries during its journey.

In contrast to the early days when a ship owner also dealt with all the main aspects of a river cruise (hotel management, nautical aspects, etc.), four main types of players running a river cruise business can nowadays be identified.

FIG.1: **GENERAL OVERVIEW OF ORGANISATIONS INVOLVED IN RIVER CRUISING AND THEIR FUNCTION**



Source: CCNR based on IG RiverCruise

IWT FREIGHT MARKET
STRUCTURE AND COMPANY SUCCESSION

As far as freight transport is concerned, transport performance (in million TKM) in the European countries has followed a decreasing trend over the last ten years. In 2020, the health crisis affected the sector, which registered a decrease of 8.2% in transport performance, compared to 2019. A recovery could be observed in 2021 and at the beginning of 2022, but the Russian war of aggression against Ukraine in February 2022 provoked a reduction of cargo transport. From a labour perspective, the freight market has a different background and follows different trends compared to the passenger transport market. However, the situation also differs depending on the countries, the years and the market segments under study.

The macro-economic context of the last years has been severely affected by three main crises. In 2020, the Covid-19 pandemic and its consequences weighted heavily on many economic sectors. The slowdown in global production and international trade, together with the restrictions on domestic and international mobility, provoked a decline in both passenger and freight transport demands. Additionally, the Russian war of aggression against Ukraine caused the disruption of the supply of goods imported from Russia and Ukraine, and also led to a decrease in cargo transport on the Rhine and the Danube for almost all goods segments. There were however exceptions to this decrease, for example, the transport of coal on the Rhine boomed in 2022 as coal substituted gas in the energy sector. On the Danube, however, coal transport decreased both due to the EU ban on coal imports from Russia, and the reduced production in the steel industry.

As stated above, there were exceptions to the decrease in freight transport. More specifically for the Danube, the blockade of Ukrainian seaports and the need to support Ukrainian exports of grain via alternative routes led to an exceptional increase of grain transport on the maritime Danube (Kilia Danube branch and Sulina Canal) as well as on the Danube Black Sea Canal to Constanța.

Furthermore, the low water periods of 2021 and 2022 affected transport volumes and freight rates severely. Another phenomenon that is expected to play an important role on transport volumes in inland navigation is energy transition.

The overall decrease in the freight inland navigation labour market, also described by many IWT actors, can also be explained by the financial crisis, which had a negative impact on the volumes of goods transported at the time of the crisis and therefore on the demand for nautical personnel. Those volumes were in part not recovered which leads to the conclusion that the crisis can still be felt today.

In parallel to the general trend according to which operations on board of vessels are becoming more complex, and specifically in the liquid cargo segment, the transport of dangerous goods has also become far more complex in the last ten years. Important steps have been taken in the area of safety and quality, thereby further increasing the requirements and qualifications necessary to work in this field. Another interesting development relates to the changing corporate structure of tanker barging companies, which are seen to be moving away from the traditional family-owned company type towards a structure with shareholders.

An important topic for the long-term economic and employment trend in freight transport is how to organise the succession between generations within freight companies. Around 80% of all inland waterway freight companies in western Europe are small independent barge owner-operators. The succession of the activity in these companies must be seen in the light of economic and social aspects. Company succession in inland navigation is directly influenced by several factors, in particular:

- economic factors: demand for evolution and economic outlook in a given market segment, overall economic framework conditions, etc.
- labour and social factors: age structure of a given segment, working conditions, appropriate work/life balance, previous knowledge of the sector concerned, etc.
- company and asset related factors: characteristics of the company such as its size and profitability, the type of assets concerned and the technical features (vessels that are old or modern, large or small, green or polluting), financing conditions for investments.

In this regard, interviews with experts from the banking sector were carried out in order to identify those critical factors that influence company succession in the IWT sector. Overall, such interviews allowed to determine the following conclusions. Some of them represent the result of macroeconomic factors and, as such, are not expected to be long-lasting. Others could be considered as structural factors of the IWT sector.

- The dry cargo market is more difficult for company succession compared to the liquid cargo or container market which benefit from better economic framework conditions. Nevertheless, in 2022, the sharp demand for coal caused by the energy crisis and the transfer of vessel capacity from the Rhine to the Danube region, led to favourable market conditions in terms of transport demand, also for the dry cargo segment. However, these favourable market conditions are considered as temporary.
- Whether the vessel is modern or not and whether "greening" investments have already been made appear as critical issues for company succession. Moreover, the rise of shipbuilding costs exacerbates this issue.
- Social factors and working conditions have increasingly become key factors. Indeed, there is a low incentive for younger entrepreneurs to take over an existing business if it entails a heavy and demanding workload, if the economic outlook of the market segment is difficult, and if costly technical investments in the vessel have to be undertaken. This is generally the case for smaller barge owners-operators who tend to work long hours away from home, possibly combined with wages that are not very attractive.
- Based on results of interviews, it can be assumed that sections of the younger generation favour land-based jobs with regular periods of time off and weekends at home, in comparison with their parents' generation.
- Cooperatives (which are especially observed in the dry cargo market) are seen as an effective concept to foster company succession, as they allow for better social, logistical and economic conditions for vessel-owners and operators.

- All in all, the market shows a bit more consolidation than before, e.g. a single vessel owner starts to own two, a three-vessel owner acquires two more vessels and now has five.
- Vertical integration (see info box below) is also presented as an important goal for IWT in the future which would facilitate company succession.

INFO BOX: VERTICAL INTEGRATION IN LOGISTICS

Vertical integration in logistics - and in particular in inland navigation - could exist in various forms. In general, it means that an IWT company does not only transport goods from point A to point B, and therefore has an influence on the backward and forward parts of the logistics chain. Backward vertical integration is present if an inland waterway transport company also owns the freight forwarding process which is quite often done by other (larger) logistics firms. These freight forwarders negotiate volumes and freight rates with large clients from the chemical, petrochemical, agri-food, or steel industry.

If inland navigation companies took over this role, by backward vertical integration, they would gain more influence on freight rates. A forward vertical integration would mean that inland navigation companies could also control the selling and marketing of the products that they are transporting, for example by owning trading or marketing companies. This would give them more insight into the development of the demand side, and in market conditions of the products they are transporting.

Source: CCNR

THE EXPERTS' VIEWS REGARDING COMPANY SUCCESSION IN INLAND NAVIGATION ARE PRESENTED BELOW.

ING Bank

Interview partners (2019): Rico Luman, Sector Economist Transport, Logistics, Chemicals; Arthur de Bot, Relationship Manager Transport and Logistics

Company succession must be seen in the context of the economic development of the inland navigation sector. In the years after the 2008/2009 financial crisis, the number of bankruptcies increased. Banks tried to help the companies by postponing reimbursements of loans so that companies could continue to be active in the sector.

Even if there was a recovery from the financial crisis, the long-term economic framework conditions have deteriorated again in recent years. This concerns notably energy transition and the phasing out of coal. This structural change has a strong impact on transport volumes in IWT. In the agricultural sector, the high amount of nitrogen emissions in the Netherlands puts pressure on this sector to reduce its output. Overall, these difficult economic framework conditions represent a rather problematic basis for company succession in the dry cargo segment. These structural framework conditions do not make it easy for young entrepreneurs willing to work in the sector and develop a profitable business plan.

Another aspect which is important for company succession is the size of companies. By far, the large majority of inland navigation companies in western Europe are very small barge owner companies with only one vessel. Small companies often face more financial risks and less access to loans when faced with necessary technical modernisation. Long working hours, including during the weekends, are an important factor, especially in the case of small independent barge owner-operators. At the same time, the earning capacity of small companies is limited, due to a restricted loading capacity of the vessels. Taken together, these conditions often fail to generate a high incentive for the younger generation to take over companies from their parents. The ING Bank underlines that investment in greening the vessels is a 'trigger point' for company succession.

The liquid cargo market is characterised by a different company structure. The average size of inland navigation companies is larger in the liquid cargo market and the number of employees is higher compared to the dry cargo market.

Container transport also has a more growth-orientated economic outlook than dry cargo transport. The liner service structure (24-hour service) makes it easier to earn money and to reimburse loans. In the Netherlands, national container transport is a growth market (this is also shown in statistical data from Eurostat).

Rabobank

Interview partner (2019): Marco van Beek, Sector Manager Inland Navigation. Update of the interview (2023) with Peter Maat, Account Manager.

Similar conclusions are reached regarding the situation in the various market segments. The liquid cargo market has a more modern fleet and with companies of a larger size, providing more incentive for company succession. The outlook for the transport of chemicals is positive, making the liquid cargo market overall profitable for the future.

The confluence of the sharp increase in coal demand, limited capacity availability due to the transfer of vessels from the Rhine to the Danube and the restrictions caused by the low water periods in 2021 and 2022 led market conditions for the IWT sector to become extremely favourable in terms of freight rates and turnover.

Current market conditions are leading to an increase of issuing time charters and co-ownership. Cooperatives could be a possible solution for small barge owners, also in the dry cargo market, to team up and develop size and scale advantages, thereby allowing economies of scale and lower transport costs to be realised. This is important in the logistics sector. Larger companies or cooperatives could also have more bargaining power for negotiating freight rates and would be more able to achieve a vertical integration within the whole supply chain. Vertical integration is considered as an important topic for inland navigation and should be seen as a goal for the future.

Nevertheless, the rise in shipbuilding costs resulted in increasing difficulties for newbuilding activity, especially for the dry cargo sector, which remain on a much lower level compared to liquid cargo.

Another factor that is affecting company succession is the shortage of personnel and the consequent increase of labour costs due to the Covid-19 pandemic. The situation exacerbated following the Russian war of aggression against Ukraine which provoked many Ukrainian nautical crew in going back home, therefore contributing to a further increase in labour shortages.

ABN AMRO bank

Interview partner: Albert Jan Swaart, Sector Economist Industry, Transport and Logistics

Many of the young entrepreneurs who aspire to start their own business in inland navigation and who are eager to take risks come from IWT families.

Cooperatives (such as NPRC[6]) could be a solution to organise supply chain management in a better way, also regarding the social life of the barge owner-operators in inland navigation. They would make it easier to organise transport activities in such a way that barge owners can be at home at the weekend. This would be an important incentive for company succession, given that many young entrepreneurs want to have families and be at home over the weekends.

Staff shortage is already a major problem in inland navigation, and it is important that young people also have "social" incentives so as to become barge owner-operators. Moreover, the ageing population has contributed to tightening the Dutch labour market.

The IWT dry cargo market gained favourable economic conditions due to the sharp increase in coal transport. Even if the Russian war of aggression against Ukraine caused a decline in cargo transport on the Rhine for almost all cargo segment, coal transport, which already started to increase in 2021, significantly increased due to the rise in energy prices.

[6] *See: https://nprc.eu/vloot/. NPRC assembling 120 IWT entrepreneurs, has a fleet of 200 vessels sailing and transports 13 million tonnes of cargo each year on European inland waterways. This makes NPRC the largest corporation in inland navigation in Europe. The 200 vessels belong to different size categories and include also small vessels with a loading capacity of less than 750 tonnes. The corporation is active in all goods segments, from iron and steel, over sands, stones and gravel, grain to containers.*

Ostfriesische Volksbank

Interview partner (2019): Dieter Schneider, Head of Bank für Schifffahrt. Following the update of the interview (2023), it is possible to state that the main conclusions are currently still valid.

An important point for the foundation or the succession of a company in IWT is to present a solid business plan, which should also include a freight forwarding concept. Indeed, freight forwarding companies often participate even financially in the acquisition of a new vessel, hence the added value for young entrepreneurs to be in contact with these freight forwarding companies. Such relationships are win-win solutions as both parties have an interest in future inland waterway transport with modern vessels. During the process of company succession, contacts between banks, the entrepreneur and the freight forwarding company are intensive.

Among company successions, several different models exist. Often, young entrepreneurs come from an IWT family and have already been working on a vessel for several years. As they want to become more independent, they decide to invest in their own vessel. Given that older vessels are often more costly in maintenance and that it is more difficult to install a new engine in older and smaller vessels, company succession is often combined with the acquisition of a new vessel. There are also other models possible, for example, where a son of an owner-operator continues to sail with his father's vessel on the latter's retirement.

THE STAFF SHORTAGE ISSUE IN INLAND NAVIGATION: AN UNPRECEDENTED PHENOMENON

All market segments in inland navigation are facing staff shortage issues. More specifically, there is a shortage of qualified personnel at management level. In addition, the lack of qualified boatmasters can generally be observed, especially in tank vessel operation. Furthermore, a sufficient number of highly qualified personnel are needed in the emerging passenger navigation market.

Over the last decades the shortage of labour force could partly be counterbalanced by technological innovations as well as by the enhanced mobility of crew members from countries inside and outside Europe. However, in the long run, a shortage due to fewer new workers on the market compared to those retiring should become more intense, putting additional strain on existing staff. Therefore, the ageing workforce is a great challenge for the inland navigation labour market of today and tomorrow.

In addition, a rapid change in work attitudes between generations has been observed over several years. In fact, while the so-called baby-boomers still followed traditional work patterns, putting work at the centre of their lives, the younger generations, who are now the major workforce, have another vision. They are more focused on self-development and well-being, and thus consider that work should no longer have a central place in their lives and that there should be greater flexibility in terms of working hours.[7]

Significant migration from eastern Europe to western Europe can be witnessed since the terms and conditions in the west are far more attractive than in the east (the Danube region in particular) and most nautical staff find better paid work in the west. The staff shortage accentuates this west-east divide, therefore worsening the staff shortage issues in the Danube region.

[7] *IG RiverCruise – Der Fluss-Kreuzfahrtmarkt 2022*

To accommodate for the urgent need of new crew, apart from the recruitment of alternative personnel which is seen as a limited solution, some new developments have been witnessed. For instance, the Netherlands put in place short track training courses to refugees if they are willing to work in the sector, and Germany has also taken a similar initiative. According to the European Transport Workers' Federation (ETF), another phenomenon is that crew from Romania and other countries are taking up work in the context of the solidarity lanes in the lower Danube area. To replace such crew members on freight vessels, personnel from third countries are said to receive Schengen visas to work in the inland navigation sector, thereby opening the doors to the European labour market for holders of these visas. However, ETF expressed doubts regarding the future of those workers (possible absence of social security, compliance with crew requirements...). A similar development is said to have been particularly visible already in the non-nautical staff of the river cruise market over a longer period of time. In addition, equipment and technology used on inland vessels are becoming more and more complex. Therefore, inland navigation companies are seeking to hire more specialised and better qualified crew members.

An example relates to the additional provisions concerning the expertise of crew members of inland vessels propelled by liquefied natural gas (LNG), for which a specific certificate of qualification is now required. With the emergence of new alternative fuels and energy carriers, additional requirements may also be expected. Crew members will for instance have to integrate the management of hybrid or multiple modes of propulsion.

CESNI/QP is developing standards for new competences related to alternative energies, to meet the requests from the training institutes and from the sector.

Moreover, the transport sector is now taking a quantum leap towards more automated/digitised processes and systems. This makes the traditional professional profiles shift towards highly skilled IT levels. Meeting such new jobs requirements is expected to become an additional hurdle for existing personnel in the future and to fuel the staff shortage issue further. At the same time, the development of automated navigation is also seen as one possible way to mitigate to a certain extent this staff shortage issue, also by creating new career paths, e.g. in remote operation centres.

Finally, the implementation of the EU directive on the recognition of professional qualifications in inland navigation since 18 January 2022, has led to more demanding requirements for professional certification. It was reported that in Belgium, this has weighed on the available work force and is said to have led to a decrease in issuing certificates of qualification.

EDUCATION IN IWT AND SECTOR ATTRACTIVENESS

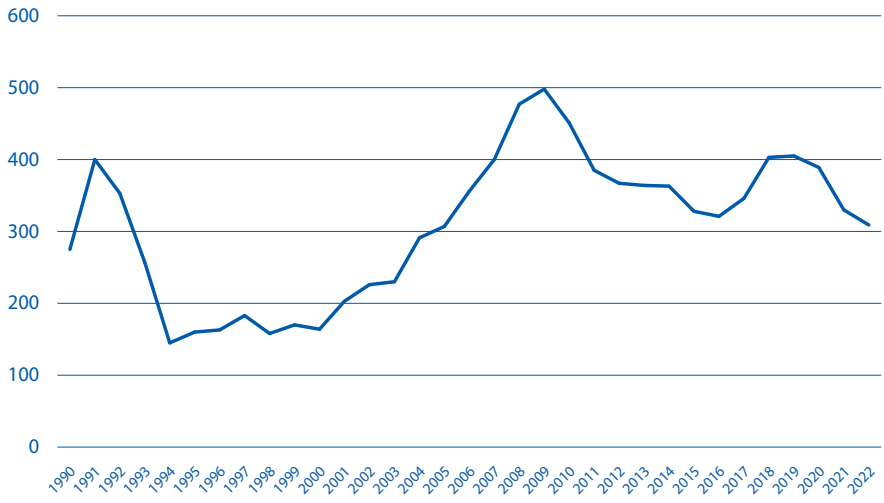
Inland navigation workers are key drivers for inland navigation dynamics, and it is of utmost importance that inland navigation is sufficiently appealing, especially for young talents with entrepreneurial and innovation-oriented mindsets. In Belgium, the implementation of the EU directive also had an impact on the number of graduates in the inland waterway transport sector because of the absence of appropriate training courses to obtain the certification required by the directive. Efforts to ensure the attractiveness of the sector and to offer high-quality education are therefore paramount. The availability and development of appropriate training programmes is key to solving the staff shortage issue.

Figure 2 shows the evolution of the number of apprentices in Germany in the inland navigation sector. Following a strong decrease in the 1990s, the number of apprentices in the inland navigation sector increased in Germany between 2000 and 2009 in a catch-up effect, supported by state aid and new importance attributed to the apprentices in the CCNR manning tables since 2002. As in other sectors, the number of apprentices decreased between 2009 and 2016 with a higher number of young people taking up university education. Other contributing factors lie in the economic crisis in the inland navigation industry whose effects can still be felt today, as well as a possible demographic effect (fewer young people of apprenticeship age).

However, for the first time in the last decade, a considerable increase has been seen since 2016. Altogether, the evolution in the number of apprentices since the year 2000 could be partly explained by the economic boom (2000-2008) and recession (2009-2015) during this period, which also had a strong impact on the IWT industry and could have influenced the tendency of young people to enter the industry. The period from 2016 to 2019 might not be known as a boom, but it was at least a time when the inland navigation industry recovered from the financial crisis of 2009.

The years 2020, 2021 and 2022 registered a consistent decrease in the number of apprentices. The number of Germans who undertook a traineeship as inland navigation crew members lessened from 405 in 2018 to 330 in 2021 and 309 in 2022 (including 48 who carried out the newly created traineeship to become a boatmaster and of whom two are women). In 2021, 41 of the 330 apprentices were female. Compared to 2019, the share of women within the total number of apprentices increased, rising from 7% to 12.4% in 2021. In 2022, this number reached 33, representing a share of 10.7%.

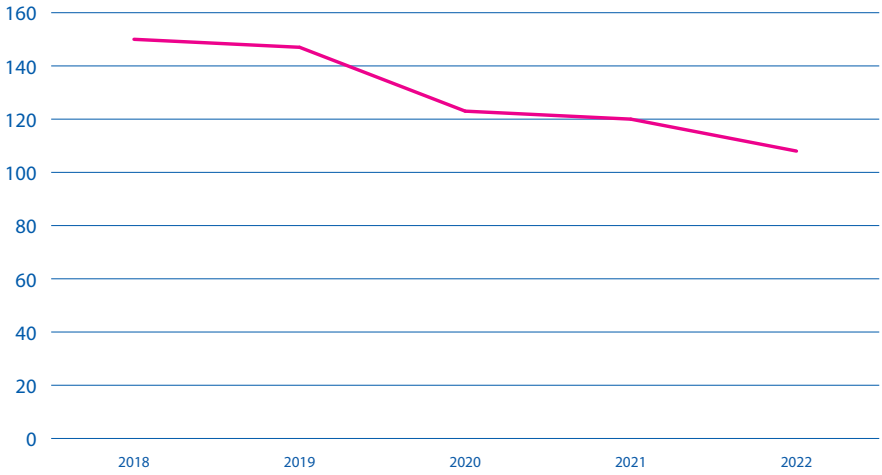
FIG. 2: **EVOLUTION OF THE NUMBER OF APPRENTICES IN THE INLAND NAVIGATION SECTOR IN GERMANY**



Source: Association of German Chambers of Commerce and Industry (Deutscher Industrie- und Handelskammertag)

In addition, the Federal institute for Vocational Education and Training (BIBB) reports on the newly concluded training contracts each year in Germany. In 2022, 15 contracts were concluded for the qualification boatmaster, and 93 for other crew members.

FIG. 3: **EVOLUTION OF THE NUMBER OF NEWLY CONCLUDED TRAINING CONTRACTS IN THE INLAND NAVIGATION SECTOR IN GERMANY**



Source: Federal institute for Vocational Education and Training (BIBB)

© Platina


SAFETY FIRST

03

OVERVIEW OF THE EUROPEAN INLAND WATERWAY TRANSPORT LABOUR MARKET

The data that are arguably best suited for a country-by-country comparison of employment statistics per sector in Europe are the Eurostat structural business statistics (SBS) data. However, minor differences in data collection between countries still prevail, e. g. due to a different counting of foreign branches of local enterprises and vice versa. The Eurostat SBS data are based on administrative data and collected by the national statistical institutes according to rules commonly agreed upon and available at NACE (Statistical Classification of Economic Activities in the European Community) levels. For inland navigation, this means that there are two main relevant categories, namely inland passenger water transport (NACE category 50.3) and inland freight water transport (NACE category 50.4). It should be noted that these NACE categories include employment on board of vessels but not the employment of loading and unloading activities in ports and the operation of transport infrastructure (some information regarding port workers are however included at the end of this chapter). Thus, the figures provided in this chapter should not be understood as exhaustive regarding the numbers of jobs created by inland navigation activities as a whole. Such an understanding would underestimate the importance of inland navigation.

According to Eurostat, the number of persons employed covers:

- persons who are working in the statistical unit (for the purpose of this report the relevant statistical unit would be the company working in the NACE category 50.3 or 50.4) as well as those persons working outside of the unit but who belong to and who are paid by that unit;
- persons who are working during part of or during the entire reference period. Therefore, seasonal or temporary staff, including apprentices, are covered by this definition.

In addition, the number of persons employed covers all paid employees, unpaid working owners and helping family members. Persons absent for a short period and those who are on strike as well as those working from home, sales representatives and delivery staff that are on the payroll of the statistical unit, are also included.

One drawback of collecting Eurostat SBS data at company level is that persons working for companies having primary activities other than inland navigation, are not necessarily counted as being employed in inland navigation, even if they actually work on board of vessels on inland waterways. This particularly applies to employees of temporary employment agencies. Even if they work in inland navigation on board of vessels, they are considered to be an employee of their temporary employment agency and thus counted as part of a different NACE category. For instance, according to this definition, non-nautical crew, such as the hospitality and gastronomical staff working on board inland passenger vessels would be included as part of the inland navigation staff if they were hired by companies belonging to the inland navigation NACE categories 50.3 or 50.4. However, they would not be considered as inland navigation staff if they were supplied by or borrowed from a company operating in different NACE categories, for instance agency workers supplied by employment agencies. This also leads to an underestimation of the number of persons working in inland navigation. This is particularly true in the passenger transport sector where hospitality staff are often hired through employment agencies or supplied by other companies whose main activity falls outside the NACE categories 50.3 and 50.4.

Another problem with the Eurostat Structural Business Statistics (SBS) data is that the datasets are incomplete for many countries. While all or nearly all relevant data are available for Germany, the Netherlands, Romania, Poland and Slovakia, crucial data for the purpose of this report are not available concerning some of the years, such as the number of employed[8] persons or employees in relevant IWT countries such as Belgium, Austria, Switzerland, France and Bulgaria.

This being said, the data collection at company level also has a distinct advantage. It largely prevents double counting that could occur due to the multinational character of European inland navigation if personnel were counted at their place of work instead of at the location of their companies.

According to the Eurostat SBS, the total number of persons employed in the transport of goods and passengers on inland waterways in Europe[9] amounted to approximately 41,923 in 2020, of whom around 44% work in passenger transport and the other 56% in freight transport. This figure is not available for 2021.

It should be noted that it is not possible to assess the number of employed persons per vessel based on Eurostat data for a number of reasons. Agency workers and workers from multimodal companies are not included whereas for passenger transport, gastronomical staff are included, making it impossible to single out the nautical staff.

As far as inland passenger transport is concerned, Germany represents the country with the highest labour force employed in the sector. The Netherlands, Switzerland, France and Italy also show high shares of employment in the sector.

From 2011 to 2018, the number of persons employed in the passenger transport sector in Europe has continuously increased as a result of several factors, including the increase in the number of cruise

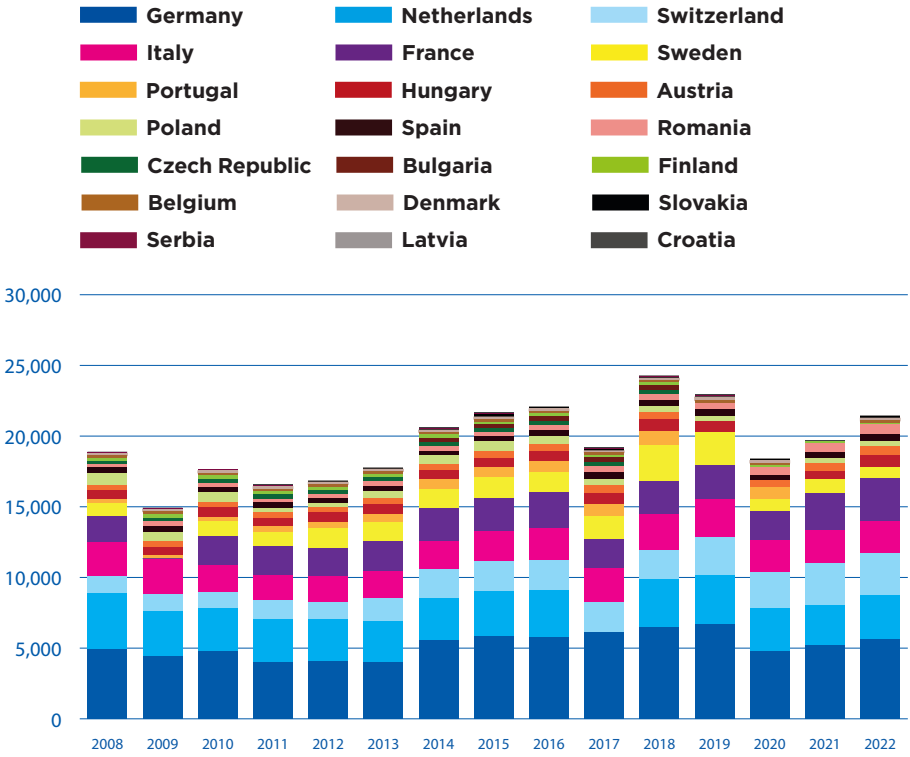
[8] Persons employed are self-employed, helping family members and employees.
[9] Data for Europe include the European Union, the United Kingdom, Switzerland and Serbia.

vessels in European IWT market and the increase in demand for river cruises. However, in 2019 and especially in 2020, almost all European countries registered a substantial decrease in workers. The outbreak of the global health crisis and the consequent containment measures established by the European Union and member states' governments severely affected the transport of passengers. Indeed, the movement of people, especially for touristic reasons, suffered a major halt in the most critical months of the health crisis. In the summer of 2020, restrictive measures started to ease, however, the negative effects on people's movement persisted due to the uncertainty of future developments of the virus and the following waves of contagion. Presumably, it is the decrease in passenger transport activities that led to a drop in the labour force needed in the sector. Yet, this decrease did not solve the issue of staff shortage. Indeed, today, with the recovery of the passenger transport activity, the issue of staff shortage has become more acute.

In IWW passenger transport, Germany experienced a reduction of more than 1,800 workers between 2019 and 2020, from 6,687 to 4,793 employed persons. As in Germany, other European countries registered consistent reductions in personnel in 2020. Sweden is an evident example since, in 2020, its transport labour force in passenger transport reduced from 2,336 workers to 835.

Figures for the labour force in 2021 increased overall and per country compared 2020, mirroring the progressive recovery of the inland waterway passenger transport after the Covid-19 crisis. In the Netherlands, the number of employed persons slightly decreased between 2020 and 2021.

FIG. 1: **NUMBER OF PERSONS EMPLOYED IN IWW PASSENGER TRANSPORT IN EUROPE ***

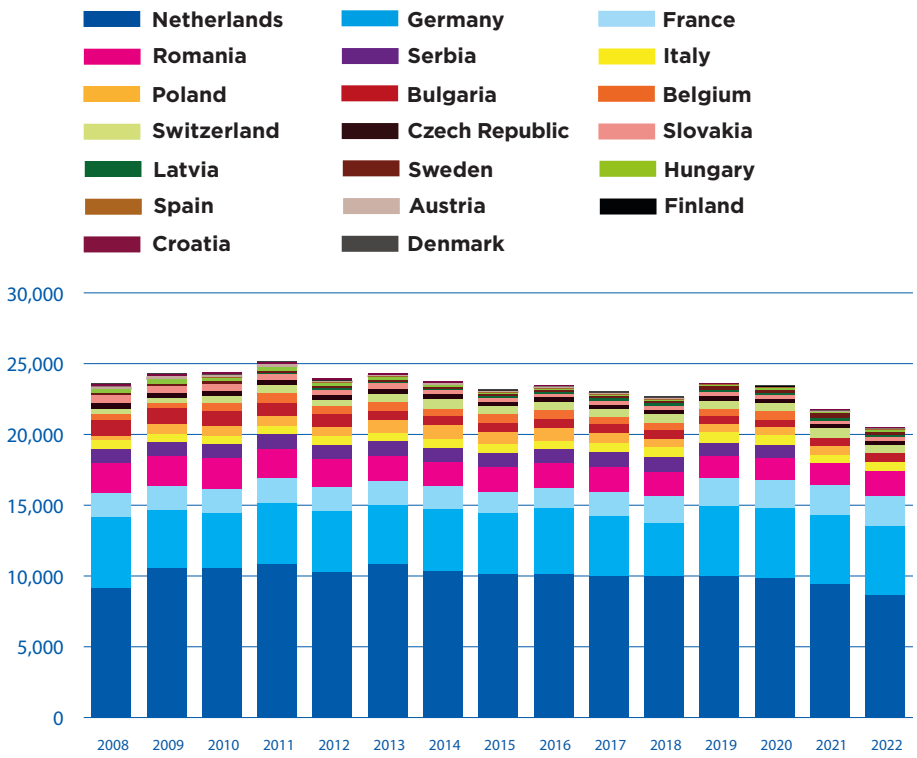


Source: Eurostat (sbs_na_1a_se_r2) and [sbs_sc_ovw]
** For figures before 2020 missing values are imputed by linear interpolation. Note: Hungary, Poland, the Czech Republic and Bulgaria are missing for 2020. Portugal, Belgium, Bulgaria, Denmark and the Czech Republic are missing for 2021. Portugal, Czech Republic and Bulgaria are missing for 2022. Since Brexit, data for the UK are no longer communicated by Eurostat.*

Concerning inland waterways freight transport, the Netherlands have the undisputed leading role in terms of employed persons, followed by Germany, France and Romania.

Figure 2 shows a stable trend for employment in IWW freight transport between 2008 and 2021. Unlike the passenger transport sector, the number of employed persons does not show substantial decreases in 2020. This shows that the slowdown or, in certain cases, the closure of the economic activities in the crucial months of the pandemic did not severely affect the employment of inland navigation freight transport.

FIG. 2: **NUMBER OF PERSONS EMPLOYED IN IWW FREIGHT TRANSPORT IN EUROPE ***



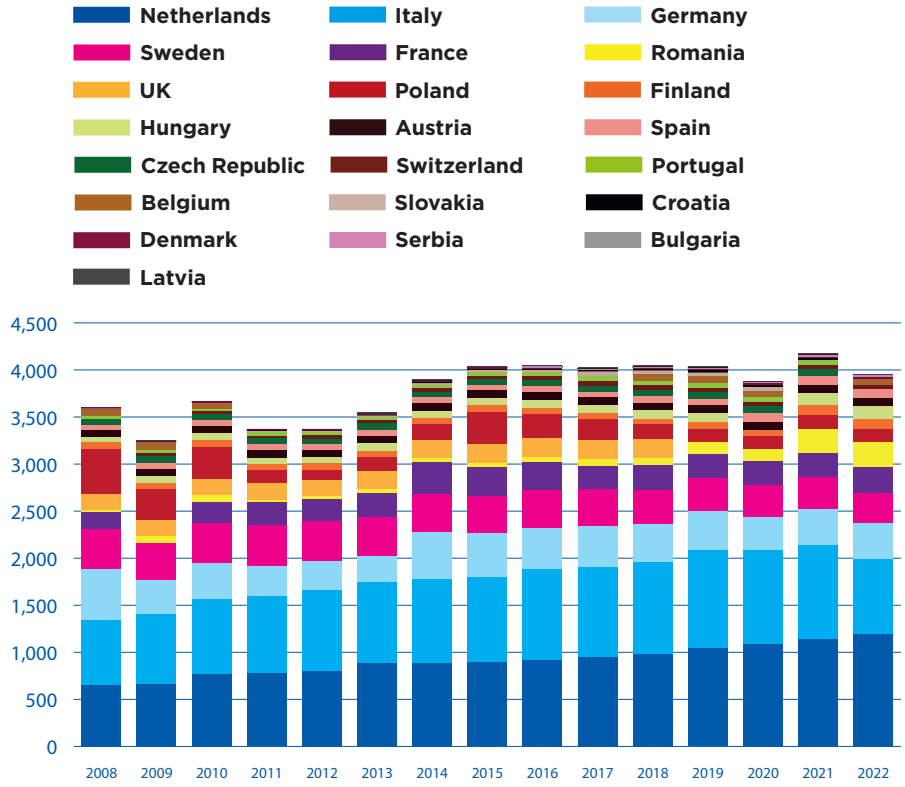
Source: Eurostat (sbs_na_1a_se_r2) and [sbs_sc_ovw]
** For figures before 2020, missing values are imputed by linear interpolation. Data for Austria are missing for 2020. Since Brexit, data for the UK are no longer communicated by Eurostat. For 2021, data are missing for Belgium, Serbia and Denmark. For 2022, data are missing for Belgium, Poland and Serbia.*

In parallel with employment figures, the number of companies per country is essential to understand the market structure of the different European countries and, consequently, the working conditions of its labour force.

The majority of IWT companies in Europe are registered in the Netherlands. Also considering the dimension of the Dutch labour force in the sector, it is possible to affirm that, on average, the Netherlands' market structure is composed mainly of small companies. The average number of persons per company in the Netherlands is about three workers per company in freight transport and two workers per company in passenger transport. However, Germany has a higher number of larger companies which represents an average of ten employed persons per company in freight transport and 13 employed persons in passenger transport. Concerning both passenger and freight transport, a tendency towards more consolidation is reported by banks.

Overall, the number of passenger transport companies shows an increasing trend between 2012 and 2015. Subsequently, they stabilised in number until 2020, when a slight decrease is registered. The year 2021 showed a clear increase in the number of companies.

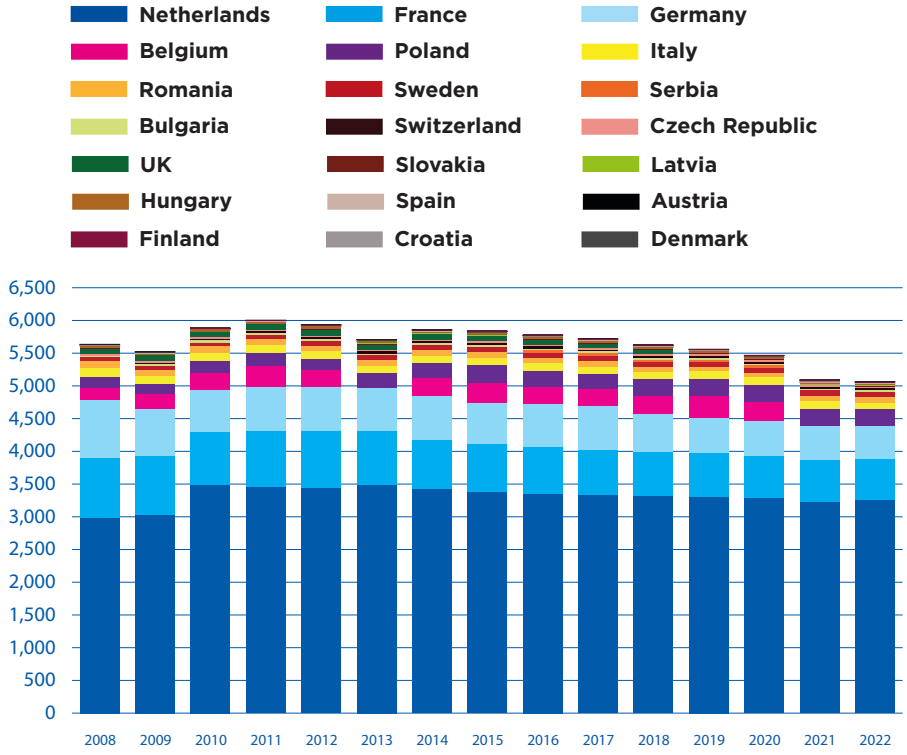
FIG. 3: **NUMBER OF COMPANIES PER COUNTRY IN IWW PASSENGER TRANSPORT IN EUROPE***



Source: Eurostat (sbs_na_1a_se_r2) and [sbs_sc_ovw]
** For figures before 2020, missing values are imputed by linear interpolation. Data for Hungary are missing for 2020. Data for Belgium and Slovakia are missing for 2021. Data for 2022 are missing for Bulgaria, Czech Republic, Croatia and Slovakia. Since Brexit, data for the UK are no longer communicated by Eurostat.*

Concerning inland navigation freight transport, figure 4 shows a decreasing trend in the number of companies from 2014 to 2021. Dutch companies count for more than half of those registered in all European countries, followed by France and Germany, which also have a rather high share. Nevertheless, the three countries have different market structures. While the German market is composed of a higher number of medium sized companies relative to its labour force and transport performance, the Netherlands and France present a relatively higher number of small firms.

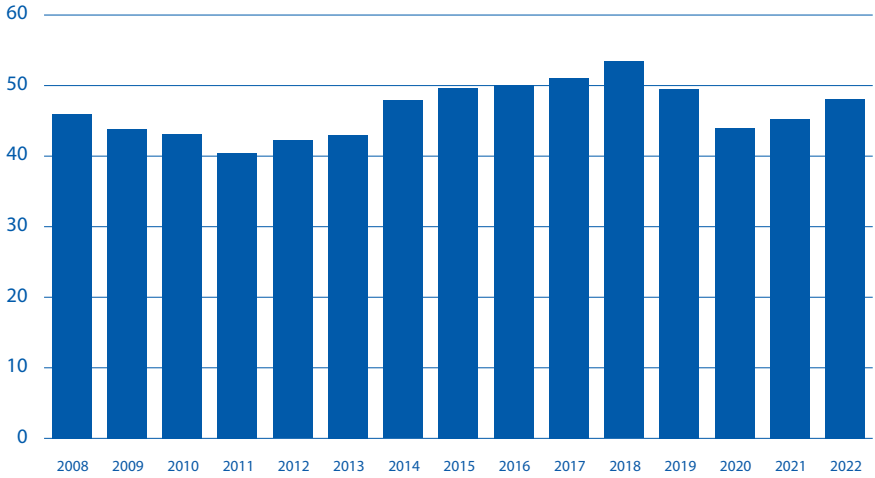
FIG. 4: **NUMBER OF COMPANIES PER COUNTRY IN IWW FREIGHT TRANSPORT IN EUROPE ***



Source: Eurostat (sbs_na_1a_se_r2) and [sbs_sc_ovw]
** For figures before 2020 missing values are imputed by linear interpolation. Since Brexit, data for the UK are no longer communicated by Eurostat. Data for Belgium and Serbia are missing for 2021 and for 2022.*

Since 2008, the share of persons employed in inland passenger transport lies between 40 and 53% of the total IWT European labour force. Whereas between 2014 and 2018, the share increased for almost all European countries, in 2019 and - more remarkably in 2020 - passenger transport labour force suffered a consistent reduction.

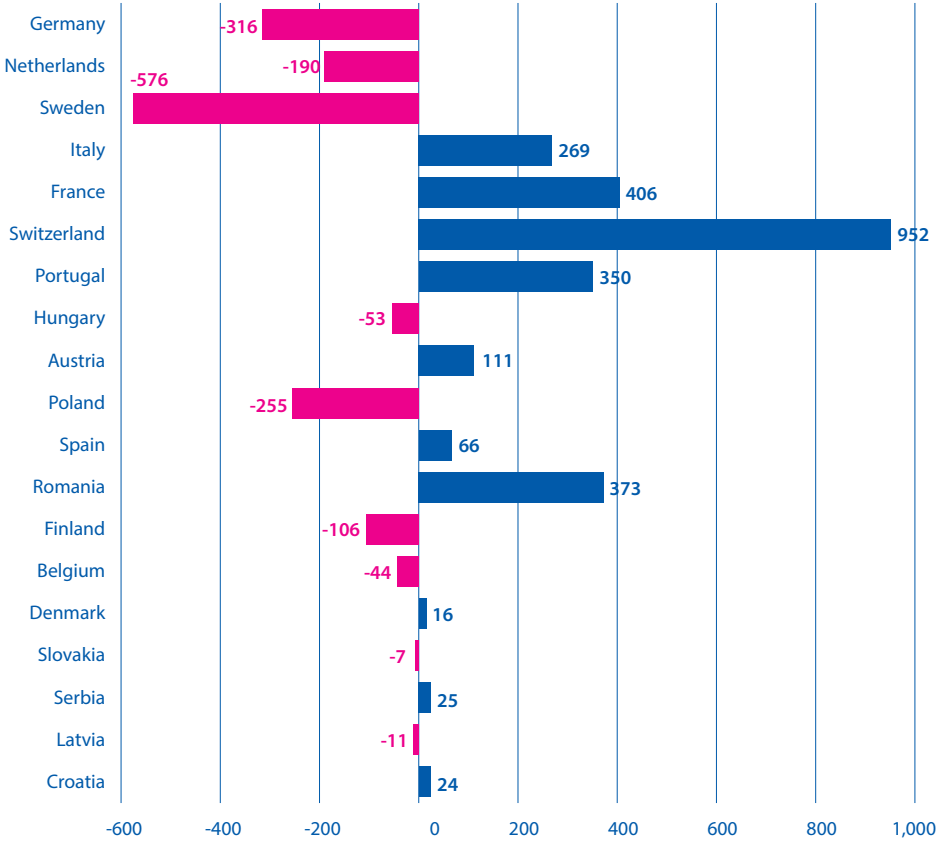
FIG. 5: **SHARE OF PASSENGER TRANSPORT WITHIN IWW EMPLOYMENT IN EUROPE** (IN %) *



Source: Eurostat (sbs_na_1a_se_r2)
** For figures before 2020 missing values in country-level employment are imputed by linear interpolation. EU-27 plus the United Kingdom, Switzerland and Serbia. Figures for 2021 and 2022 are partly estimated.*

According to figure 6, not all European countries report a reduction in persons employed in passenger transport between 2014 and 2021. Some countries such as Switzerland, France, Portugal, Italy and Romania have increased the labour force of the inland waterway transport of persons compared to 2014. The positive trend does not suggest that the pandemic did not affect these countries, since a comparison with 2019 would highlight the negative effects of the Covid-19 virus on the sector.

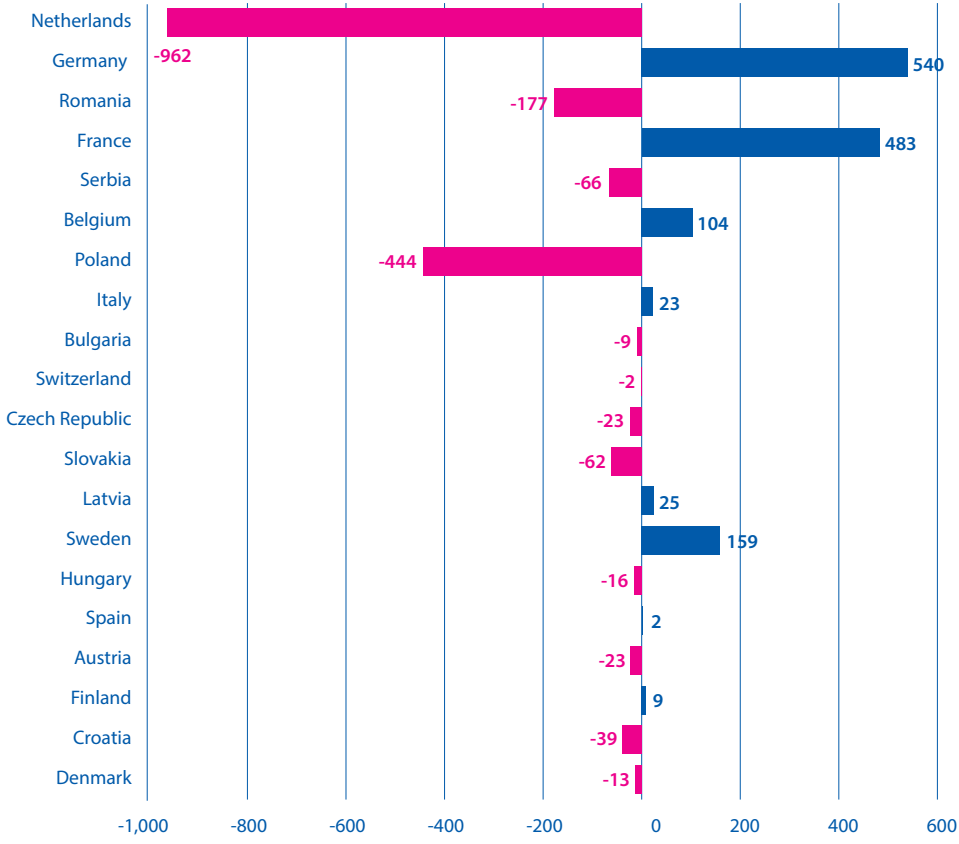
FIG. 6: **DIFFERENCE IN THE NUMBER OF PERSONS EMPLOYED IN IWW PASSENGER TRANSPORT IN 2021 COMPARED TO 2014 ***



Source: Eurostat (sbs_na_1a_se_r2) and [sbs_sc_ovw]
** As the data for Portugal, the Czech Republic, Belgium, Bulgaria, Slovakia and Serbia are missing for 2021, they were replaced by 2020 figures. Since Brexit, data for the UK are no longer communicated by Eurostat.*

With regard to passenger transport, employment in freight transport was affected by a reduction of workers between 2014 and 2021. It is interesting to note that, while for passenger transport the decrease can mainly be observed between 2019 and 2020, for freight transport it appears as a less recent trend, which started before the outbreak of the Covid-19 pandemic. Indeed, the countries that present in figure 7 a substantial reduction in employed persons between 2014 and 2021, namely the Netherlands, Poland, and Romania, there is not a sharp drop between 2019 and 2020 but rather a moderate decreasing trend which started after 2014. This tendency supports the assertion that the freight transport sector has not been considerably affected by the economic and social consequences of the health crisis as was the passenger transport sector.

FIG. 7: **DIFFERENCE IN THE NUMBER OF PERSONS EMPLOYED IN IWW FREIGHT TRANSPORT IN 2021 COMPARED TO 2014 ***



Source: Eurostat (sbs_na_1a_se_r2) and [sbs_sc_ovw]
** The data for Belgium, Sweden and Serbia are missing for 2021 and were replaced by figures for 2020. Since Brexit, data for the UK are no longer communicated by Eurostat.*

According to figures 8 and 9, Switzerland has the highest average number of persons employed per company in Europe. The explanation can be attributed to the fact that its market is dominated by large river cruise companies with an average of 60 employed persons per firm. Moreover, concerning IWW freight transport, the country counts a large share of tanker barging companies, which on average are larger both in terms of staff and loading capacity compared to dry cargo companies. The large average company size in Switzerland could also be explained by the appealing tax structure of Switzerland which attracts owners of large companies to base their headquarters in Switzerland.

The Swiss structure contrasts with the fragmented market structure prevailing in most other Rhine countries, such as France, Belgium and the Netherlands which present a market structure mainly composed of a high number of small family businesses, which own or operate one or two cargo vessels each. Germany places itself in between by presenting a lower degree of fragmentation than these countries.

In Danube countries, the market structure of freight transport is characterised by previously state-owned companies and presents a higher share of larger companies. As a result, countries such as Bulgaria, Romania and Slovakia show an average of about 20 employed persons per company in the freight transport sector.

FIG. 8: **NUMBER OF PERSONS EMPLOYED PER COMPANY PER COUNTRY IN IWW FREIGHT TRANSPORT IN 2022 ***

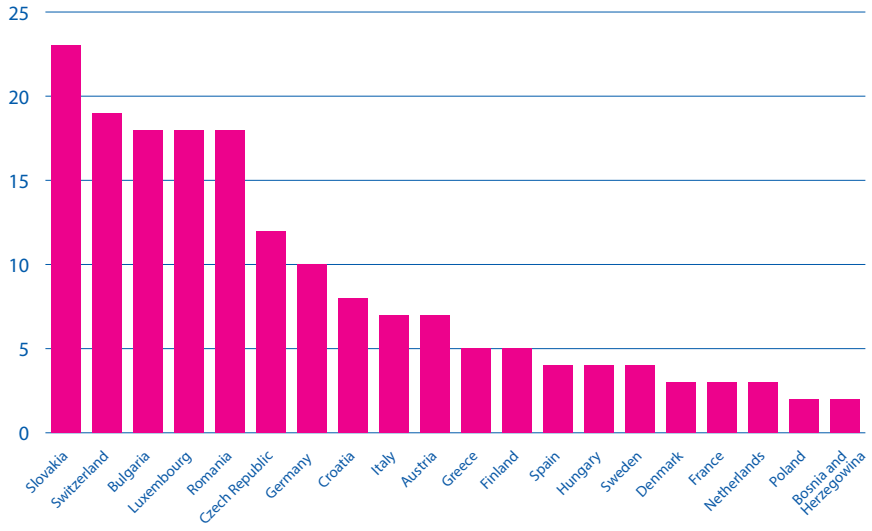
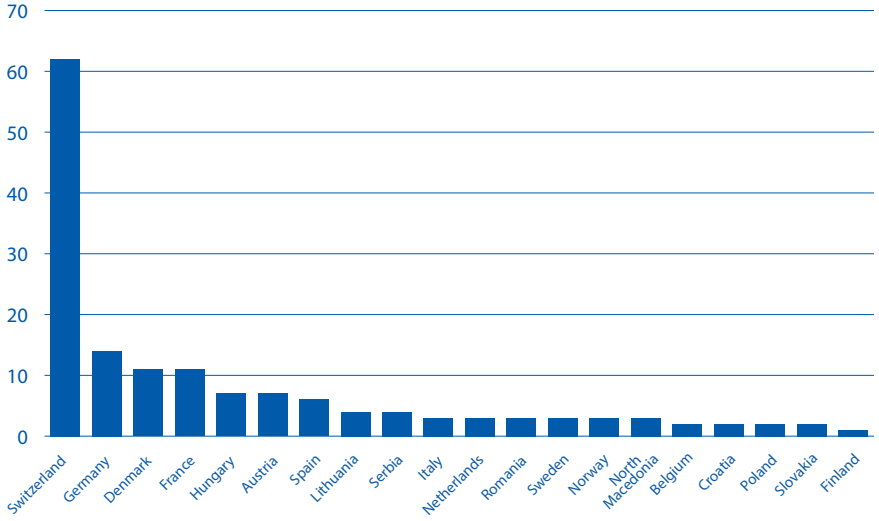


FIG. 9: **NUMBER OF PERSONS EMPLOYED PER COMPANY PER COUNTRY IN IWW PASSENGER TRANSPORT IN 2022 ***



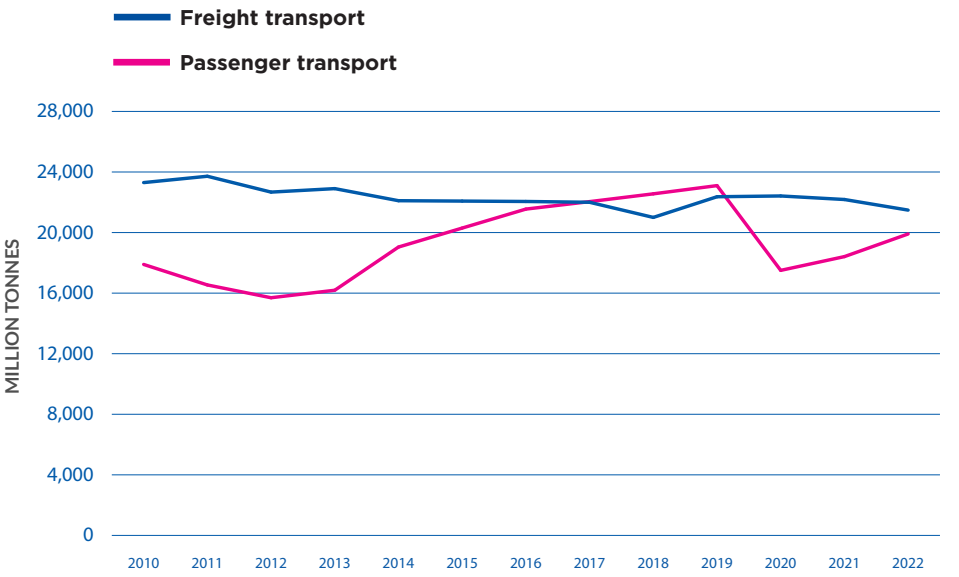
Source: Eurostat [sbs_sc_ovw]
** Data for Portugal are missing for freight transport. Data for Bulgaria and Czech Republic are missing for passenger transport. Since Brexit, data for the UK are no longer communicated by Eurostat.*

In 2020, the European Union had, on average, five employed persons per inland waterway passenger transport company and nine employed persons per inland waterway freight transport companies. For 2021, the average was four employed persons per company within passenger transport, while the data for freight transport were missing. Within these figures, Germany and the Netherlands play a strong influencing role, since they represent the biggest players in terms of number of companies in Europe.

The passenger and freight transport sectors show several differences regarding their evolution in the past ten years. On the one hand, the freight transport workforce remained relatively stable over the years that are analysed. On the other hand, the number of employed persons in passenger transport followed an upward trend between 2014 and 2019. However, the increasing curve was interrupted in 2020 as a result of the severe effects of the Covid-19 crisis. On the other hand, as the passenger sector is recovering from the Covid-19 crisis, it is observed that employment figures began to increase again as from 2021.

In addition to the substantial increase in the passenger transport workforce since 2013, it can also be noted that positions in inland navigation passenger transport are less and less impacted by seasonal breaks, leading to more stable career opportunities. Indeed, technological reasons, such as the use of modern passenger vessels, including both cruise and day trip vessels, and operational reasons such as a wider offer of cruise types and on-board events, have considerably extended the service period for passenger transport.

FIG. 10: **DEVELOPMENT OF EMPLOYMENT IN FREIGHT AND PASSENGER TRANSPORT IN THE INLAND WATERWAY TRANSPORT SECTOR IN EUROPE** *

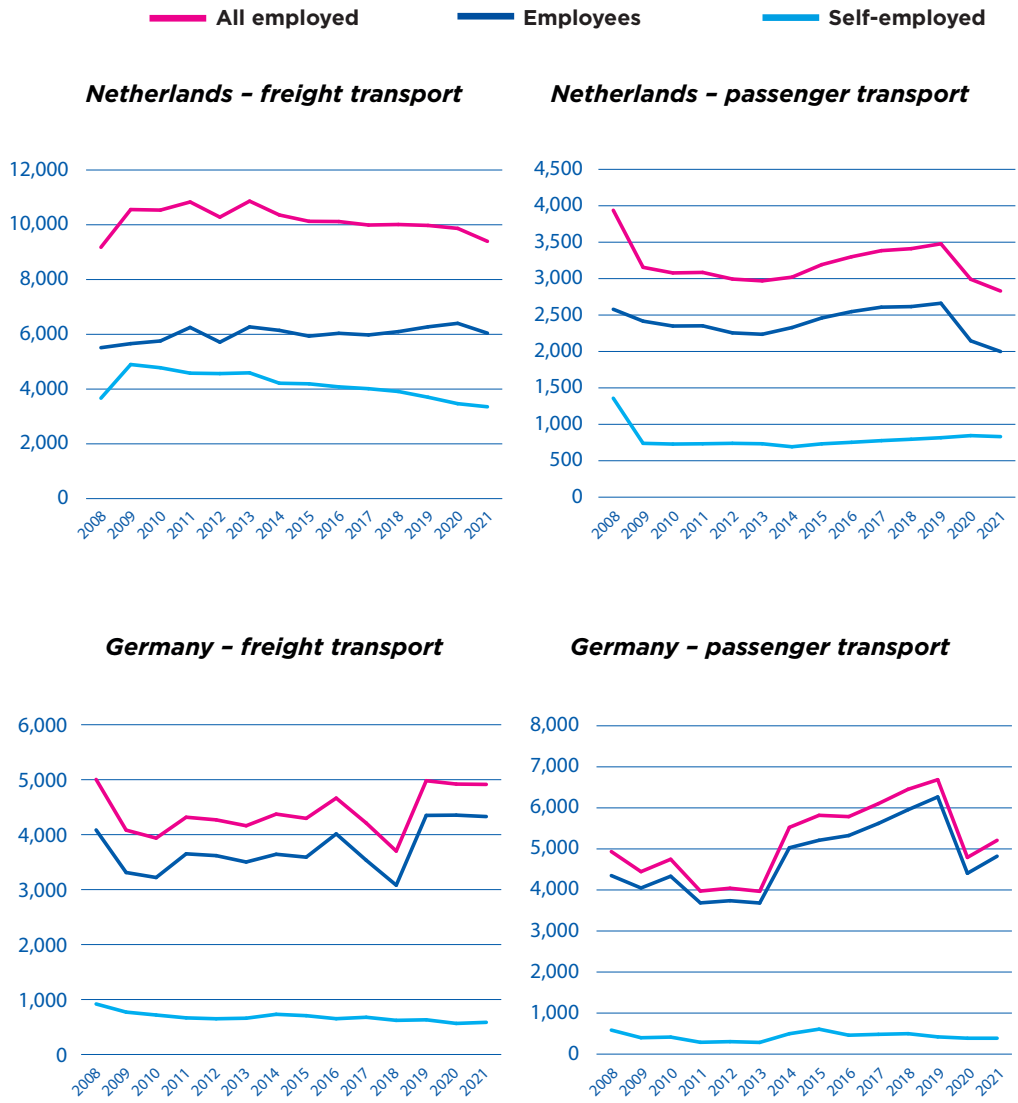


Sources: Eurostat [sbs_na_1a_se_r2] and [sbs_sc_ovw]
** Data for 2021 and 2022 in freight transport are estimated.*

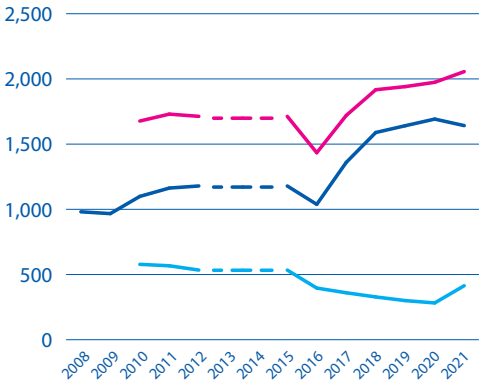
Figures 11 to 46 show the evolution of all persons employed and the separation into employees and self-employed persons. These data are available up until 2021 on Eurostat SBS, except for freight and passenger transport in Belgium and Serbia, and passenger transport in Slovakia, for which data are available up until 2020.

The prevalence of self-employment in IWT is much higher in western Europe than in eastern Europe where, apart from Poland and passenger transport in the Czech Republic and Slovakia, the figures are very low. This phenomenon can probably be explained by the historical fact that self-employment was almost non-existent in socialist economic systems.

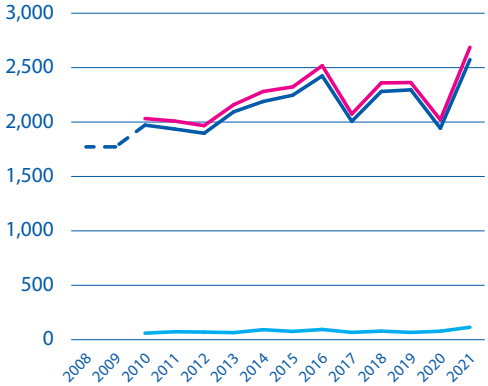
FIG. 11 TO 40: **EVOLUTION OF THE NUMBER OF PERSONS EMPLOYED IN IWT BY TYPE OF EMPLOYMENT AND COUNTRY** (2008-2021) *



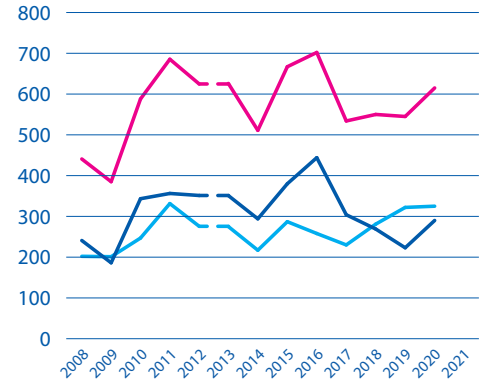
France – freight transport



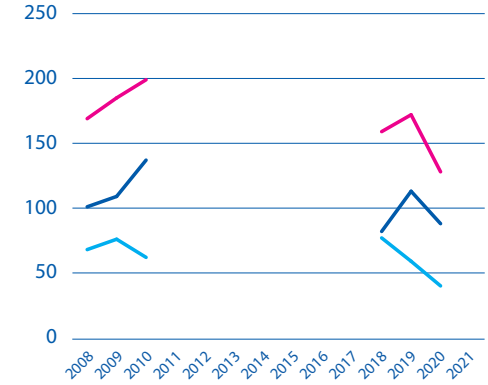
France – passenger transport

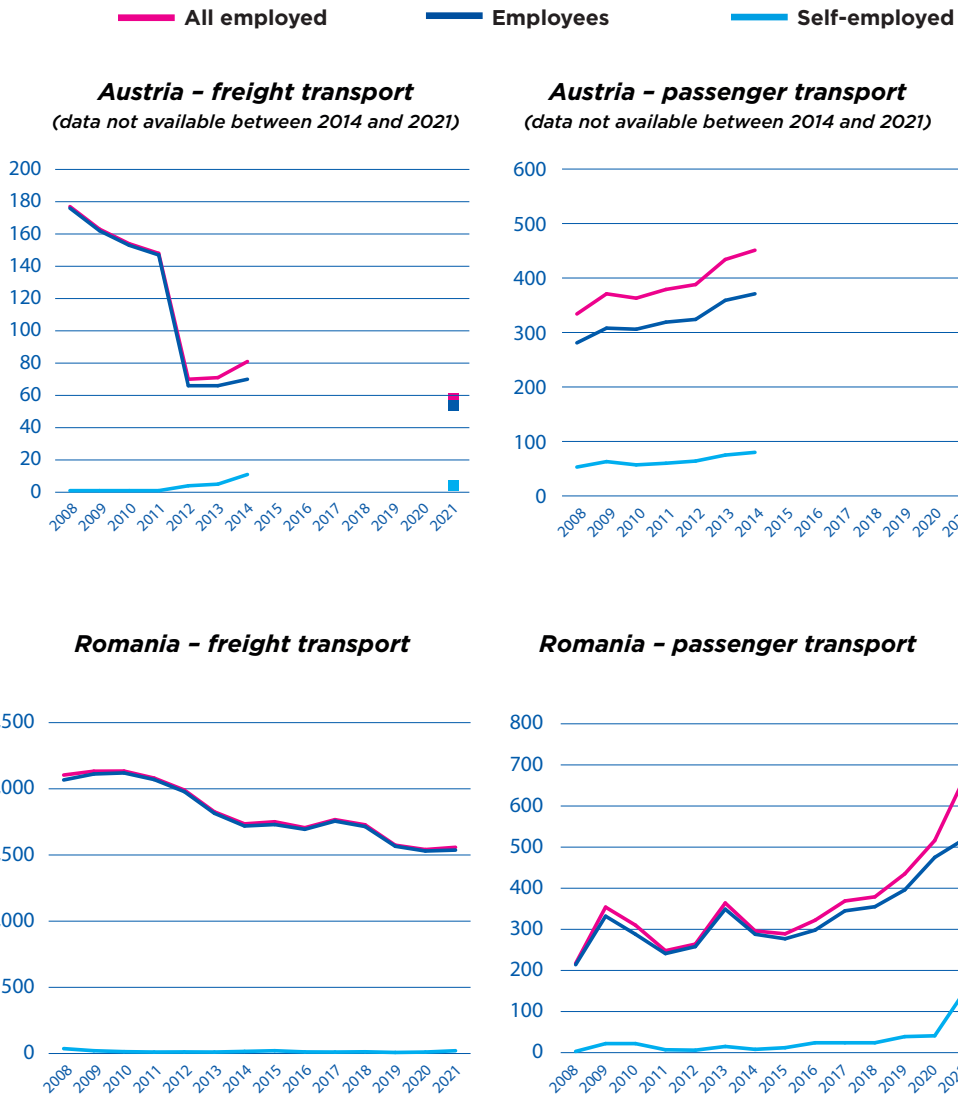


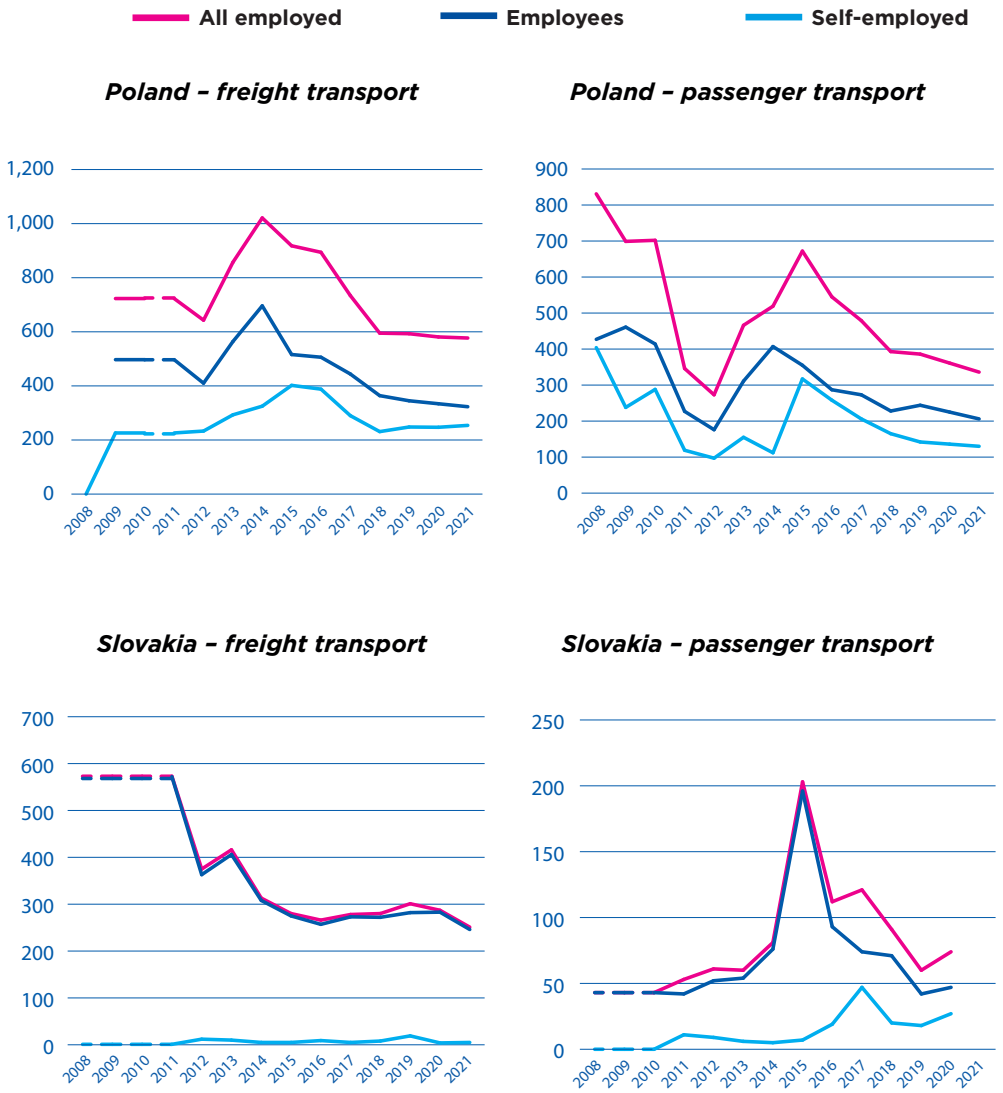
Belgium – freight transport



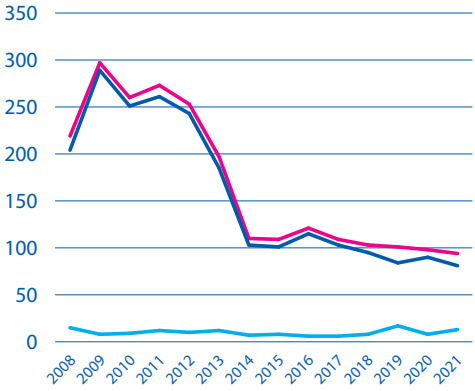
Belgium – passenger transport
(data not available between 2011 and 2017)



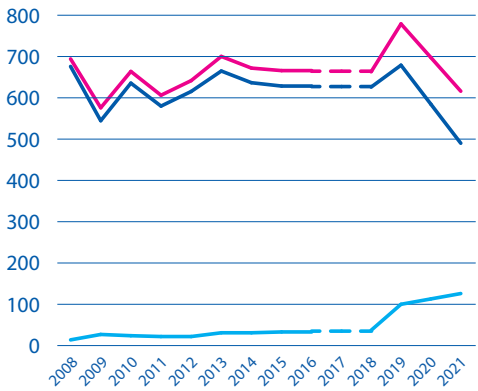

All employed
Employees
Self-employed
Austria – freight transport
(data not available between 2014 and 2021)
200
180
160
140
120
100
80
60
40
20
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Austria – passenger transport
(data not available between 2014 and 2021)
600
500
400
300
200
100
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Romania – freight transport
2,500
2,000
1,500
1,000
500
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Romania – passenger transport
800
700
600
500
400
300
200
100
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021


All employed
Employees
Self-employed
Poland – freight transport
1,200
1,000
800
600
400
200
0
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Poland – passenger transport
900
800
700
600
500
400
300
200
100
0
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Slovakia – freight transport
700
600
500
400
300
200
100
0
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Slovakia – passenger transport
250
200
150
100
50
0
2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021

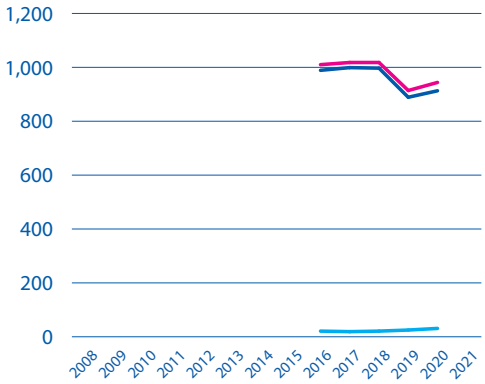
Hungary – freight transport



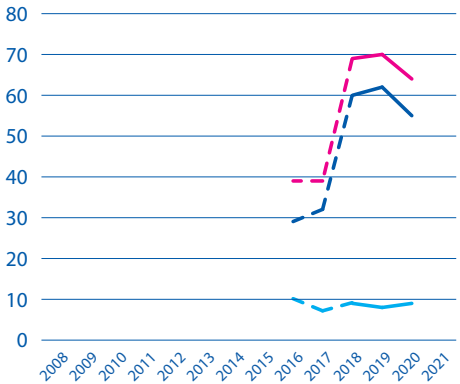
Hungary – passenger transport



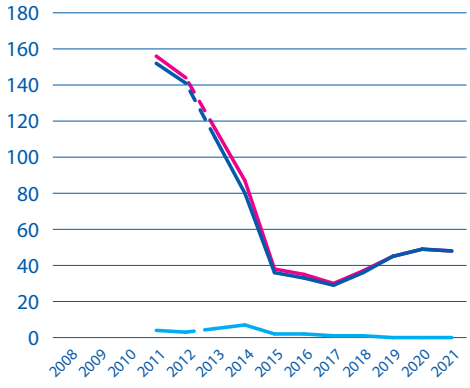
Serbia – freight transport



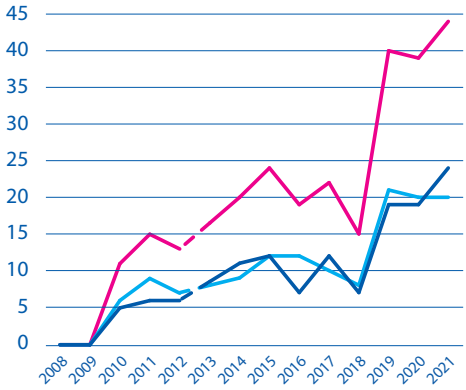
Serbia – passenger transport



Croatia – freight transport

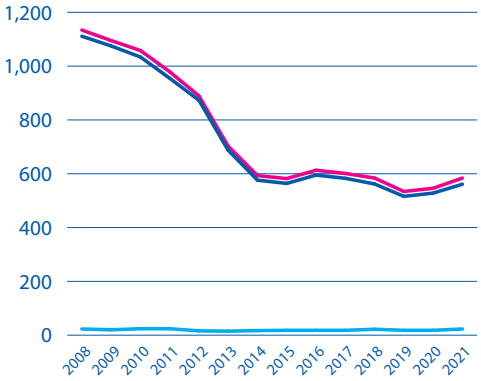


Croatia – passenger transport



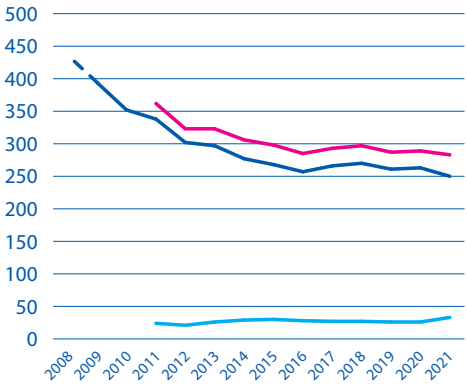
Bulgaria – freight transport

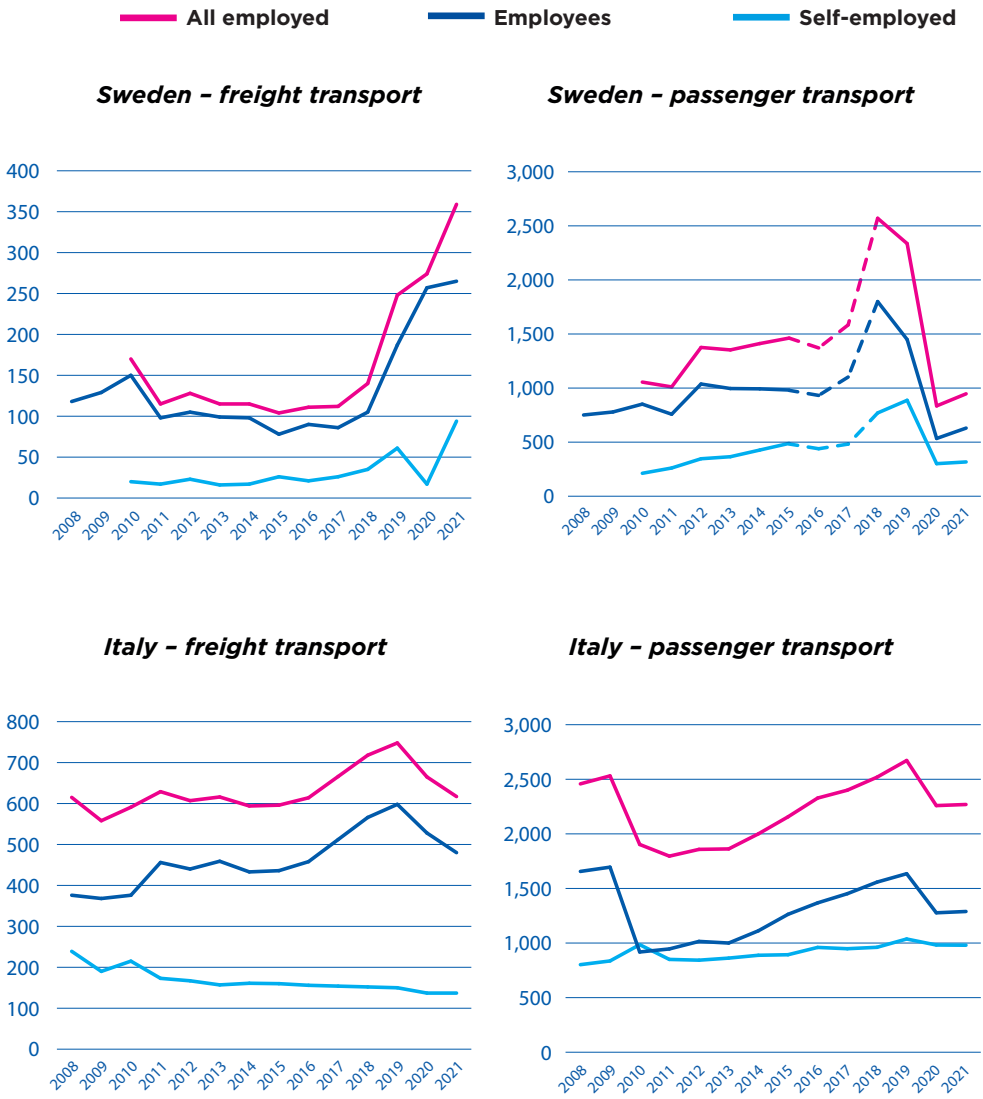
*(passenger transport data only partially available) ***

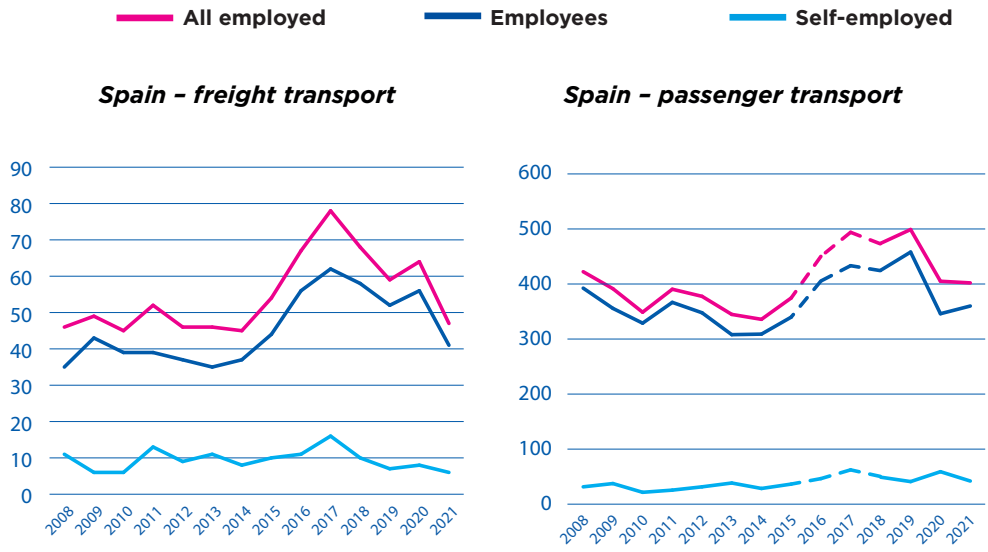


Czech Republic – freight transport

*(passenger transport data only partially available) ***




All employed
Employees
Self-employed
Sweden – freight transport
400
350
300
250
200
150
100
50
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Sweden – passenger transport
3,000
2,500
2,000
1,500
1,000
500
0
Italy – freight transport
800
700
600
500
400
300
200
100
0
Italy – passenger transport



Source: Eurostat SBS, series [sbs_na_1a_se_r2] and [sbs_sc_ovw]
** Dotted lines represent linear interpolations when data are missing for some specific years. The years for which no data is reported represent years when data are missing.*
*** In 2018, the number of persons employed in IWT passenger transport in the Czech Republic amounted to 342 of whom 76 were self-employed and 266 were employees; in 2016, the number of persons employed in IWT passenger transport in Bulgaria amounted to 329 of whom 16 were self-employed and 313 were employees.*


SWISS RADAR
TOUL

04

A COUNTRY-BY-COUNTRY ANALYSIS OF LABOUR MARKETS IN THE EUROPEAN IWT SECTOR

The country-by-country analysis in this chapter analyses the labour market in IWT more deeply by taking into account data from various national sources such as statistical offices, social security institutions, ministries, employment agencies and shipping administrations. It was not possible to present all data for the countries in exactly the same way (same indicators, same degree of detail, same methodology, etc.) This lack of consistency could not be avoided, given that the availability of data and the type of data produced vary greatly from one country to another.

In addition, in this chapter, numbers may diverge from Eurostat SBS data for multiple reasons. First, unlike the Eurostat SBS numbers, which are based on administrative data, some sources in this chapter rely on survey data. Second, while Eurostat figures are entirely based on the NACE categories, which assign individuals to economic sectors according to their companies' main activities, some sources in this chapter classify persons according to their individual main occupations.

Comparisons between the numbers of different countries in this chapter should be made very carefully due to the possible methodological differences. But such comparisons are of course important and necessary, so as to identify tendencies which could not be evaluated based on Eurostat data only.

Another potential source is service record books and certificates of qualification. However, they are often not a reliable source to assess employment trends since:

- it is not possible to determine whether the holder of a service record book or a certificate of qualification is still active or retired and,
- one person might have been in the SBS database with more than one service record book or qualification certificate before the new legal framework applied to all crew members (transition period for registration of one single active service record book in ECDB running from 2022 to 2032), having obtained different ranks or fulfilling the obligation to renew a certificate.

The availability of fully reliable service record books and certificates of qualification will be of incredible added value for the statistical monitoring of the labour market in inland navigation. The adoption of the delegated EU-regulation 2020/473 is already a first step towards more reliability of the data registered in service record books. It will be completed once all certificates of qualification and service record books issued according to Directive (EU) 2017/2397 and the Regulations for Personnel navigating on the Rhine (RPN) are registered centrally in the European Crew Database.

RHINE COUNTRIES

EVOLUTION OF THE RHINE PATENT DELIVERED OVER TIME

At the level of the CCNR, data regarding the Rhine certification of qualification as a boatmaster (Rhine patent) are collected annually. As explained in general terms in the introduction to this chapter, service record books and data regarding certificates of qualification do not allow to differentiate between active and retired workers, and the risk that IWT workers registered in such databases are counted twice (or even more) are high. It is therefore not possible to use such data to assess the number of active IWT workers according to their competences. An additional limitation with regard to the Rhine patent data is that they include only those people who qualified as boatmasters - or who received an authorisation to sail on Rhine stretches with specific risks in CCNR Member States - to work on the Rhine labour market. However, such data also have the merit of providing an indication of the number of newly delivered certificates, life-long learning and the number of boatmasters aged 50 and over.

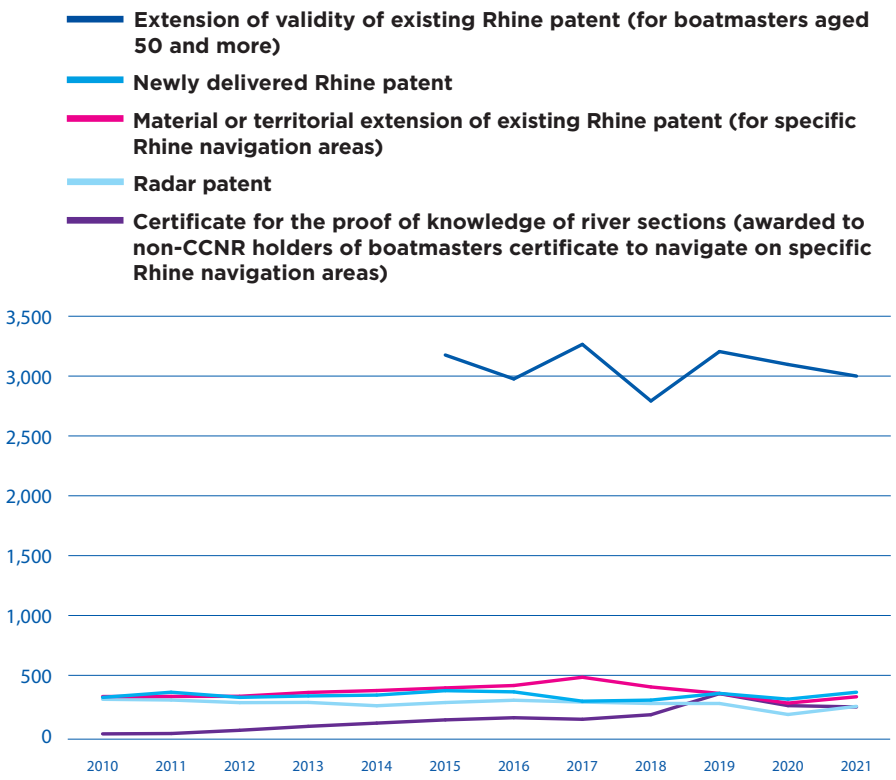
For the Rhine labour market, Germany and the Netherlands, on average deliver together annually, close to 90% of new Rhine patents, followed by Belgium (Flanders mainly), France and Switzerland. The Netherlands alone account for around 55%, on average. The delivery of new Rhine patents between 2015 and 2018 decreased from 372 to 293 and picked up again in 2019 and 2021 to reach respectively 349 and 359. Despite the Covid-19 crisis, 301 new Rhine patents were delivered in 2020.

Regarding the extension of validity of Rhine patents,[10] on average, 50% of such extensions are delivered in the Netherlands, 25% in Germany and 20% in Belgium (Flanders mainly). No specific decreasing or increasing trend can be derived from the available figures. On average, 3,070 of such patents, which target boatmasters aged 50 and over, were extended each year, following renewal of their medical fitness tests. This shows that a constant number of boatmasters continue to operate over the age of 50 and keep a continued interest in having a Rhine patent.

The evolution in the number of material extension of existing Rhine patents, radar patents and certificates for the proof of knowledge of river sections delivered since 2015, shows the willingness of boatmasters - whether or not they obtained their certification in CCNR countries -, to continue learning and specialising throughout their careers. This is particularly true for the holders of non-CCNR boatmasters' certificates, given the overall increasing number of certificates of knowledge of the sector over time. These are positive observations in terms of life-long learning.

[10] Before the entry into force of the new RPN on 1 April 2023, medical fitness was renewed at age 50, and thereafter every 5 years, and afterwards every year from age 65. With the new RPN, the age for the first renewal of the medical fitness is now set at 60.

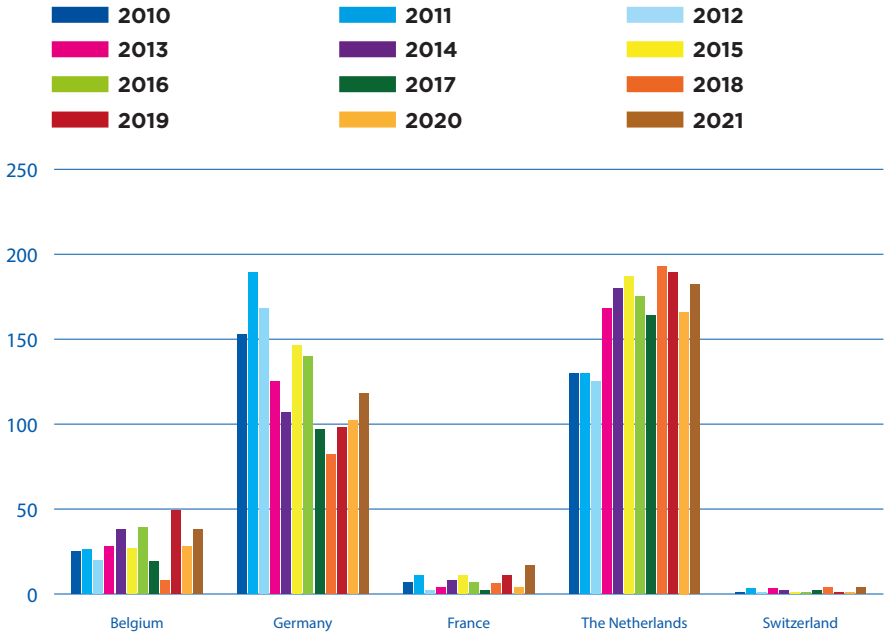
FIG.1: **NUMBER OF RHINE PATENTS DELIVERED BETWEEN 2015 AND 2021 ***



Source: CCNR

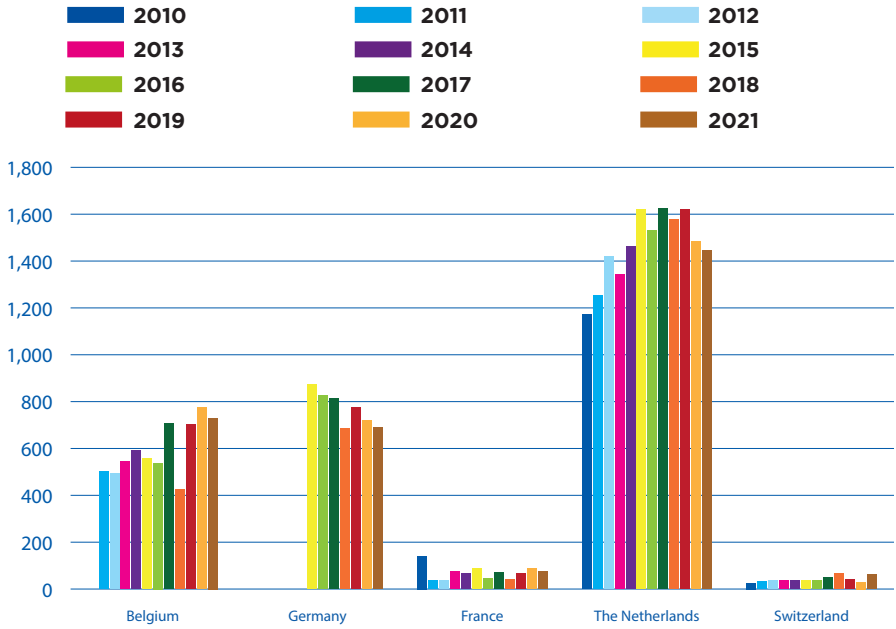
** For material extension data, data for Flanders missing in 2020, data for Belgium missing in 2021; for Radar patent in 2016, data for Belgium missing. For extension of validity, data for Germany missing between 2010 and 2014.*

FIG.2: **NUMBER OF THE NEWLY DELIVERED RHINE PATENTS BETWEEN 2015 AND 2021 PER CCNR COUNTRY**

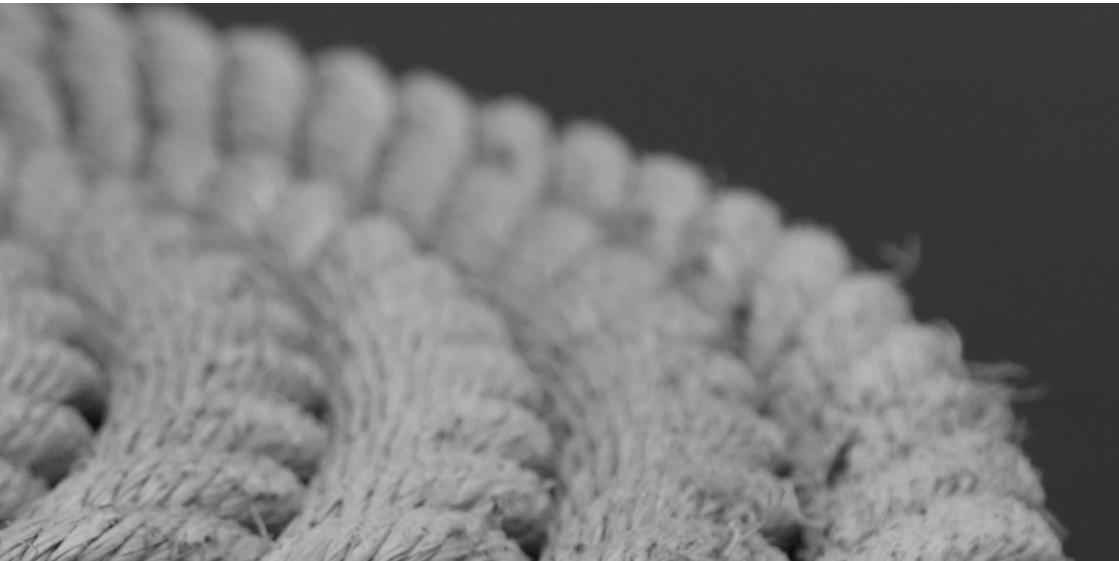


Source: CCNR

FIG.3: **NUMBER OF EXTENSION OF VALIDITY OF RHINE PATENTS DELIVERED BETWEEN 2015 AND 2021 PER CCNR COUNTRY**



Source: CCNR



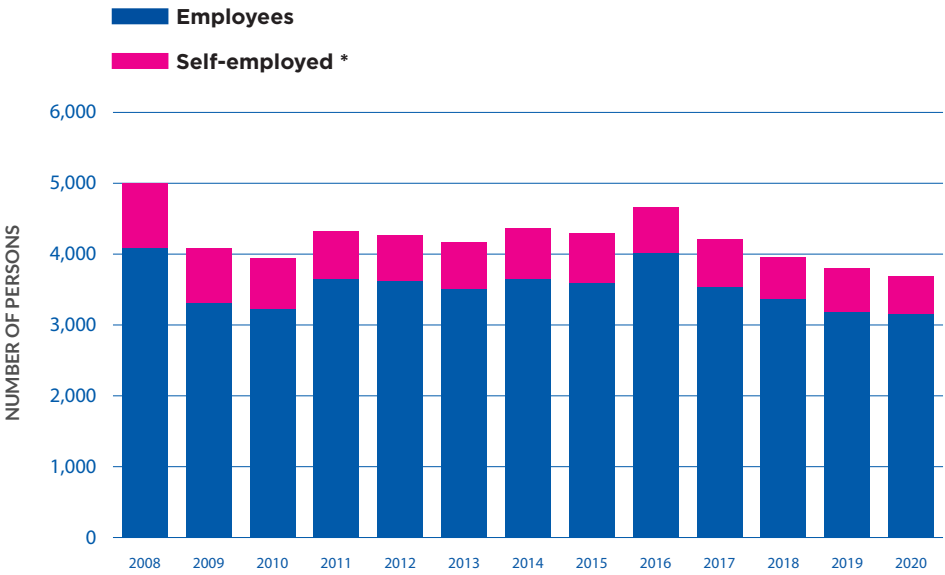
GERMANY

Statistical data on employment in IWT are available from the German Statistical Office (Destatis) as well as from the German Federal Labour Agency (Bundesagentur für Arbeit). The labour agency data refer only to employees but are very detailed and allow the differentiation of employment by several parameters. The Destatis data are less detailed but have the important advantage that they include also entrepreneurs.

GENERAL OVERVIEW

Before plunging into the detailed data of the Federal Labour Agency, an overview on the general structure of the IWT labour market in Germany is provided. Hereby, data from the Statistical Office are used, as they contain both data on the self-employed and on employees.

FIG. 4: **TOTAL EMPLOYMENT IN IWW FREIGHT TRANSPORT IN GERMANY**



Source: Destatis
** Includes helping family members.*

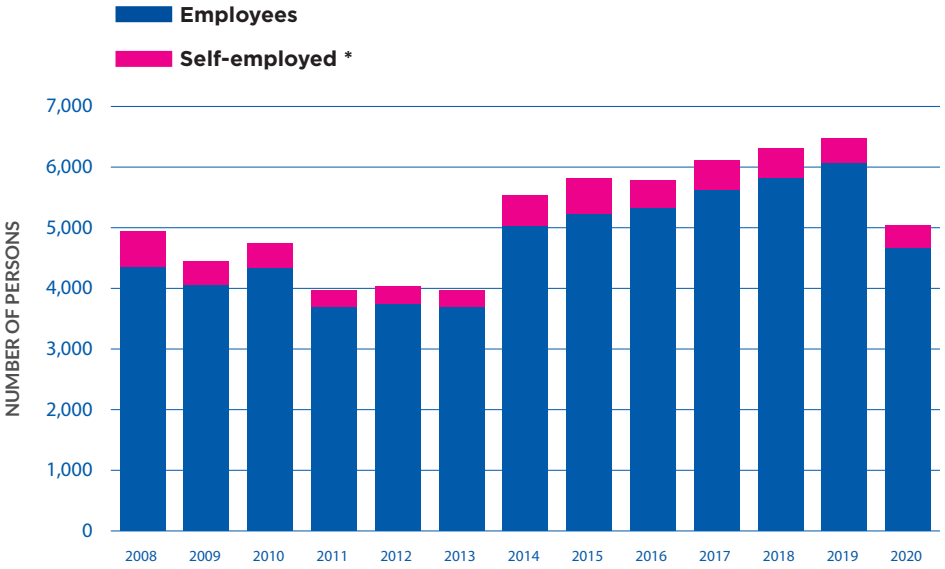
Employment in IWW freight transport fluctuated around 4,000 persons between 2009 and 2017 but followed a slight downward trend in the following years. Within the total figures, the share of the self-employed decreased between 2008 and 2020, descending from 18.4% in 2008, to 14.5% in 2020.

A comparison between the absolute number of employees according to the Destatis data with the number of employees[11] from the database of the German Federal Labour Agency reveals no significant differences between the two sources. The average deviation between the two series was 2.4% for freight transport in the time-period 2013-2020.

Employment in IWW passenger transport enjoyed an upward trend from 2014 to 2019. This trend was interrupted by the Covid-19 pandemic, but employment appears to have been far less reduced than the passenger transport activity itself. This might be explained by policy measures that are common for the German labour market. An important tool is the so-called 'Kurzarbeitergeld', which represents short-time allowances paid by the state in order to save employment during times of poor activity in a sector.

[11] *Including employees in marginal employment.*

FIG. 5: **TOTAL EMPLOYMENT IN IWW PASSENGER TRANSPORT IN GERMANY**



Source: Destatis
** Includes helping family members.*

In 2020, the share of self-employed amounted to around 8.3% in German passenger transport, compared to 13.4% in 2008. The share of the self-employed is therefore smaller than in freight transport, which can be explained by the fact that Germany has the largest passenger vessel capacity in Europe, spread over the second largest fleet of passenger vessels (the Netherlands having the largest fleet but in general less places on board day trip vessels). As is the case in freight transport, the share of self-employed has been following a decreasing trend since 2008.

The number of employees according to Destatis differs a little more from the Employment Agency figures than in freight transport. In the time span 2013-2020, the average deviation between the two series was 8.8%. Nevertheless, both series clearly show the same trend.

DETAILED DATA ON EMPLOYEES FROM BUNDESAGENTUR FÜR ARBEIT

As already indicated above, the German Federal Labour Agency has very detailed datasets regarding employees working in the German IWT sector. A comparison between freight and passenger transport shows that the number of employees in passenger transport followed a positive trend until 2019. Due to the Covid pandemic, however, employment decreased in 2020 and 2021. By 2021, employment in IWW passenger transport was 13% lower than in 2019. Employment in freight transport has remained rather constant since 2017.

Employment by type

Total employment comprises both employees working under the social security regime, as well as employees working under the so-called marginal employment regime (in German: kurzfristige und geringfügige Beschäftigung). Within German labour law, there are two types of marginal employment:

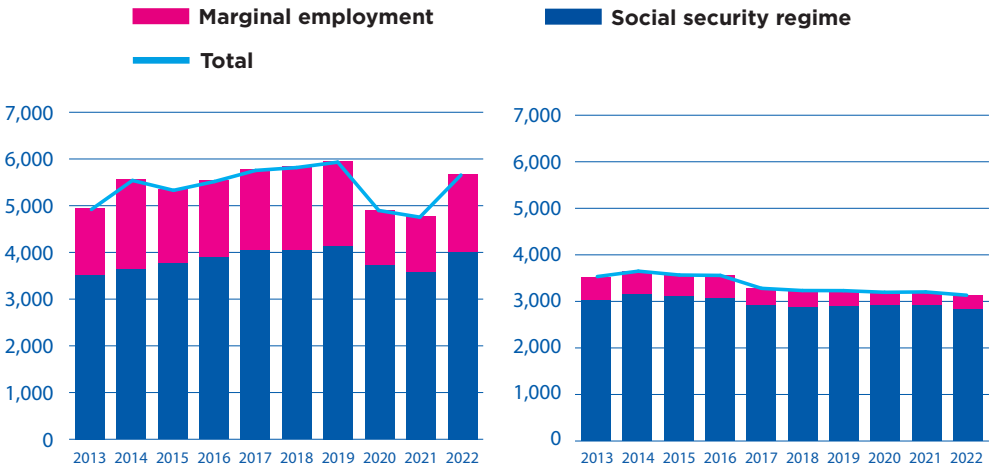
1. The employment is limited by its nature (e.g. seasonal work) or in advance by contract to a maximum of 3 months or 70 working days within a calendar year.
2. The remuneration from this employment does not regularly exceed a limit of € 520 per month.

Based on the database of the German Federal Employment Agency, the total number of employees in the German transport sector can be differentiated according to several criteria:

- Type of employment (social security regime / marginal employment)
- Market segment (goods transport / passenger transport)
- Nationality of the employee (German / Foreigner)
- Age group to which the employee belongs
- Gender of the employee

A detailed analysis of the data according to these criteria is shown in the present section.

FIG.6 AND 7: **NUMBER OF EMPLOYEES IN IWW PASSENGER** (LEFT) **AND FREIGHT** (RIGHT) **TRANSPORT IN GERMANY**



Source: Bundesagentur für Arbeit

The results confirm that in Germany, IWW passenger transport has a higher number of employees than IWW freight transport. The share of the marginal employment is distinctively different between the two segments. Whereas in passenger transport it reached 29.5% in 2022, it reached only 9.8% in freight transport in the same year.

It is interesting to note the evolution of this share within passenger transport over time. Indeed, in the past, the share of marginal employment had been even higher, reaching 30.8% in 2018 and 30.5% in 2019. With the Covid crisis, the share fell by more than six percentage points, to 24.3% (2020). In 2021, it recovered only slightly to 24.8%, and in 2022 it returned closer to pre-pandemic levels with a share of 29.5%.

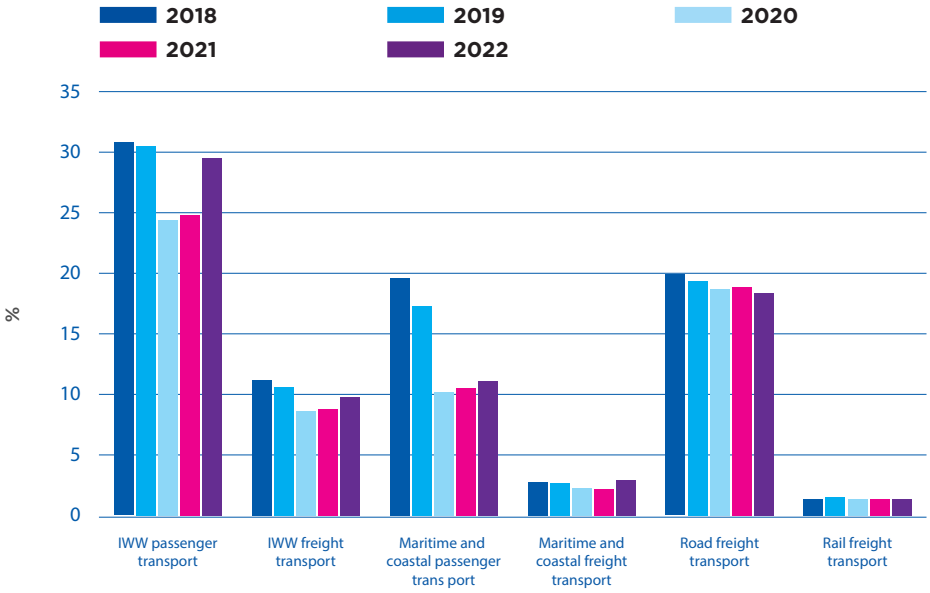
The interpretation of this evolution is related to the strong reduction in passenger demand during the pandemic. The passenger day trip and cruising companies, when faced with the necessity to reduce employment because of the complete halt in their business activity, obviously focused on seasonal staff and low-paid workers, whose contracts were terminated first.

In IWW passenger transport, the number of employees with marginal employment was therefore 34% lower in 2020 compared to 2019. For employees under the social security regime, the reduction was only 10%.

The IWW passenger transport market has the highest share of marginal employment within the German transport sector, as the following figure shows. It is obvious that passenger transport has a higher share of seasonal workers. However, in maritime and coastal passenger transport, the share of marginal employees is less than half as high as in IWW passenger transport.

In all branches of the German transport sector, the share of marginal employment within total employment was reduced in the wake of the Covid crisis. The strongest reduction was thus observed for two of the three branches, where this form of employment plays an important role (in IWW passenger transport and in maritime and coastal passenger transport). In road transport, no significant reduction in the marginal employment share did occur.

FIG.8: **SHARE OF MARGINAL EMPLOYMENT WITHIN ALL EMPLOYEES IN THE GERMAN TRANSPORT SECTOR** (IN %)



Sources: Bundesagentur für Arbeit, CCNR analysis

Employment by nationality

Within both types of employment (social security regime and marginal employment), employees comprise both persons of German and foreign nationalities. In contrast to what would have been expected, a higher share of foreign personnel within marginal employment is not detected within the dataset. Indeed, the opposite is true: foreigners are relatively less frequently employed under a marginal employment scheme than Germans.

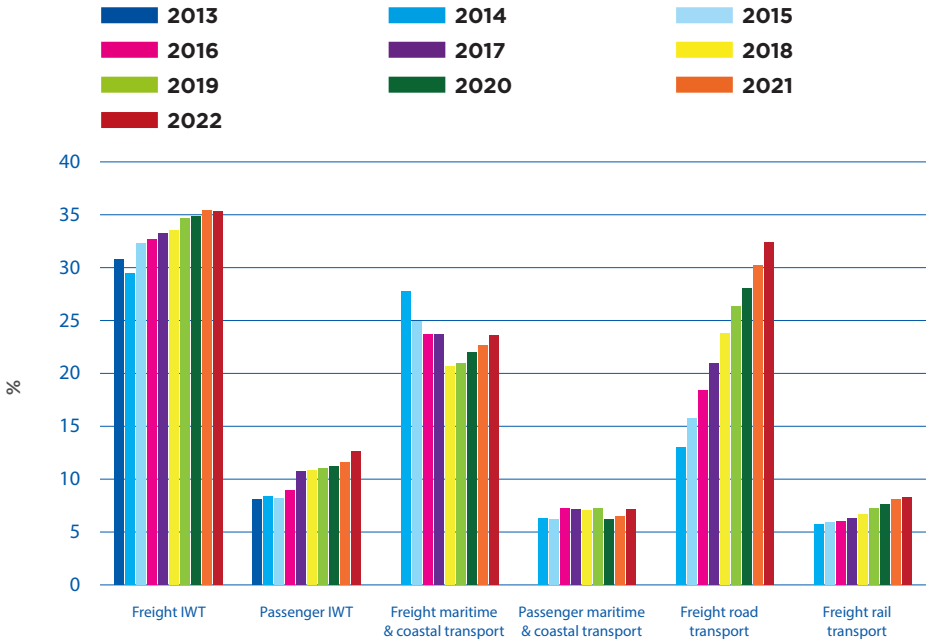
TABLE 1: **SHARE OF GERMANS AND FOREIGNERS AMONG EMPLOYEES IN GERMAN INLAND NAVIGATION** (2022)

Segment	Germans	Foreigners
Passenger transport, social security regime	87.4%	12.6%
Passenger transport, marginal employment	90.1%	9.9%
Freight transport, social security regime	64.7%	35.3%
Freight transport, marginal employment	88.2%	11.8%

Sources: Bundesagentur für Arbeit, CCNR analysis

When considering only employees working under the social security scheme, it is seen that the share of foreigners is relatively high in IWW freight transport, also in comparison with other branches of the German transport sector. It exceeds the share of foreigners in maritime, road and rail freight transport. On the other hand, the increase in the share of foreign personnel is even steeper in road freight transport than in IWW freight transport. Both transport markets are currently facing a lack of personnel.

FIG.9: **SHARE OF FOREIGNERS AMONG EMPLOYEES * IN THE GERMAN TRANSPORT SECTOR** (IN %)



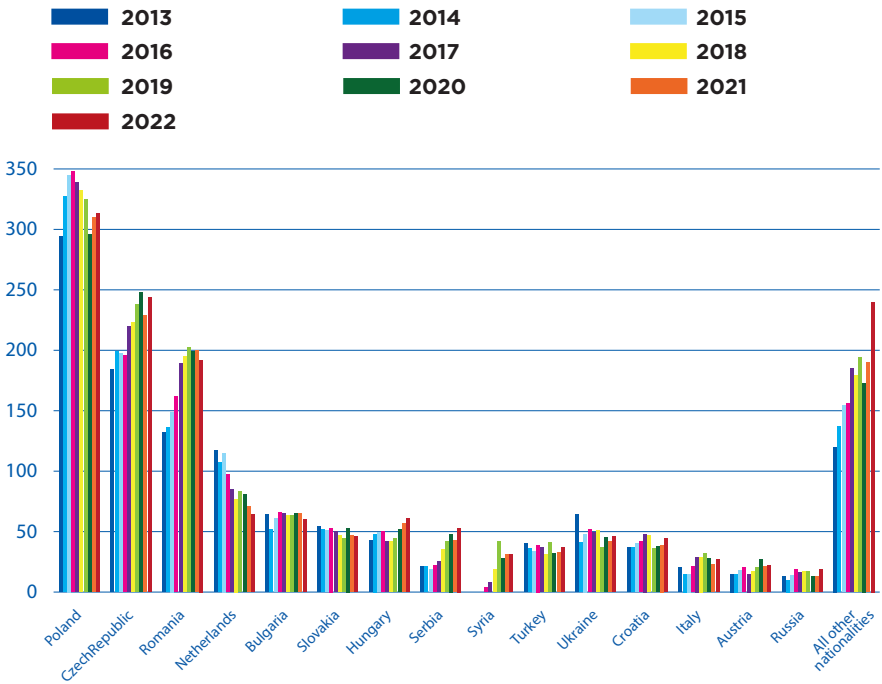
Sources: Bundesagentur für Arbeit, CCNR analysis

** Employees under social security regime*

The three countries of origin with the greatest number of foreigners working in the German IWW sector are Poland, the Czech Republic and Romania. In general, eastern European countries (Poland, the Czech Republic, Romania, Bulgaria, Slovakia, Hungary, Serbia, Ukraine, Croatia, Russia) are predominant countries of origin of foreign workers in the German IWT sector. The Netherlands also plays an important role as country of origin, although the figures of Dutch nationals working in the German IWT sector as employees show a negative trend.

For the entire German IWT sector (freight and passenger transport taken together), the share of foreigners was 22.0% in 2022 among persons working under the social security regime. As shown in the table above, the share is higher in goods transport, where it amounted to 35.3% in 2022, compared to passenger transport (12.6% in 2022).

FIG.10: **NUMBER OF EMPLOYEES WITH FOREIGN NATIONALITY IN THE GERMAN INLAND NAVIGATION SECTOR BY NATIONALITY ***



Sources: Bundesagentur für Arbeit, CCNR analysis

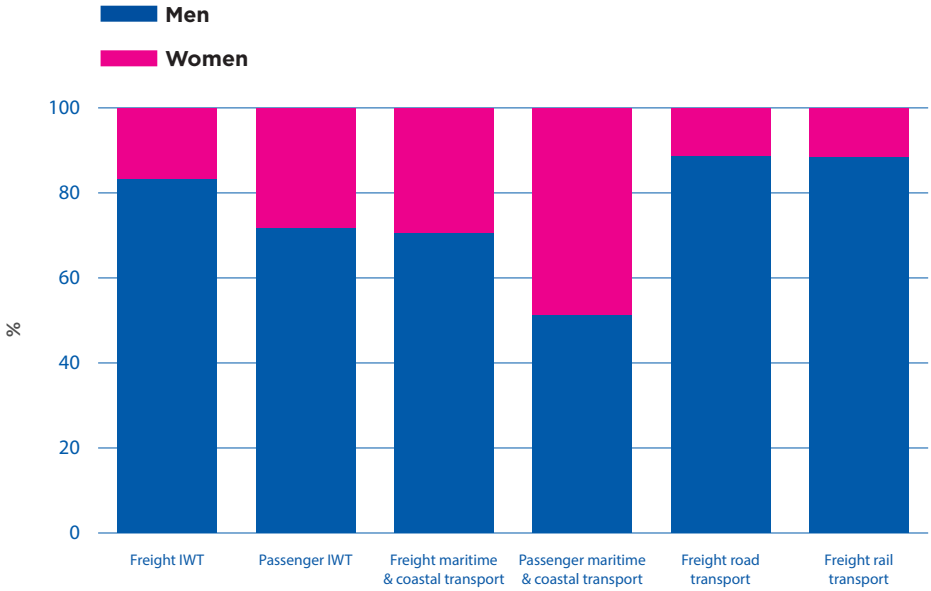
** Data concern both freight and passenger transport but only employees working under social security regime.*

Employment by gender

A differentiation by gender reveals a rather high share of male workers in the transport sector overall. An exception is maritime and coastal transport of passengers, where the ratio between male and female workers approaches a value which is more typical of the economy as a whole. In IWW passenger transport, the share of female workers

is much higher than in IWW freight transport, most likely due to the gastronomic and service activities which play an important role in passenger transport in general. Those workers are mostly hired on a seasonal basis.

FIG. 11: **SHARE OF EMPLOYEES BY GENDER IN 2022** (IN %) *



Sources: Bundesagentur für Arbeit, CCNR analysis
Situation as of 30 June 2022
** Employees under social security regime*

Regarding the type of employment, analysis on gender specific employment patterns reveals that the share of male workers is higher for all the categories or workers analysed in table 2. Nevertheless, among the employees working under the marginal employment scheme, women present a share almost equal to men both for passenger and goods transport. The interpretation of this pattern relates to the fact that inland vessels are often owned and operated by family companies. Therefore, women often work only for a limited number of hours (at least according to the official company model) and are therefore often employed on the basis of a marginal employment scheme.

TABLE 2: **SHARE OF MEN AND WOMEN AMONG EMPLOYEES IN GERMAN INLAND NAVIGATION** (2022)

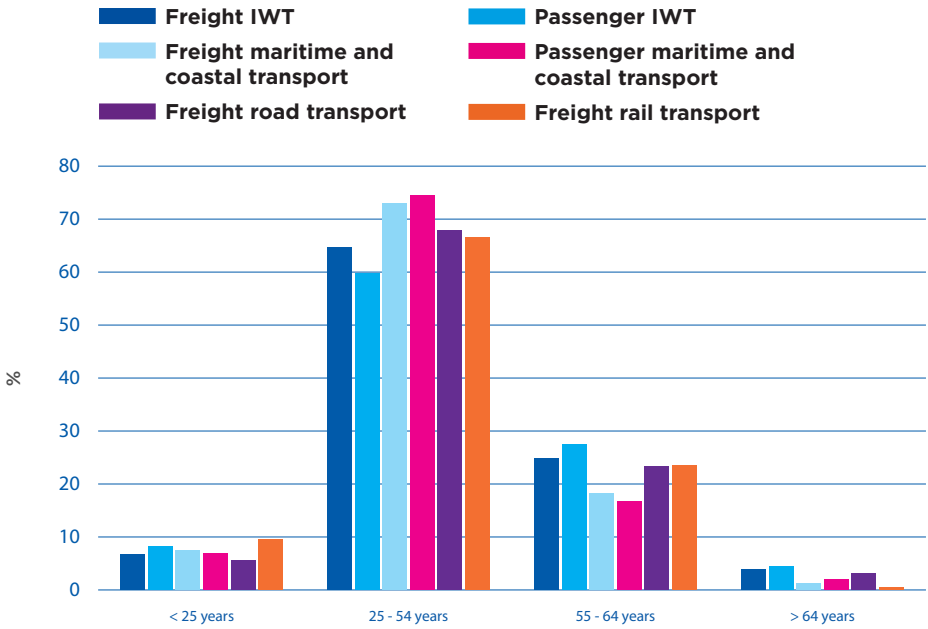
Segment	Men	Woman
Passenger transport, social security regime	71.6%	28.4%
Passenger transport, marginal employment	55.2%	44.8%
Freight transport, social security regime	83.1%	16.9%
Freight transport, marginal employment	53.4%	46.6%

Sources: Bundesagentur für Arbeit, CCNR analysis

Employment by age groups

The distribution of employees according to age groups currently differs little in IWW freight and IWW passenger transport when compared to other transport modes.

FIG.12: **SHARE OF EMPLOYEES BY AGE GROUP IN 2022** (IN %)



Sources: Bundesagentur für Arbeit, CCNR analysis
Situation as of 30 June 2022

The category of workers above the age of 64 detains the lowest share among all modes of transport. The reason behind is that the age of 65 years constitutes the age of retirement. Passenger transport on inland waterways reaches the highest share (4.4%) for this group of persons within all modes of transport, although this share is only slightly higher than for other modes of transport. Taking into consideration the evolution of age group distributions over time per mode of transport (see tables and graphs below), some important features can be observed.

First of all, since 2015, the share of persons over 64 years has increased in IWW freight and in IWW passenger transport as well as in road freight transport.

Within the youngest age group (< 25 years), since 2015, the absolute number as well as the share of workers has decreased in IWW freight transport and in maritime freight transport.

In IWW passenger transport, the numbers of persons under 25 years and their share remained rather stable. In addition, it can be observed that employment in road transport is increasing in almost all age groups.

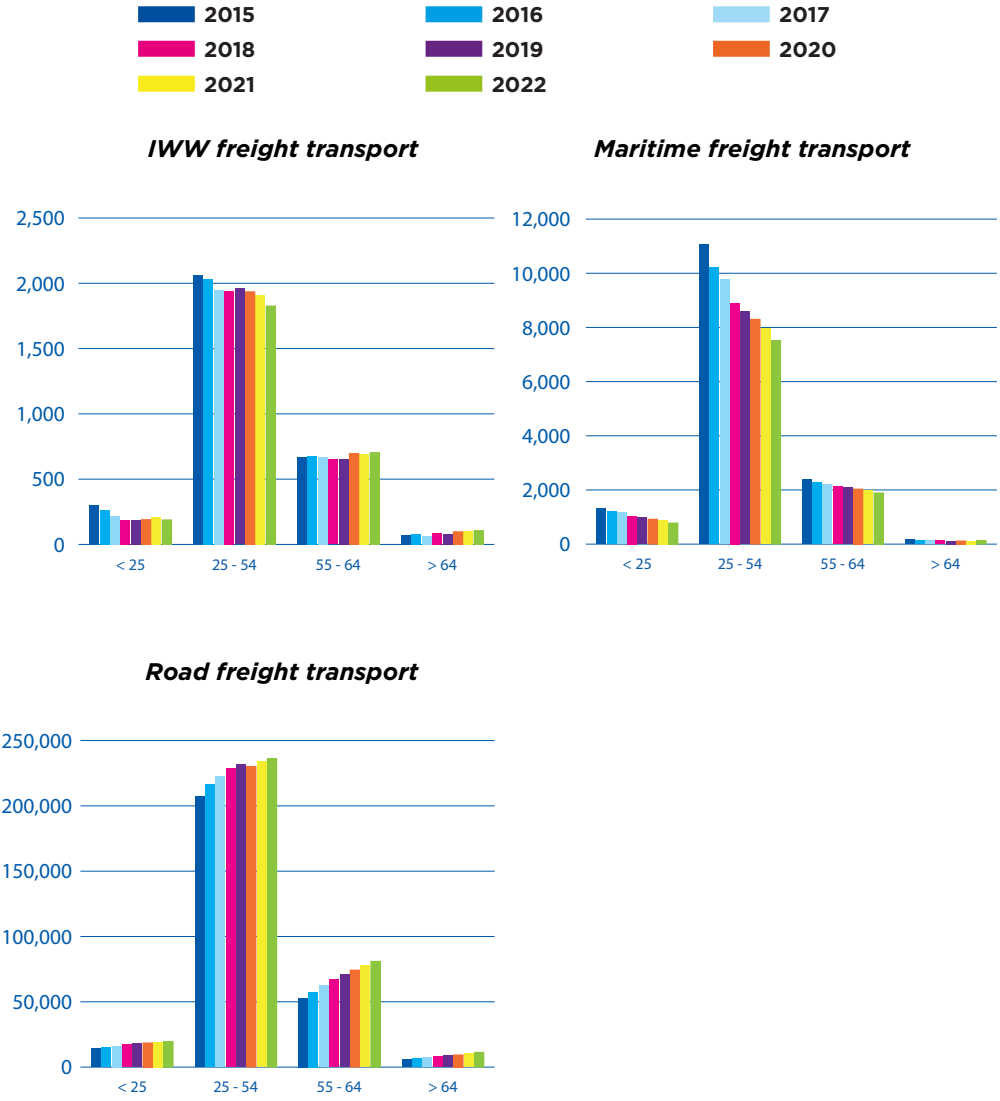
TABLE 3: **SHARE OF EMPLOYEES BY AGE GROUP IN DIFFERENT MARKET SEGMENTS IN THE GERMAN TRANSPORT SECTOR** (IN %) *

Market segment	< 25	25-54	55-64	> 64
Freight IWT (2015)	9.6	66.5	21.7	2.3
Freight IWT (2017)	7.6	67.1	23.1	2.2
Freight IWT (2019)	6.5	67.9	22.8	2.9
Freight IWT (2021)	7.3	65.5	23.8	3.5
Freight IWT (2022)	6.7	64.7	24.9	3.8
Passenger IWT (2015)	8.2	67.7	20.6	3.6
Passenger IWT (2017)	8.5	65.3	22.0	4.1
Passenger IWT (2019)	9.0	62.2	24.3	4.6
Passenger IWT (2021)	7.8	61.2	27.1	3.9
Passenger IWT (2022)	8.2	59.8	27.5	4.4
Freight Maritime (2015)	8.9	74.1	16.0	1.1
Freight Maritime (2017)	8.8	73.6	16.6	1.0
Freight Maritime (2019)	8.4	72.8	17.8	1.0
Freight Maritime (2021)	8.1	72.8	18.0	1.1
Freight Maritime (2022)	7.5	72.9	18.3	1.2
Passenger Maritime (2015)	6.6	78.6	13.2	1.6
Passenger Maritime (2017)	6.6	79.5	12.5	1.4
Passenger Maritime (2019)	7.9	77.7	12.8	1.7
Passenger Maritime (2021)	6.0	75.6	16.7	1.8
Passenger Maritime (2022)	6.9	74.4	16.7	1.9
Freight Road (2015)	5.1	73.9	18.9	2.1
Freight Road (2017)	5.3	72.1	20.2	2.4
Freight Road (2019)	5.5	70.2	21.6	2.7
Freight Road (2021)	5.6	68.6	22.8	3.0
Freight Road (2022)	5.6	67.9	23.3	3.2

Market segment	< 25	25-54	55-64	> 64
Freight Rail (2015)	9.7	66.9	23.1	0.2
Freight Rail (2017)	9.2	66.0	24.5	0.2
Freight Rail (2019)	9.1	65.8	24.8	0.3
Freight Rail (2021)	9.5	66.2	23.9	0.4
Freight Rail (2022)	9.6	66.5	23.5	0.4

Sources: Bundesagentur für Arbeit, CCNR analysis
** Employees under social security regime*

FIG.13, 14 AND 15: **NUMBER OF EMPLOYEES IN FREIGHT TRANSPORT BY AGE GROUPS**

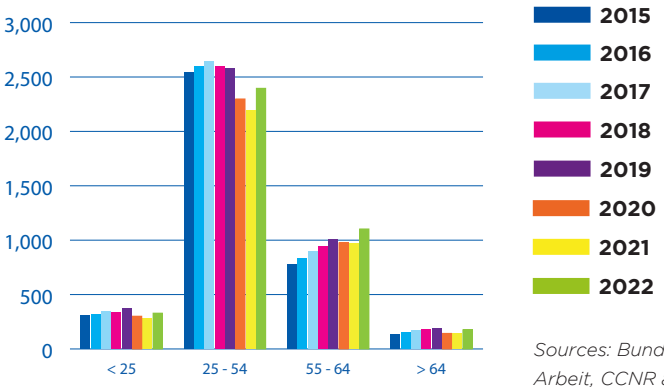


Sources: Bundesagentur für Arbeit, CCNR analysis

With regard to employment in IWW passenger transport, an overall positive employment evolution can be observed, largely attributed to the 55-64 age group.

FIG.16: **NUMBER OF EMPLOYEES IN IWW PASSENGER TRANSPORT BY AGE GROUPS**

IWW passenger transport



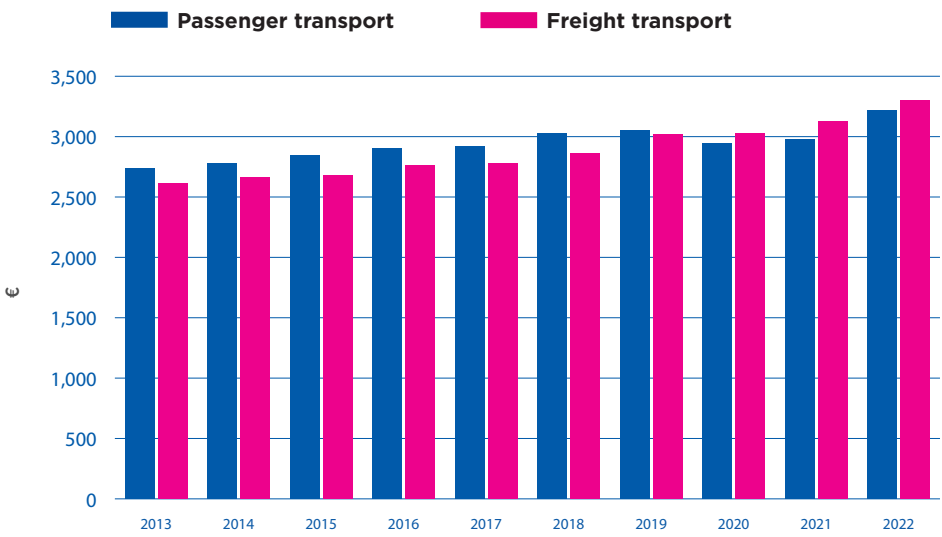
Sources: Bundesagentur für Arbeit, CCNR analysis

Income levels and job durations

The monthly gross median income[12] for full-time IWW workers under the social security regime in Germany has increased since 2013, on a trend basis. Only a slight decrease can be observed for passenger transport in 2020.

[12] A median is a statistical indicator, which should not be confused with the arithmetic average of a series. The median of a data series, in this case of a wage series, is the value which divides the data series (sorted by size) into two equal halves. 50% of the wages are therefore higher than the median wage, and 50% are lower than the median wage. Compared to the arithmetic average, the median is less influenced by extremely high or extremely low wages. It therefore gives a more realistic picture of the 'typical' wage level.

FIG.17: **GROSS MEDIAN INCOME IN PASSENGER AND FREIGHT IWT** (IN €)



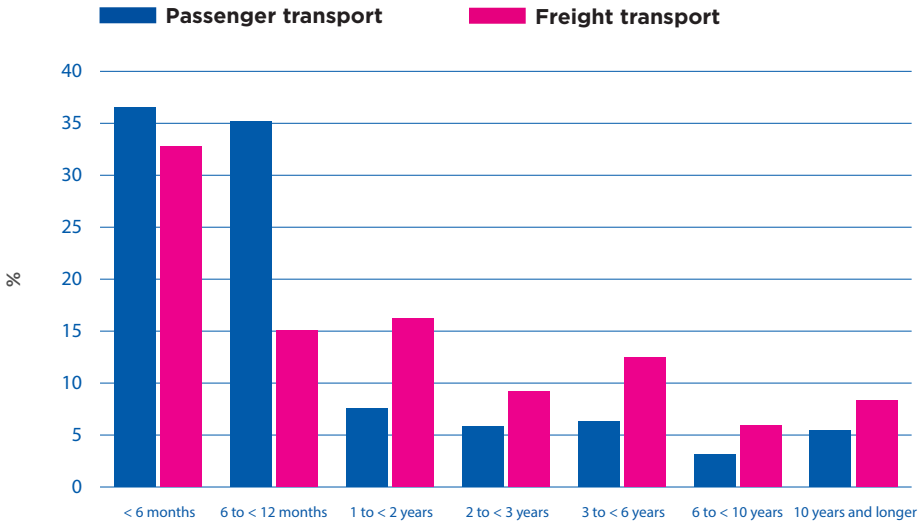
Sources: Bundesagentur für Arbeit, CCNR analysis

The German labour agency (Bundesagentur für Arbeit) also reprocesses data in order to have an overview of the durations of employment relations, subject to social security contributions. In 2021, 1,442 employment relations in passenger IWT and 1,007 in freight IWT were terminated. Within passenger transport, more than 70% of the employment relations that were terminated in 2021 had lasted for less than 12 months.

Such a high share provides evidence of a high degree of seasonality in this sector. The seasonality appears both in river cruising as well as in the day trip or excursion business.

In IWW freight transport, the share of employment contracts with a longer duration is clearly higher than in passenger transport. Yet, about 33% of all employment relations that were terminated in 2021 had lasted less than 6 months.

FIG.18: **SHARE OF DURATIONS OF EMPLOYMENT RELATIONS TERMINATED IN 2021** (IN %)



Source: Bundesagentur für Arbeit, CCNR analysis
Only employment relations subject to social security contributions.

THE NETHERLANDS

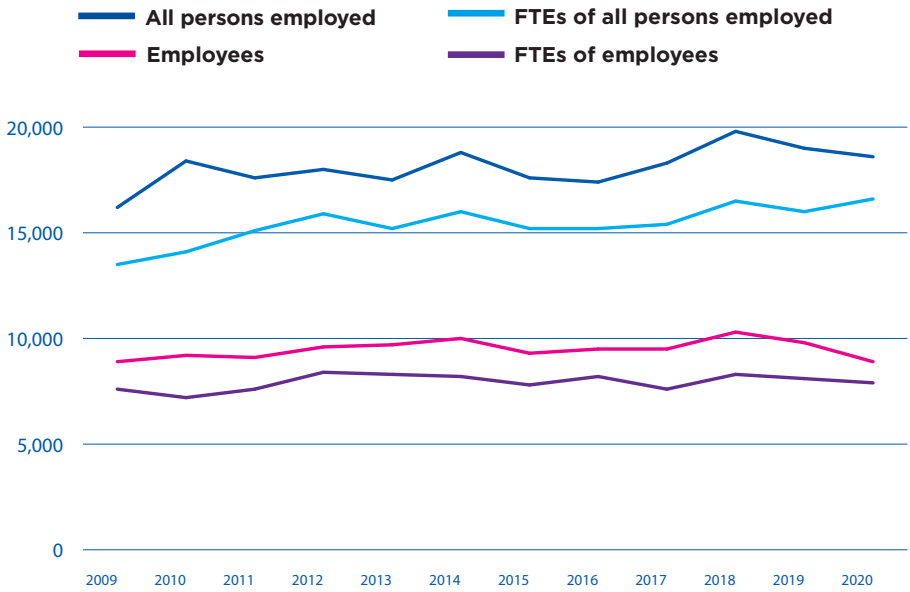
The numbers and full-time equivalents (FTEs)[13] of employees and all persons employed in Dutch IWT separately are based on sample surveys from Statistics Netherlands (CBS) and are presented in figures 19 to 23.[14] Compared to Eurostat, the net hiring of persons from other companies is included in the definition used by CBS for all persons employed, which largely explains the differences observed between CBS and Eurostat data regarding the number of persons employed in the Netherlands.

[13] One FTE corresponds to the workload of one person with a standard full-time contract. As an example, two persons working 20 hours per week each correspond to one FTE if a standard full-time contract comprises 40 hours per week.
[14] Administrative data used for the SBS Eurostat data

It is estimated by CBS that up to 3,000 persons employed in Dutch IWT in 2017 stemmed from net hiring from foreign companies. This number could also include workers posted to the Netherlands.

According to CBS data, employment in IWT in the Netherlands has increased from 2009 to 2020, particularly between 2016 and 2018, both in terms of the number of persons employed and hours worked.

FIG.19: **NUMBER OF FTES AND PERSONS WORKING IN IWT IN THE NETHERLANDS BY EMPLOYMENT STATUS ***



Source: Statistics Netherlands (CBS)

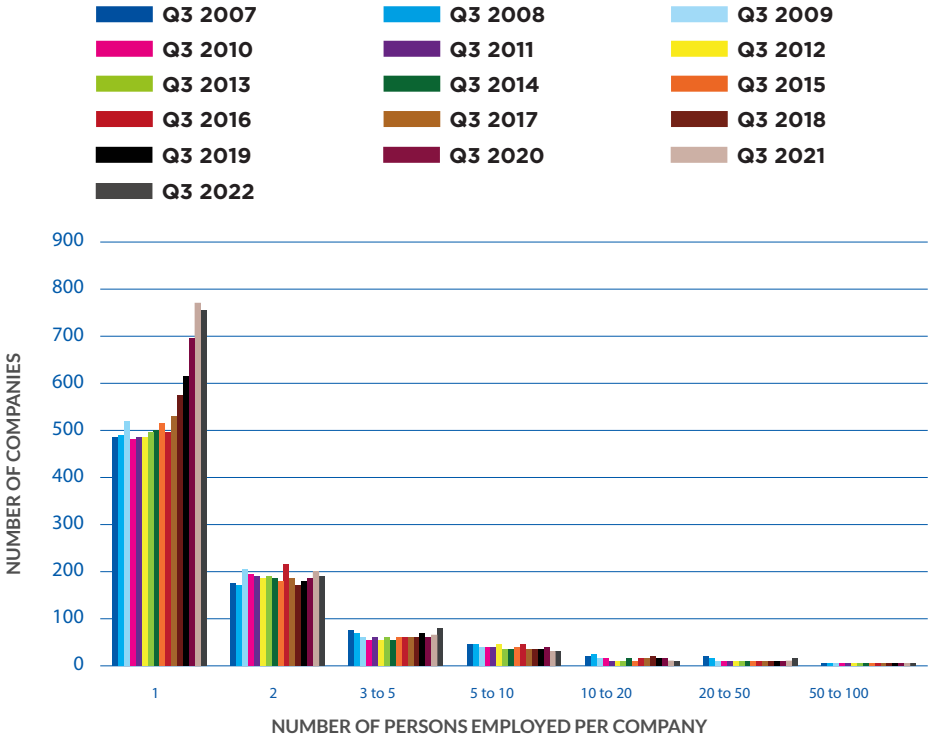
** The data on all persons employed comprise employees and self-employed.*

In the Netherlands, freight and passenger companies in inland navigation have similar characteristics. Both market segments are characterised by a large number of small companies employing only one or two persons. Whereas for passenger transport the most frequent company size is one that employs one person, in freight IWT it is the two-person-company.

Regarding passenger transport companies, it should be considered that the Netherlands not only has larger river cruise companies but also many smaller companies active in excursions.

For passenger transport, the trend in the number of one-person companies was positive in previous years.

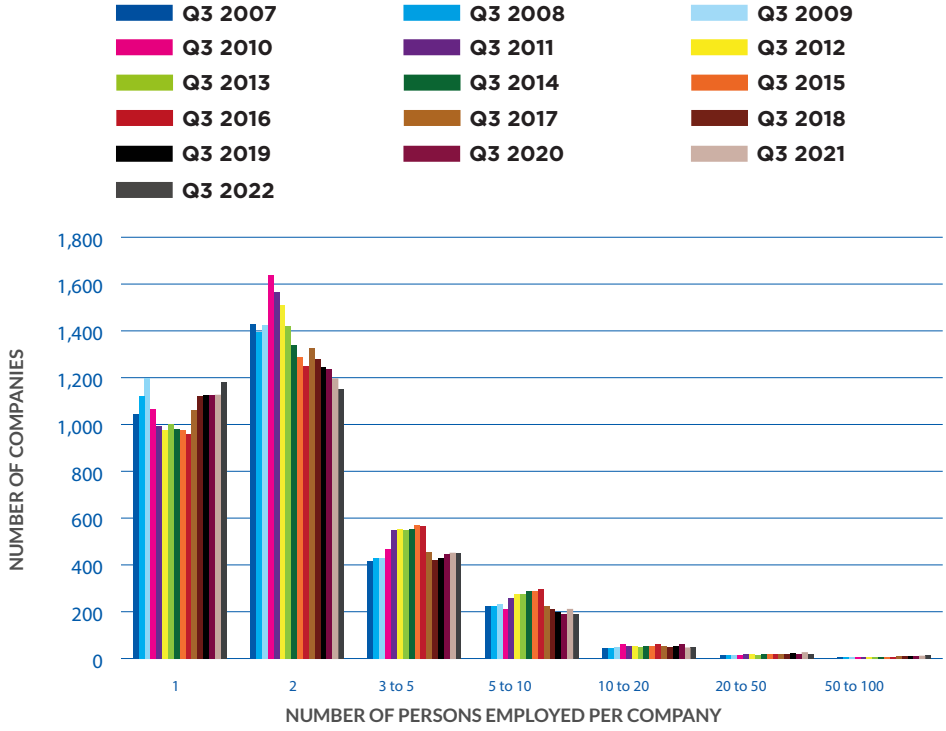
FIG.20: **NUMBER OF PASSENGER IWT COMPANIES IN THE NETHERLANDS BY EMPLOYMENT SIZE**



Sources: Statistics Netherlands (CBS), CCNR analysis

For freight transport, a different trend is observed for the one-person companies compared to the two-person companies.

FIG.21: **NUMBER OF FREIGHT IWT COMPANIES IN THE NETHERLANDS BY EMPLOYMENT SIZE**



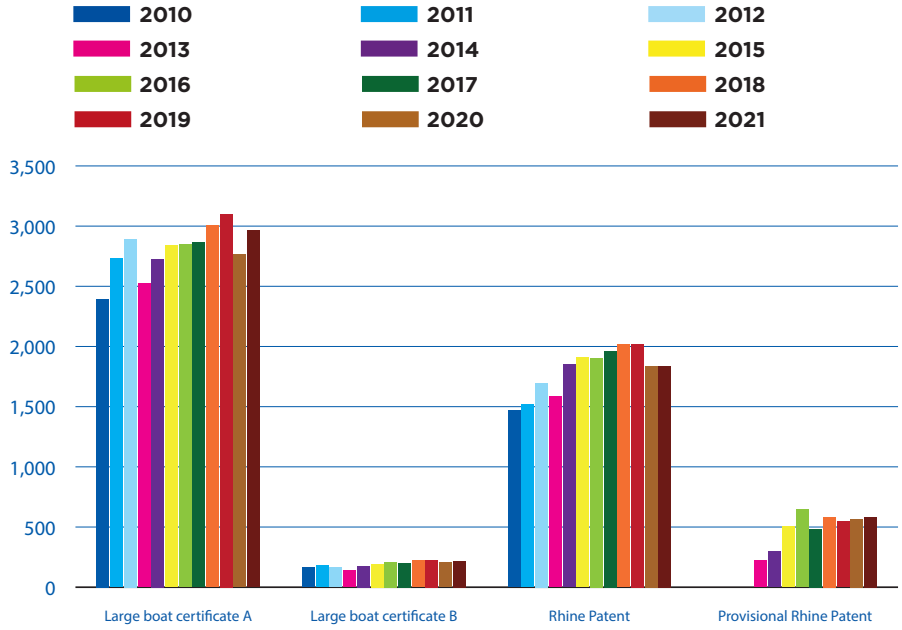
Sources: Statistics Netherlands (CBS), CCNR analysis

The certificates needed to operate inland vessels (certificates of qualification as a boatmaster) in the Netherlands are issued by the Central Office for Motor Vehicle Driver Testing (CBR). CBR data also allow to assess the evolution in the number of issued certificates by age and gender of boatmasters.

With the implementation of the EU Directive 2017/2397 and the new Regulations for Rhine navigation personnel (RPN), a boatmaster who instructs other deck crew members and supervises their tasks, must hold a certificate of qualification as a boatmaster. Such certificates can be delivered with or without authorisations to sail on inland waterways

with a maritime character.[15] Before 2022, CBR relied on a different classification system. Figure 22 shows the evolution of certificates delivered by CBR since 2010, based on this former classification. The numbers of all certificates issued have shown an upward trend during the last decade. However, the growth was at a more moderate level in 2020 and 2021, which may be explained by the impact of Covid-19 when it was more difficult to arrange practical exams or medical check-ups.

FIG.22: **NUMBER OF ISSUED CERTIFICATES BY TYPE OF CERTIFICATES[16] AND YEAR ***



Sources: CBR, CCNR analysis

** Large boat Certificate A stands for Boatmaster's certificate of Qualification including inland waterways with a maritime character; Large boat Certificate B stands for Boatmaster's certificate of Qualification; a provisional Rhine Patent consists in a provisional document which is provided between the moment the exam is successfully passed (or the moment a renewal is requested) and the moment when the official physical certificate is delivered; Certificates for the proof of knowledge of river sections and the Restricted Large Boat Certificates A and B are not shown due to their very small number.*

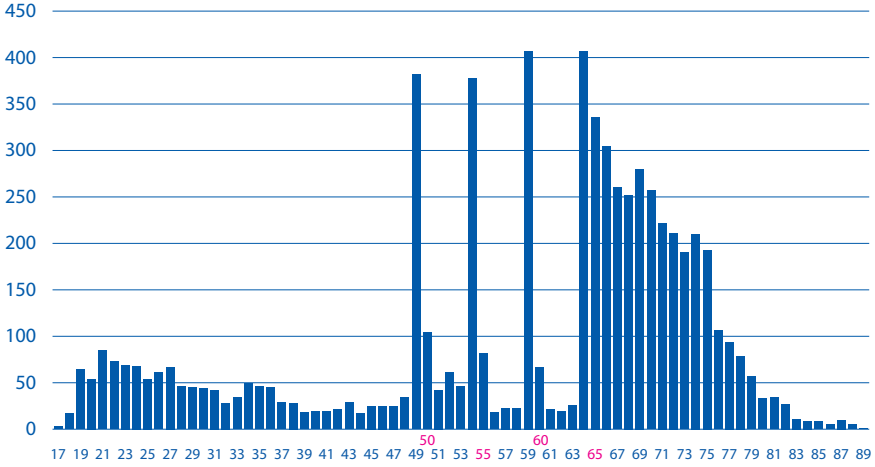
[15] *If delivered with a maritime character, this means that the boatmaster sailing on inland waterways with a maritime character shall be able to work with up-to-date charts and maps, notices to skippers and mariners, and other publications specific to waterways with a maritime character.*

[16] *More information on the scope of and the differences between these certificates can be found in Dutch on CBR's webpage: https://www.cbr.nl/nl/beroepsexamens/binnenvaart/vaardocumenten-en-patenten.htm*

It should be noted, however, that all considered certificates had to be renewed when reaching different age thresholds (50, 55, 60, 65 and every year after 65) so that changes in the number of certificates issued over time might rather reflect the age structure of boatmasters rather than actual changes in their numbers. With regard to gender, 91% of boatmasters' certificates holders are male and 8% are female.

From 2022 onwards, figures can no longer be compared with the previous figures and be added to the previous figure in light of classification changes as a result of the implementation of the Directive (EU) 2017/2397 and the new RPN. As of 1st January 2022, 248 certificates of qualification as a boatmaster and 6,584 certificates of qualification as a boatmaster including inland waterways with a maritime character are recorded by CBR.

FIG.23: **NUMBER OF ISSUED CERTIFICATES REGISTERED IN THE CBR DATABASE AS OF 2022 BY AGE ***



Sources: CBR, CCNR analysis

** Age thresholds for the obligation to renew the certificates are marked. From age 65 onwards, an annual renewal is mandatory.*

FRANCE

INSEE (Institut National de la Statistique et des Études Économiques), the French National Institute of Statistics and Economic Studies, is a general directorate of the Ministry of Economy and Finance. Its mission is to collect, analyse and disseminate information on the French economy and society throughout its territory.

A strength of the INSEE data is that not only do they include information about the employees, but also data on self-employed persons. In addition, the INSEE data carry information for the entire transport sector other than IWT, including information for the whole economy.

With regard to the self-employed, the figures provided by INSEE identify self-employed persons within the NACE categories relevant for inland navigation, namely inland passenger water transport (NACE category 50.3) and inland freight water transport (NACE category 50.4).

With regard to employees, for the field of inland navigation, there is a total of three relevant collective labour agreements, one for passenger transport ("Navigation intérieure passagers"), one for persons employed on board vessels in freight transport ("Navigation intérieure de marchandises ouvriers") and the last for shore-based personnel mainly in freight transport such as in ports or for transport logistics ("Navigation intérieure de marchandises sédentaire"). However, there are plans to merge these three collective agreements in the future which will possibly make it more difficult, from a statistical point of view, to differentiate between passenger and freight IWT employees. The INSEE data therefore enable the comparison of employees under these inland navigation collective agreements with:

- the whole population of employees under collective agreements (referred to as follows as "all agreements"), therefore covering all economic sectors of activity in France, and,
- all employees under collective agreements in the whole transport sector (CRIS), including road, rail, air, maritime and inland navigation transport.

This makes it possible to discover particularities of employment in the inland navigation sector and thus facilitates the understanding of its structure. However, it must be noted that the INSEE data are not directly comparable to Eurostat SBS[17] data as the pool of employees covered is not the same. Indeed, the assignment to a certain collective agreement does not necessarily correspond to the assignment to a related NACE category, on which Eurostat data in the case of France are based.

On the cut-off date of 31 December 2020, about 2,301 persons (1,343 on board and 958 ashore[18]) were employed under the collective agreement for workers in IWW freight transport. These 2,301 persons accounted for about 1,946 full-time equivalents (FTEs). This difference probably stems from some persons working part-time. Additionally, about 2,437 persons were subject to the collective agreement for employees in IWW passenger transport, accounting for about 1,163 FTEs. As one FTE corresponds to a standard French full-time contract of 35 working hours per week, this implies a working time of nearly 44 hours per week in case of a full-time contract or a corresponding proportionate working time in the event of having a part-time contract. This observation corroborates the assumption that a great deal of overtime is accumulated by employees working on board vessels in passenger transport where a high number of working hours is common, particularly on river cruises during the peak of the river cruise season. In addition, it can be the case that crew members want to earn as much as they can, for instance, by working longer hours to support their families or might prefer to accumulate their days off in favour of longer time at home with their families once the season is over.

[17] *Structural Business Statistics*
[18] *The category 'employed person ashore' can be employed in companies involved in one of the following river freight transport activities: river freight transport; river pushing or towing services; river chartering.*

All in all, these numbers indicate that the employment share of inland navigation in overall transport in France is only 0.4%. For self-employed persons, the share of inland navigation in relation to all transport sectors in France is 0.7%. In terms of absolute numbers for both employees and self-employed, the INSEE data are higher than the respective Eurostat SBS figures.

For the passenger sector, the number of employees consistently increased between 2016 and 2019, with a more significant increase of about 6% from 2018 to 2019. However, this constant trend was interrupted in 2020 with a decrease of 13% compared to 2019. For the freight sector, the opposite was observed since the number of employees between 2016 and 2018 constantly decreased, with a small and short-term recovery in 2019 followed by a slight decrease in 2020.

Regarding self-employed persons in the passenger sector, the numbers slightly decreased from 2016 to 2017 and from the same year onwards (2017), the numbers constantly and slightly increased up to 2020. For the freight sector, the number of self-employed persons decreased between 2016 and 2019, with a more significant decrease of about 8% between 2018 and 2019, followed by a slight increase in 2020.

For both categories, decreases observed between 2019 and 2020 are assumed to be attributed mainly to the Covid-19 crisis.

FIG.24: **NUMBER OF EMPLOYEES AND SELF-EMPLOYED IN IWW FREIGHT AND PASSENGER IN FRANCE**

Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

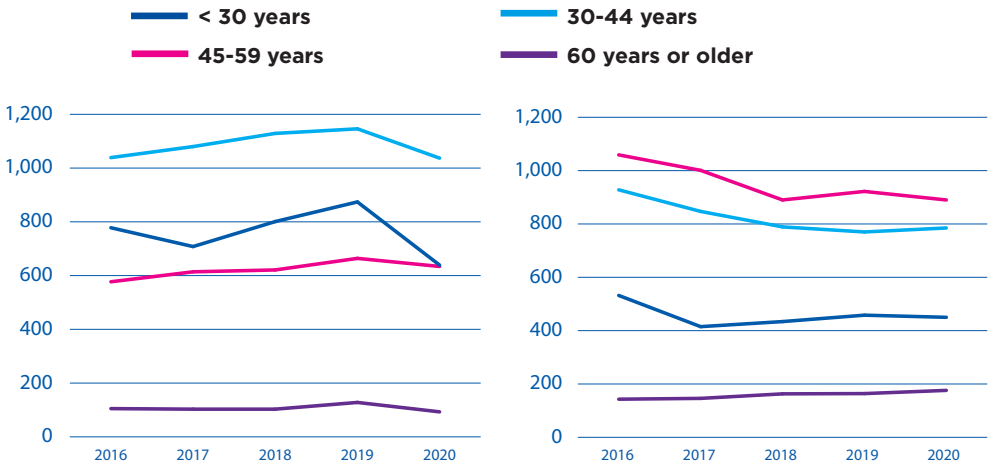
When analysing the socio-demographic structure of the workforce, an important characteristic is the age of the persons employed. The INSEE data give the number of employees and self-employed belonging to pre-defined age groups.

For the passenger sector, the evolution of the number of employees from 2016 to 2020 was more or less stable for persons aged 60 years or older and for people aged between 45-59 years, including those between 30-44 years, for which the stability was observed until 2019. For young people aged under 30 years the evolution of the number of employees was volatile compared to other age groups. A decrease of about 9% of young employees (under 30 years old) from 2016 and 2017 was observed, followed by a constant increasing trend from 2017 up to 2019, after which a strong decrease of about 27% occurred until 2020. Older persons aged 60 years and above showed

more permanence in the sector with more or less the same number of employees, with a noticeable decrease of about 27% from 2019 to 2020. These decreases observed between 2019 and 2020 are most certainly due to the Covid-19 crisis.

For the freight sector, a progressive evolution of the number of employees from 2016 to 2020 was observed for persons aged 60 years or older, while an average stable trend was observed for people under 30 years old between 2017 and 2020. This confirms the ageing trend observed among the IWW freight transport workers in recent years. For people aged 30-44 years and 45-59 years, on average, a decreasing trend was observed from 2016 to 2020. Between 2016 and 2017, there was a decrease of about 22% in the number of young employees (under 30 years old), followed by a constant progressive trend from 2017 to 2019, after which a slight decrease of about 2% occurred until 2020. Persons aged 60 years and above increased over the years in the sector in terms of number of employees, with a major increase of about 12% from 2017 to 2018.

FIG.25 AND 26: **NUMBER OF EMPLOYEES IN THE IWW PASSENGER** (LEFT) **AND FREIGHT** (RIGHT) **SECTORS IN FRANCE PER AGE GROUPS**

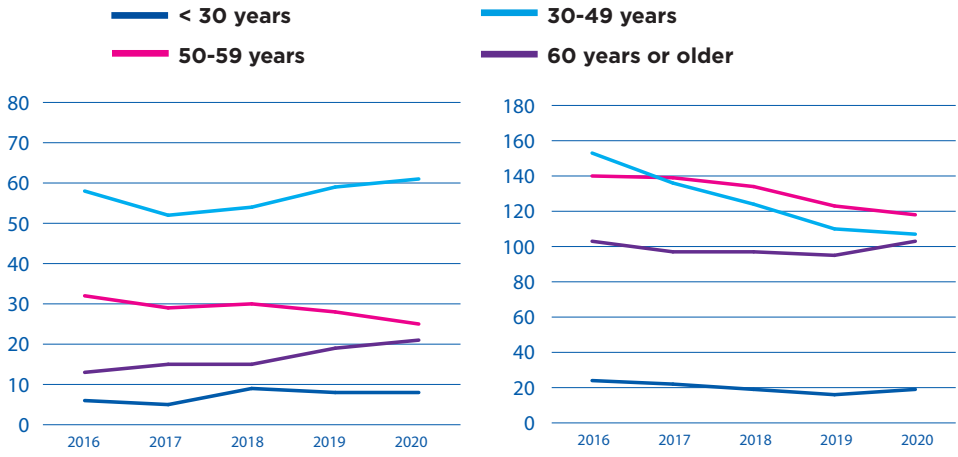


Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

Regarding the passenger sector, between 2019 and 2020 there was no variation in terms of self-employed persons for people under 30 years old, while for the remaining years, the evolution was rather volatile, with a decrease between 2016 and 2017 and a noticeable increase from 2017 to 2018 of about 80%, followed by a slight decrease from 2018 to 2019. For persons aged 60 years or more, the evolution of self-employment was progressive up until 2020, with a significant increase from 2018 to 2020 of about 40%. Most of the company owners are between 30 and 49 years old.

For the freight sector, and taking into consideration young people under 30 years old, between the years 2016 to 2019 there was a decreasing trend which ceased after an increase was observed in 2020 of about 19% when compared to 2019. Regarding people aged 60 years or older, the number of self-employed from 2016 and 2017 decreased (-6%), followed by a stable number of self-employed between 2017 and 2018, with a slight decrease from 2018 to 2019 (-2%) and finally, with a recovery in 2020, the same number of self-employed people in 2016 was observed. The age categories above 30 years are the most represented for self-employed persons while very few below 30 years own a company.

FIG.27 AND 28: **NUMBER OF SELF-EMPLOYED IN THE IWW PASSENGER** (LEFT) **AND FREIGHT** (RIGHT) **SECTORS IN FRANCE PER AGE GROUPS**

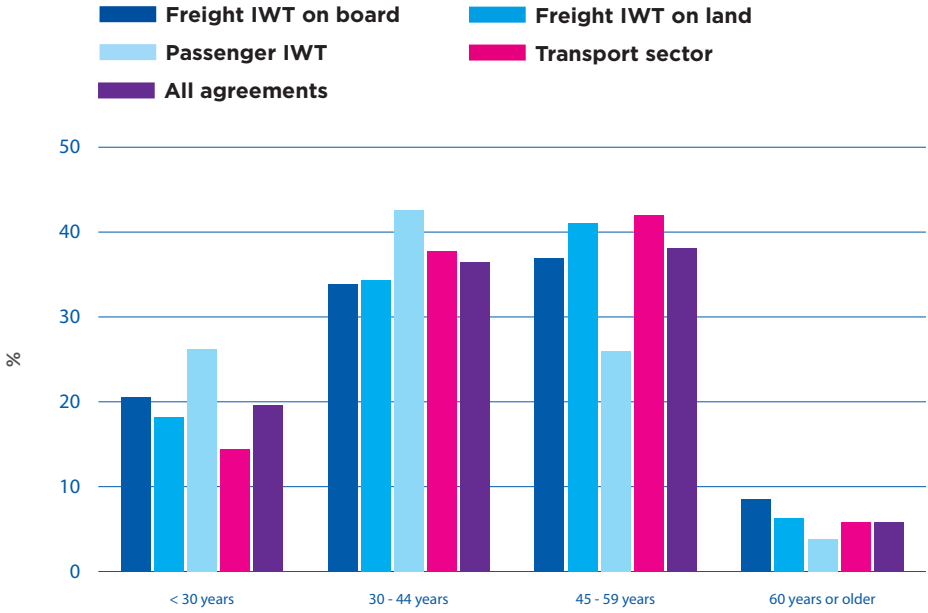


Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

About 23% of the employees in IWT, 21% and 18% in IWW freight transport on board and on shore respectively, and 26% in IWW passenger transport are under 30 years old. For the overall transport sector and for all employees subject to collective agreements, about 14% and 20% of the employees are young, aged under 30 years old respectively.

IWW freight transport has a slightly above average share of employees of 60 years of age or older, particularly regarding persons working on board vessels. This implies that a relatively high share of employees will retire in the forthcoming years compared to other sectors, unless they continue to work after reaching retirement age, a phenomenon that is relatively common for persons working on board inland navigation vessels.

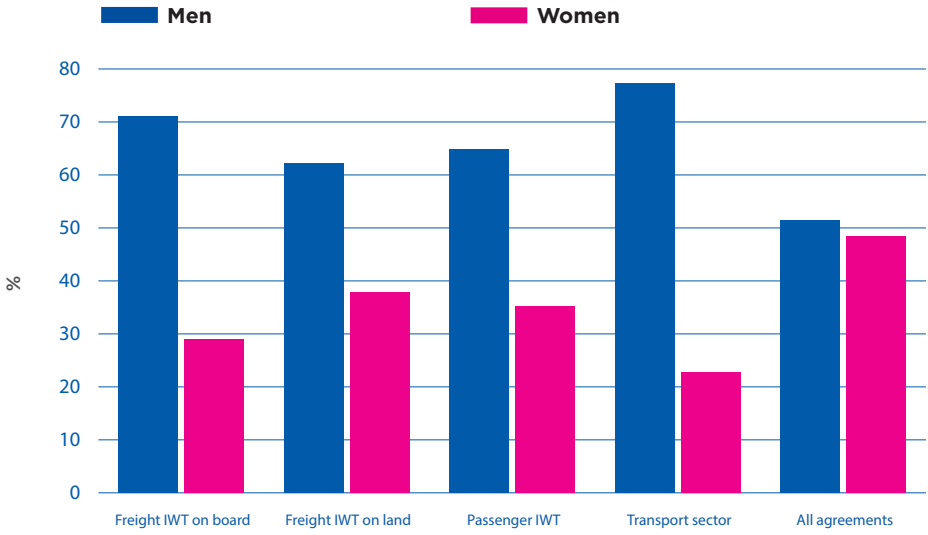
FIG.29: **RELATIVE DISTRIBUTION OF EMPLOYEES ACROSS AGE GROUPS** (IN %)



Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

Furthermore, inland navigation is a very male-dominated sector, albeit a little less so than all transport sectors together. Slightly more than 70% of the employees in IWW freight transport on board vessels in France are men and more than 60% are men within shore-based IWW freight transport (compared to 77% if all transport sectors are considered). With a female share of employment of more than a third, IWW passenger transport is a peculiarity within the transport sector. This is probably caused by a higher number of women among the hospitality staff on board river cruise vessels. In practice, the share of female workers on board is probably underestimated as spouses who help are often not "officially" counted as working personnel on board of inland navigation vessels.

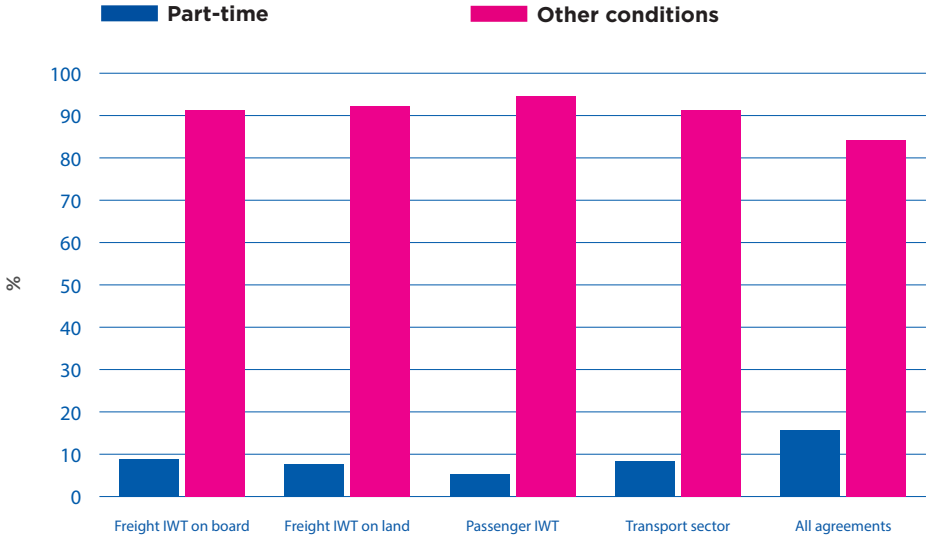
FIG.30: **SHARE OF EMPLOYEES BY GENDER** (IN %)



Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

Given the INSEE data, the part-time share (7%) of employees (women and men) in IWT in France is, all in all, lower compared to the transport sector (9%) as well as the economy as a whole (16%). This notably applies to women in passenger IWT with a part-time share of approximately 3%. Indeed, for the whole economy, the share of women working part-time is distinctly higher (12%) compared to the 3% previously mentioned working in the passenger sector.

FIG.31: **SHARE OF EMPLOYEES BY EMPLOYMENT CONDITIONS** (IN %)

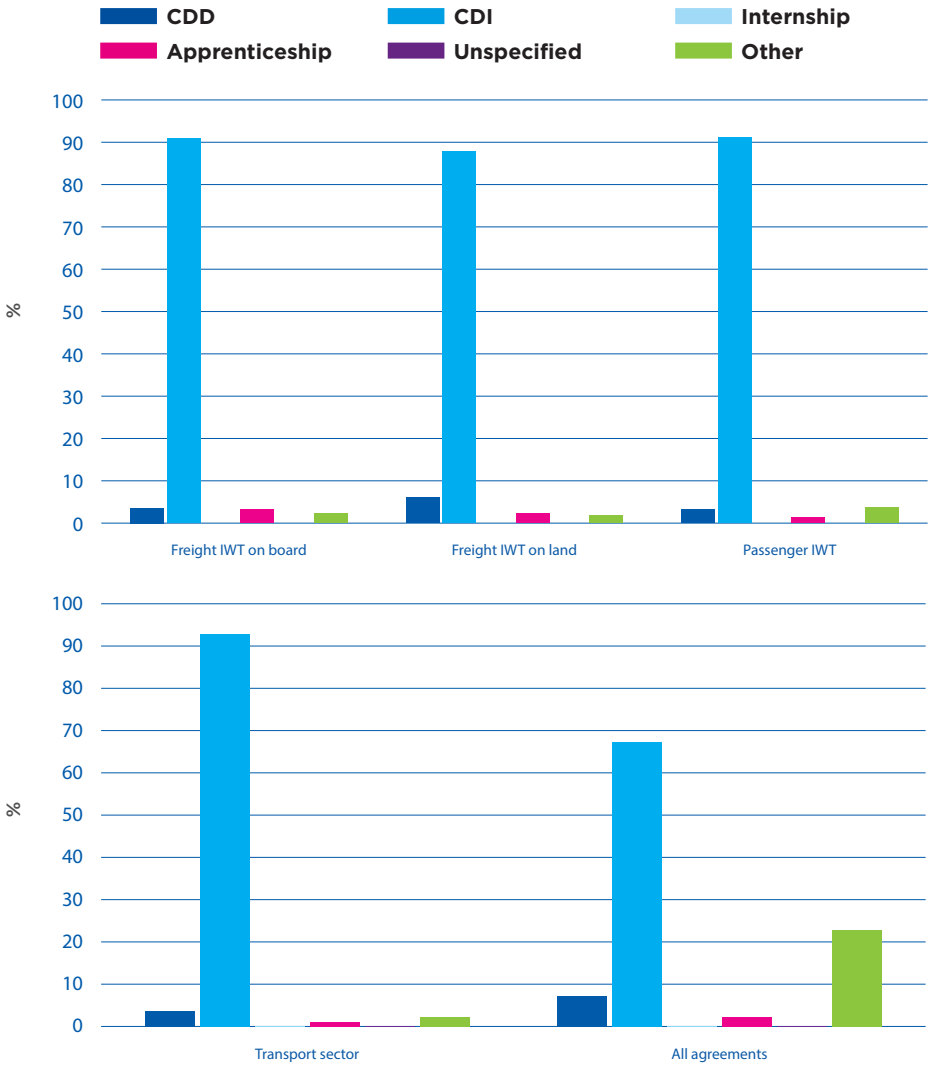


Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

For the field of inland navigation, there is a total of six groups of work contract type given by INSEE, one for fixed-term employment contract ("CDD - contrat de travail à durée déterminée"), one for indefinite employment contract ("CDI - contrat de travail à durée indéterminée "), one for internship agreement ("convention de stage"), one for apprenticeship contract ("contrat d'apprentissage"), one for unspecified employment contract ("contrat de travail non renseigné"), and, finally, for other employment contracts ("autres contrats de travail").

The share of women or men employed under a fixed contract (CDI and CDD) usually lies roughly within the same order of magnitude in the IWT sector as in the transport sector and indeed throughout the whole economy.

FIG.32 AND 33: **SHARE OF EMPLOYEES BY EMPLOYMENT CONTRACT** (IN %)



Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

In order to examine the structure of the French IWT labour market as best as possible, it is also useful to look more closely at the wages that naturally determine to a large extent the attractiveness of a sector.

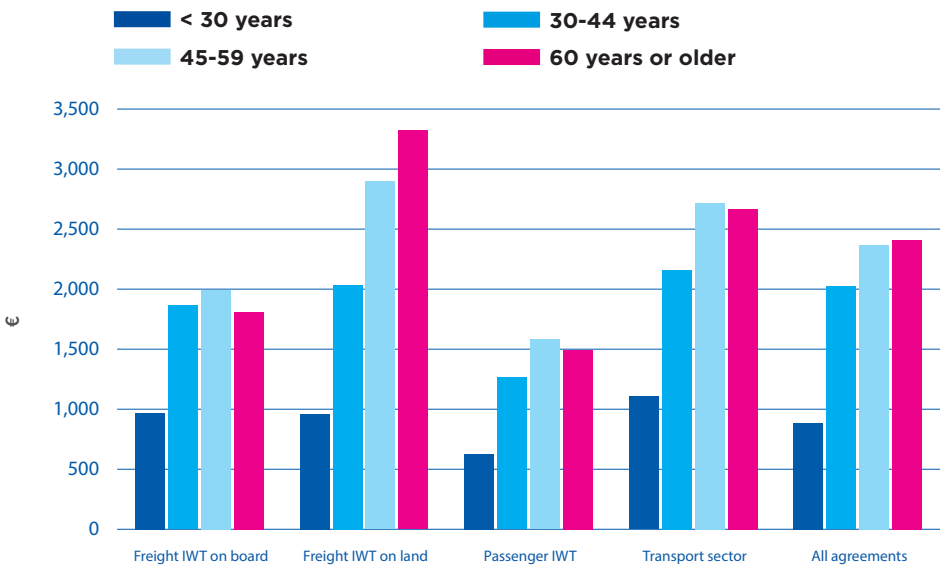
The INSEE data give the average monthly net wage by age groups. Overall, the wages differ strongly across all the sectors and age groups. Inside the IWT sector, the IWW freight (both on board and on land) wages are significantly higher than the wages in IWW passenger transport.

One interesting point is that when growing older, for people working on IWW freight transport on land and the whole economy, the average monthly net wage is the highest for people who are 60 years old or more, while for IWW freight transport on board, IWW passenger transport and the entire transport sector, persons between 45 and 59 years old appear to earn the highest wages.

The IWW passenger transport sector exhibits the lowest wage for all age categories, when compared to the entire transport sector, but also the whole economy ("All agreements").

Compared to all other considered sectors ("All agreements"), the increase of wages when growing older is lower in the IWW passenger transport sector and higher in freight IWT on land.

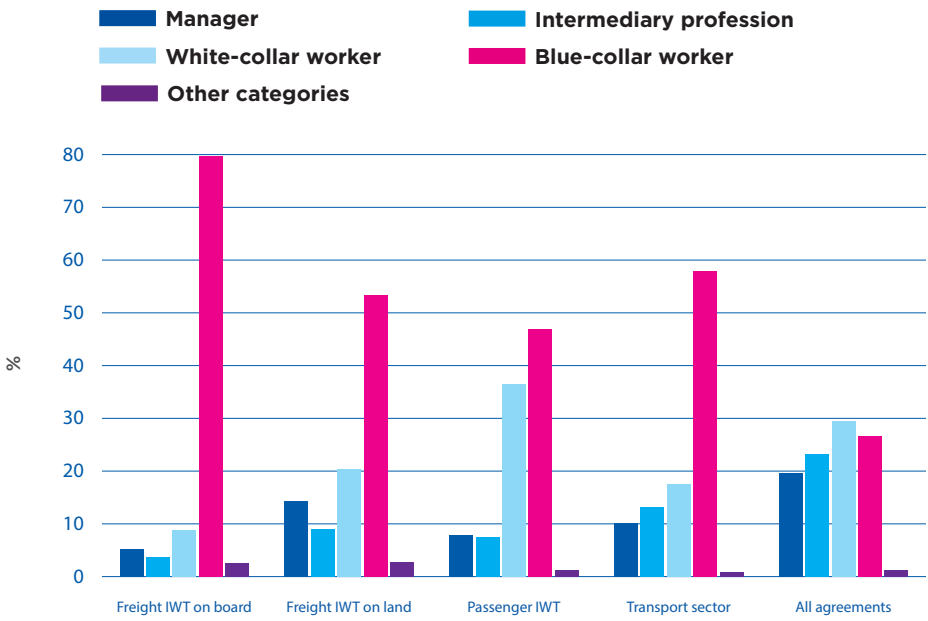
FIG.34: **AVERAGE MONTHLY NET WAGE BY AGE GROUP** (IN €)



Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

It is important to know that the wages studied so far are average wages of all people in a specific sector. Thus, one could falsely conclude that employees in freight IWT on board are considerably underpaid in comparison to other sectors. However, this interpretation is challenged when analysing wages separately for different occupational categories. Indeed, about 80% of all employees covered by the collective agreement for freight IWT on board are blue-collar workers ("ouvriers"), approximately 9% are white-collar workers ("employés") and the remaining categories, represent less than 6% each in participation of employees. This means that there is a large predominance of occupational categories with typically lower wages. In fact, reality shows that currently the wages of qualified nautical staff (boatmasters) have increased due to staff shortages. The share of blue-collar workers is substantially lower among employees of the two other IWT collective agreements, with 53% for freight IWT on land and 47% for passenger IWT.

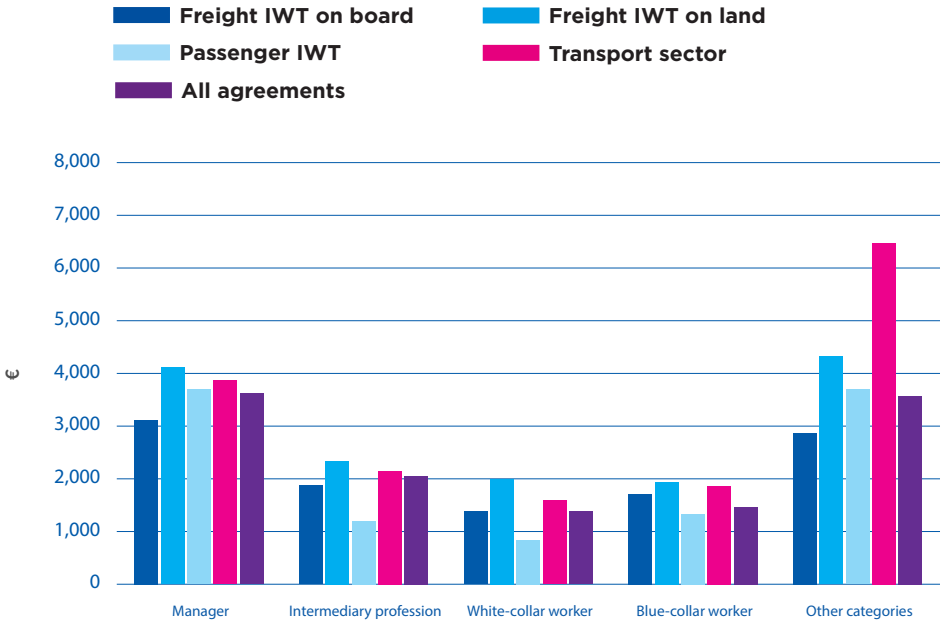
FIG.35: **SHARE OF OCCUPATIONAL CATEGORY** (IN %)



Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

These differences can largely explain the wage differentials. As shown in the figure below, the average wage of employees in freight IWT on board is not overwhelmingly lower than that of other sectors when examined by occupational category. Furthermore, it is evident that the average wages in the occupational categories other than Manager in passenger IWT are comparatively low, bearing in mind that this is probably largely due to more hours worked.

FIG.36: **AVERAGE MONTHLY NET WAGE BY OCCUPATIONAL CATEGORY** (IN €)

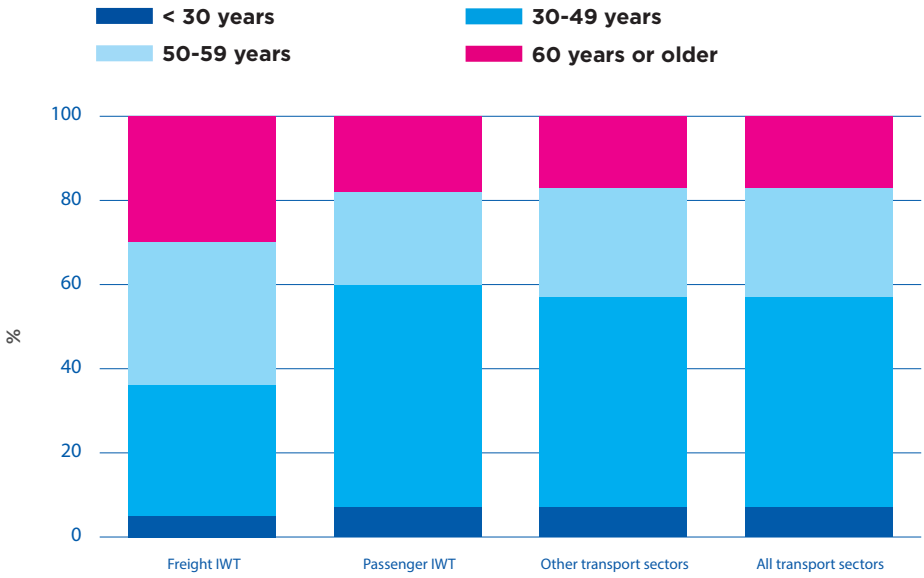


Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

Apart from the workforce (employees), a pertinent analysis is made on the socio-demographic structure of the number of companies. With a focus on the important characteristic of the age of persons owning companies, the INSEE data revealed that about 6% of companies in IWT, 5% in IWW freight, and 7% in IWW passenger transport are represented by persons under 30 years old. For the overall transport sector, about 7% of the companies are represented by young people under 30 years old.

About 19% of the companies in IWT, 31% in IWW freight, and 53% in IWW passenger transport are owned by persons between 30 and 49 years old. For the overall transport sector, about 50% of the companies are owned by people who are between 30-49 years old.

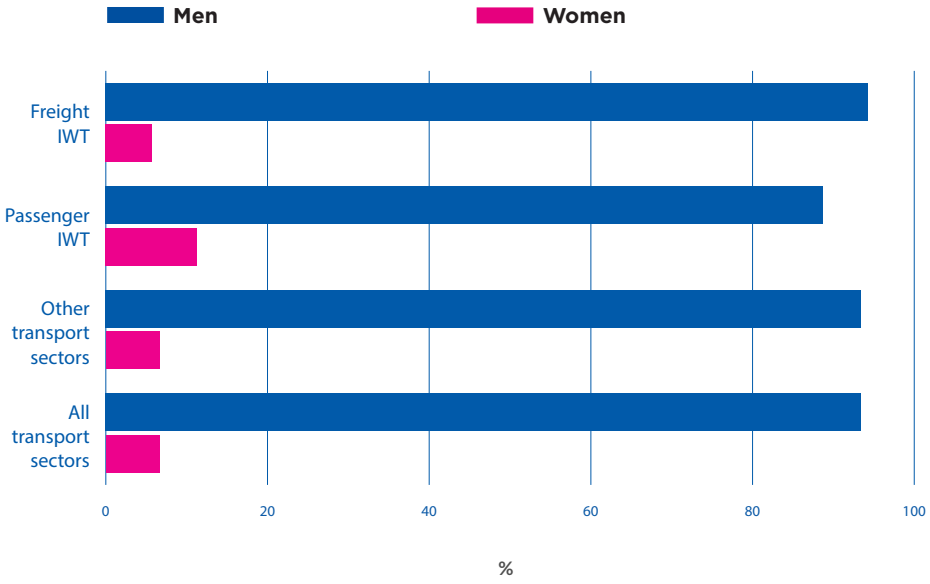
FIG.37: **RELATIVE DISTRIBUTION OF COMPANIES ACROSS AGE GROUPS** (IN %)



Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

Regarding company gender analysis, about 94% of the companies in IWW freight transport in France are owned by men (compared to 93% if all transport sectors are considered), against 6% of the companies owned by women (compared to 7% if all transport sectors are considered). For the passenger IWT sector, about 89% of the companies' owners are men and 11% are women.

FIG.38: **SHARE OF COMPANIES BY GENDER** (IN %)



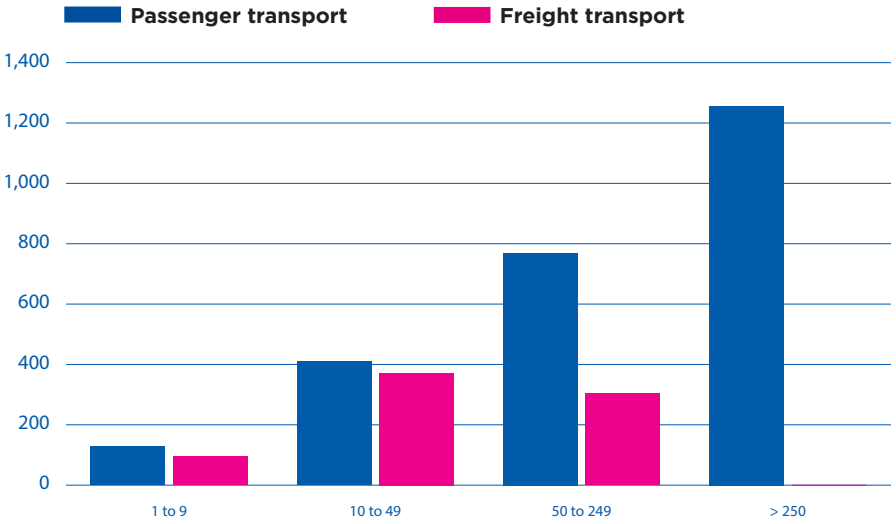
Sources: INSEE, CCNR analysis
Situation as of 31 December 2020

SWITZERLAND

Within the European IWT sector, Switzerland presents the largest average number of persons employed per company. This can be attributed to the fact that two of the major market segments of the Swiss inland navigation sector, tanker barging and river cruises, are characterised by company structures with a rather high number of employees. This could also be explained by the attractive tax structure of Switzerland which appeals to owners of large companies to have their headquarters in Switzerland.

In 2020, the sector counts 2,561 employed persons in passenger transport and 772 in freight transport. According to figure 39, 49% of the passenger transport workforce is employed in companies with more than 250 employees, while only 5% is employed in small companies (1 to 9 employed persons). Even though, to a lesser extent, freight transport shows a similar pattern with almost 48.2% of its workforce employed in medium size companies (10 to 49 employed persons) and 38.4% in large companies (50 to 249 employed persons).

FIG.39: **NUMBER OF PERSONS EMPLOYED IN IWT IN SWITZERLAND BY SIZE OF COMPANIES IN 2020**



Source: Federal Statistical Office – Structural Enterprise Statistics

© Port of Switzerland

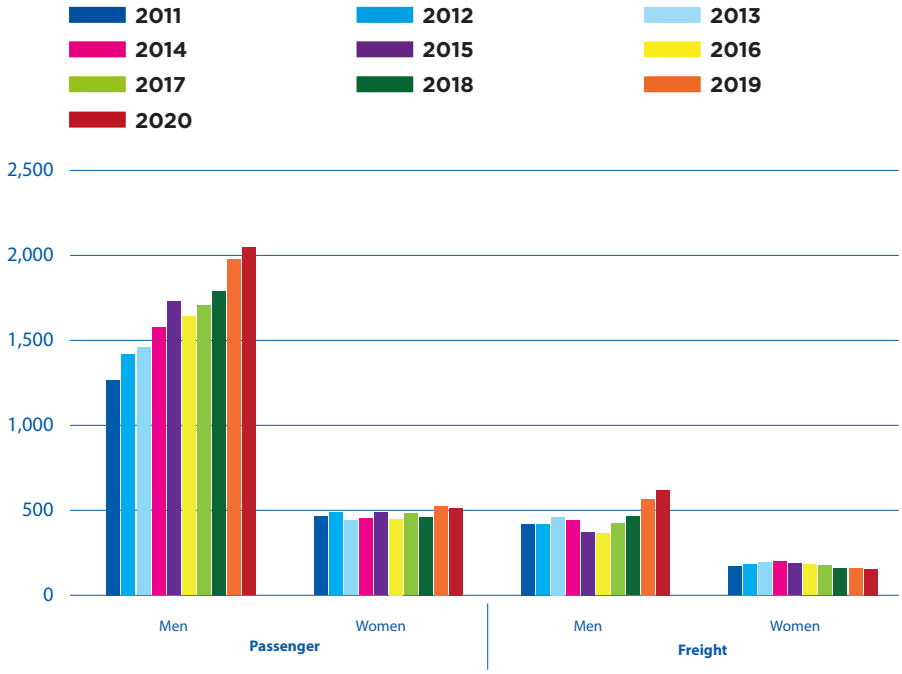
In terms of years of construction, the Swiss freight fleet is the youngest of all Rhine countries.[19] The main reason is that Switzerland has a modern tanker barge fleet. Moreover, the average loading capacity of Swiss tanker barges was 3,196 tonnes in 2021, compared to the Rhine countries' average of 2,350 tonnes. The high loading capacity confirms that Swiss tanker barges are quite new, as the loading capacity of new tanker barges has generally increased over the years in western Europe. These trends demonstrate the high investment rate and modern company structures of Swiss tanker barging.

While the number of IWT companies shows a stable development between 2011 and 2020, the number of employed persons has consistently increased. The growing trend is more visible in the passenger transport sector, which reports a higher number of employed persons compared to freight transport. Indeed, Switzerland is composed of many lakes, with many day trip vessels and has the largest fleet of river cruise vessels in Europe. In 2021, the Swiss river cruise fleet counted 200 vessels, which represented 49.4% of the European river cruise fleet.

Considering the development of employment by gender from 2011 to 2020, a substantial increase can mainly be observed for men working in passenger transport. On the contrary, the percentage of women employed in the Swiss IWT decreased from 27.3% to 20% over the period analysed.

[19] *Source: CCNR/European Commission (2020), Inland Navigation in Europe, Annual market observation report*

FIG.40: **NUMBER OF PERSONS EMPLOYED IN IWT IN SWITZERLAND BY SECTOR AND GENDER**



Source: Federal Statistical Office – Structural Enterprise Statistics

BELGIUM

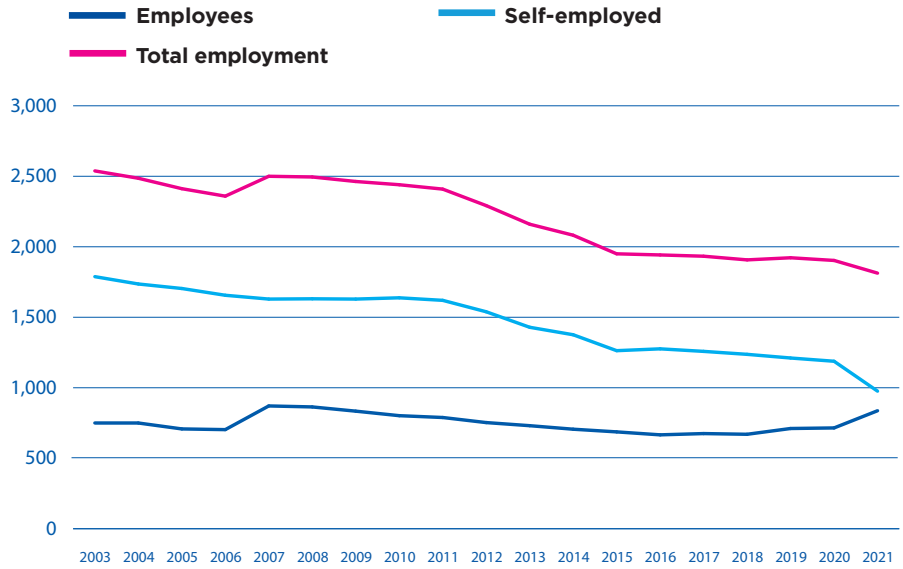
Data for the number of self-employed and employees in the IWT sector in Belgium are taken from databases of the national insurance organisations in Belgium.

The ONSS is the National Social Security Office in Belgium, responsible for collecting, managing and distributing social security contributions for employees. Social security contributions for self-employed persons are collected and managed by INASTI. In the case of both databases, it is not possible to distinguish persons active in goods transport from those who are active in passenger transport. In both databases, structural breaks occurred in the year 2021. These breaks lowered the number of self-employed, while they increased the number of employees.

Self-employed: In 2021, a reclassification within the INASTI member statistics took place. Some persons that had formerly been counted as self-employed were now classified as company directors.[20] This change implied a drop in the number of self-employed in the data, as company directors are counted separately.

Employees: In 2021, an extension of the categories of employees took place. In particular, more working time regimes were taken into account, not only the 40 hours regime. Besides, employees active in the loading and unloading of vessels were also integrated into the database of IWT employees of the ONSS.

FIG.41: **NUMBER OF EMPLOYEES AND SELF-EMPLOYED IN IWT IN BELGIUM**



Sources: INASTI, ONSS

In the following paragraph, the data of INASTI and ONSS are analysed according to the available parameters in the databases, such as age group, nationality, region and status of the person.

[20] *This reclassification concerned not only inland waterway transport, but also other sectors in the economy.*

SELF-EMPLOYED

According to INASTI, 976 self-employed persons were active in Belgium in the inland waterway sector in the year 2021. Of these 976 persons, 354 were classified as helping persons. The other 622 persons are classified as independent persons. Amongst the helping persons, the share of women is much higher than among the independent persons.[21]

TABLE 4: **SELF-EMPLOYED PERSONS ACTIVE IN THE INLAND WATERWAY SECTOR IN BELGIUM IN 2021**

	Male	Female	Total
Independent persons	528	94	622
Helping persons	66	288	354
Total self-employed	594	382	976

Source: INASTI

From a regional point of view, it is noted that two-thirds (653 out of 976) of the self-employed in Belgium have their company headquarters in Flanders, compared to 311 in Wallonia. Furthermore, three self-employed who are affiliated in the Belgian INASTI database have a company located in the region of Brussels, and nine are located outside Belgium.

The 976 self-employed persons affiliated in the Belgian social security system are mainly of Belgian nationality (772 persons = 79%). However, 143 persons or 15% are of French nationality, and 42 persons or 4% are of Dutch nationality. These shares are practically the same between male and female members.

[21] Helping persons are either married or have a cohabitation contract with a self-employed person and co-operate in business (more information can be found here: https://www.belgium.be/en/economy/business/creation/becoming_self_employed/assisting_spouse), independent persons are self-employed persons who do not qualify as helping persons.

TABLE 5: **SELF-EMPLOYED PERSONS AFFILIATED AS BARGE OWNER OPERATOR IN THE SOCIAL SECURITY SYSTEM IN BELGIUM IN 2021 ACCORDING TO NATIONALITY AND REGION** (IN ABSOLUTE NUMBERS)

	Region				
Nationality	**Flanders**	**Wallonia**	**Brussels**	**Outside Belgium**	**Total**
Belgian	564	202	3	3	772
French	43	98	0	2	143
Dutch	35	6	0	1	42
Other nationality	11	5	0	3	19
All nationalities	653	311	3	9	976

Source: INASTI

It is not surprising to note that the nationality of a self-employed person is somehow correlated with the region where the person is active. For example, 68.5% of the self-employed with French nationality are affiliated in the French speaking part of Belgium (Wallonia). Regarding the self-employed with Dutch nationality, 83.3% are located in the Dutch speaking part of Belgium (Flanders).

TABLE 6: **SELF-EMPLOYED PERSONS AFFILIATED AS BARGE OWNER OPERATORS IN THE SOCIAL SECURITY SYSTEM IN BELGIUM IN 2021 ACCORDING TO NATIONALITY AND REGION** (IN %) *

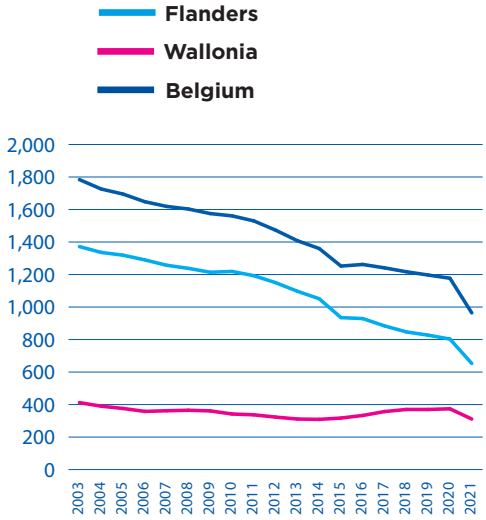
	Region				
Nationality	**Flanders**	**Wallonia**	**Brussels**	**Outside Belgium**	**Total**
Belgian	73.1	26.2	0.4	0.4	100.0
French	30.1	68.5	0.0	1.4	100.0
Dutch	83.3	14.3	0.0	2.4	100.0
Other nationality	57.9	26.3	0.0	15.8	100.0
All nationalities	66.9	31.9	0.3	0.9	100.0

Source: INASTI

** Example: 73.1% of all self-employed with Belgian nationality are located in Flanders.*

The following figure illustrates the timely development of the number of self-employed according to INASTI figures.

FIG.42: **NUMBER OF SELF-EMPLOYED BARGE OWNER-OPERATORS IN FLANDERS AND WALLONIA ***



Source: INASTI
** Numbers for the region of Brussels are not shown due to very low values.*

Between 2003 and 2021, IWT employment of self-employed barge owners followed a decreasing trend in Belgium. Between 2011 and 2015, this trend was more pronounced than before and afterwards.

This can be explained by the impact of the financial crisis that broke out in 2008 and had a negative effect on the number of companies, though with a timely delay. Another possible reason is different preferences of younger generations (more flexible lifestyles, less inclination towards the profession of a self-employed barge owner).

The development in Wallonia followed a more positive trend compared to Flanders.

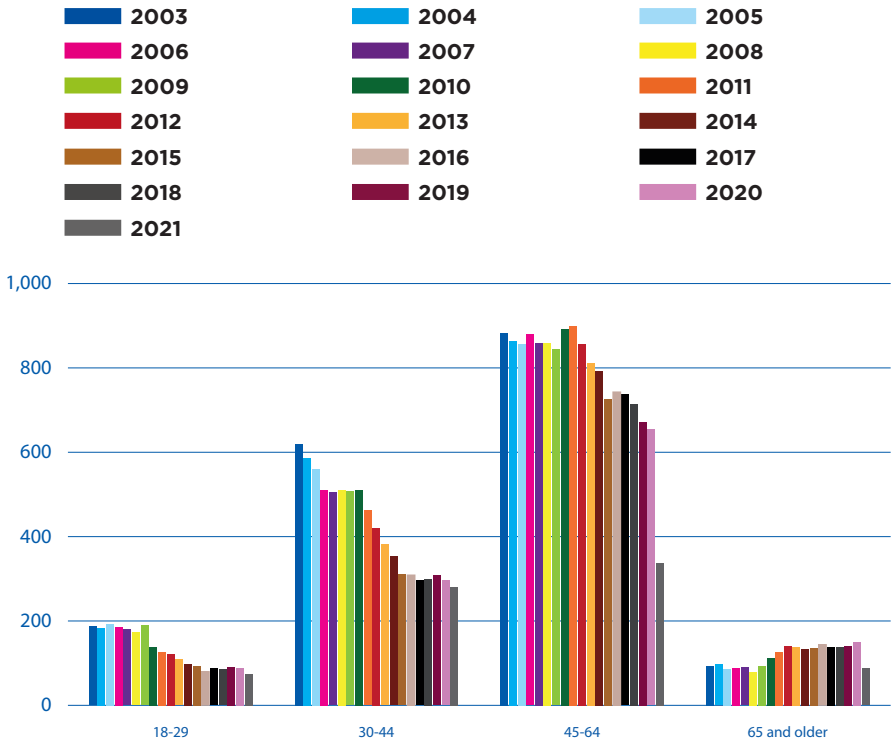
The sharp decline in 2021 is provoked by a change of methodology and not related to any content related factor.

When the total number of self-employed is split up according to age groups, the more pronounced decrease in the number of self-employed can be seen more clearly.

From the year 2015 onwards, a certain stabilisation took place. Indeed, the decrease for the two younger age groups (18-29 and 30-44) ceased. For the age group 45-64 years, which contains the highest absolute number of persons, no real stabilisation is yet to be seen.

Finally, the age group of persons aged 65 and above (the age of retirement in Belgium is 65) grew in numbers between the year 2008 and 2013 and stabilised afterwards.

FIG.43: **NUMBER OF SELF-EMPLOYED IN BELGIUM BY AGE GROUP**

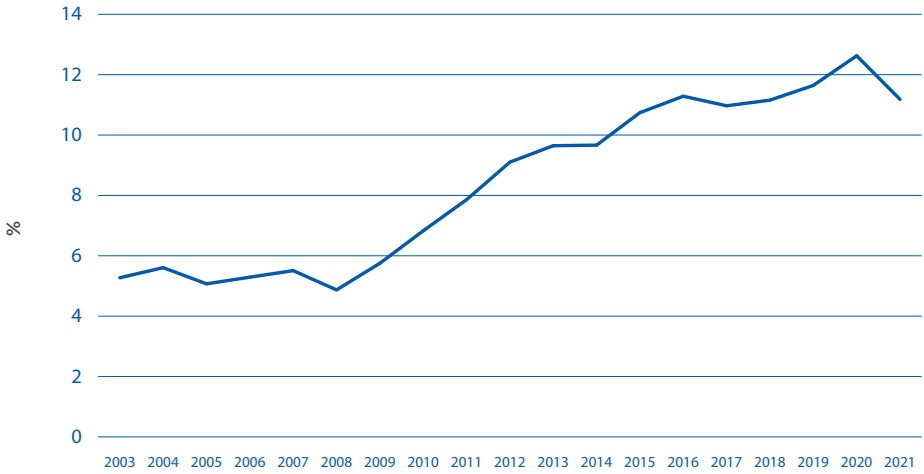


Sources: INASTI, CCNR analysis

Combining the evolution per age group reveals a considerable degree of ageing within the self-employed barge owner-operators in Belgium. This ageing is best visible when measuring the increase of the share of persons aged 65 and above among all self-employed persons.

Between the years 2003 and 2008, this share remained roughly constant at approximately 5%. From 2008 onwards, when it stood at 4.9%, there was a constant increase in the share, reaching 12.6% in 2020. This means that by the year 2020, almost 13% of all self-employed barge owners in Belgium were persons who normally would have passed the retirement age, which is 65 in Belgium.

FIG.44: **SHARE OF PERSONS AGED 65 AND ABOVE WITHIN ALL SELF-EMPLOYED BARGE OWNERS IN BELGIUM** (IN %)



Sources: INASTI, CCNR analysis

In 2021, the share was 11.2%, a small reduction that appears to be linked to the change in methodology that took place in the INASTI dataset. It is indeed obvious that company directors - who were not counted anymore as self-employed barge owners in 2021 - were of a rather advanced age, due to the longer career that is needed to become a company director. Therefore, by taking these persons out of the IWT employment data, the average age of the self-employed was slightly reduced.

Overall, it can be concluded that the financial crisis of 2008/2009 contributed to an 'ageing process' within the IWT sector in Belgium. The number of younger entrepreneurs was reduced, while the number of persons aged 65 and above increased. Even after the recovery from the financial crisis (after the year 2015), this ageing process continued, although at a lower 'pace'. The main reason for the continuation was the further loss of entrepreneurs in the age group 45-64, while the two younger age groups largely stabilised in their numbers. In addition, an ageing process at the level of overall demographic data can be observed.

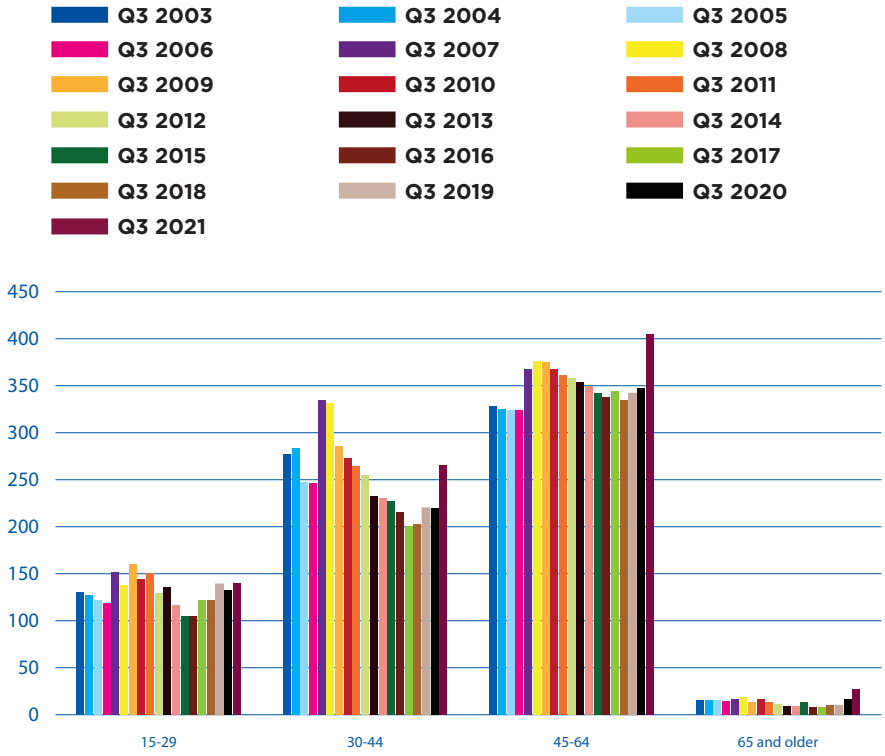
EMPLOYEES

As pointed out above, the data on employees are taken from the database of the ONSS. This database contains two major structural breaks. The first break happened in 2007, when helping family members started to be counted as employees in the ONSS data. The second structural break is more recent and occurred in 2021. This second break consisted in another extension of the categories that are taken into account (more working time regimes and also workers active in loading and unloading activities).

According to this new definition, in 2021, 837 employees were active in Belgian inland navigation. Around 90% of them are registered in Flanders, 9% in Wallonia, under 1% are registered in the region of Brussels, and for less than 1% their location is unknown.

When splitting up the total number of employees according to age groups, several patterns can be detected. First of all, the outbreak of the financial crisis in 2008 also had a negative effect on the number of employees in IWT in Belgium, as was the case for the self-employed. The numbers tended to stabilise only several years later.

FIG.45: **NUMBER OF EMPLOYEES IN BELGIUM BY AGE GROUP ***



Source: ONSS

** The values for 2021 are upward biased due to a change in the methodology.*

For the youngest age group (15-29) as well as for the second oldest age group (45-64), the decrease ended in 2016, and an uptake began in the following year of 2017. For the age group 30-44, the decrease ended in 2017, and the uptake began in 2018. For the oldest age group (65 years and older), it is difficult to tell which trend was present, as the numbers in this age group are very low and fluctuate quite strongly.

A difference compared to the self-employed is that the age group above '65 years and older' is very small within the group of employees and has not shown any clear increase (nor a decrease). Only a small share of employees are still active after the legal retirement age.

This stands in strong contrast to the extensive work activity in that age group for the self-employed, which has even substantially and lastingly increased in the wake of the 2009 financial crisis. This difference is understandable in light of aspects related to company succession.

The tendency of the self-employed to continue their activity at a more advanced age is a general pattern observed, and not limited to inland navigation. Such a tendency or pattern cannot be expected to be present for employees, at least not to a high degree.

LUXEMBOURG

Statistical data on employees in the IWT freight and passenger sectors, affiliated to the Luxembourg social security system, were collected from the General Inspection of Social Security on the basis of data from the Joint Social Security Centre (Inspection générale de la sécurité sociale – IGSS – sur la base des données du Centre commun de la sécurité sociale – CCSS). These data relate only to employees, not to the self-employed, active in the sector as of 30 September 2022 and cover also administrative staff.

In the freight transport sector, 135 companies employ a total of 4,670 workers affiliated to the Luxembourg social security system. This number has increased by 13.6%, from 4,110 employees registered in 2020 to 4,670 in 2022. The number for passenger transport is less significant and follows a decreasing trend if compared with previous years, with only five companies employing in total 270 workers.
The high number of employees in freight transport in Luxembourg (compared to the small size of the country) could be explained by the fact that:

- Luxembourg has good access to the inland waterway network in the Rhine region, and
- Luxembourg offers competitive economic conditions for companies regarding the level of taxes and social security costs.

The negative economic effects of the Covid-19 pandemic have been contained in Luxembourg due to the large public support scheme that helped to protect employment.[22] Around 94% of the employees in the inland navigation sector are male workers. In fact, the freight transport sector is dominant compared to the passenger sector in terms of number of employees, even when analysed by gender. Inside the IWT sector, the share of male employees working in the freight transport reaches 90% and 4% in the passenger sector, while the share of female employees reaches 5% in the freight transport sector compared to 1% in the passenger sector.

[22] *"2022 Country Report – Luxembourg", European Commission, Brussels, 23 May 2022*

Regarding the duration of careers in the IWT sector in Luxembourg, around 46% of the contracts have a duration of between 1-2 years and 2-5 years together. Only 9% of the workers have a contract equal or longer than 10 years and 26% have short-term contracts (less than or equal to one year).

A large share of employees in the IWT sector in Luxembourg is composed of foreigners (99.4%), while only 0.6% have Luxembourg nationality. These foreigners come from both western and eastern European countries. Eastern European workers are almost solely employed in freight transport companies, while the majority of workers in the passenger transport come from western Europe.

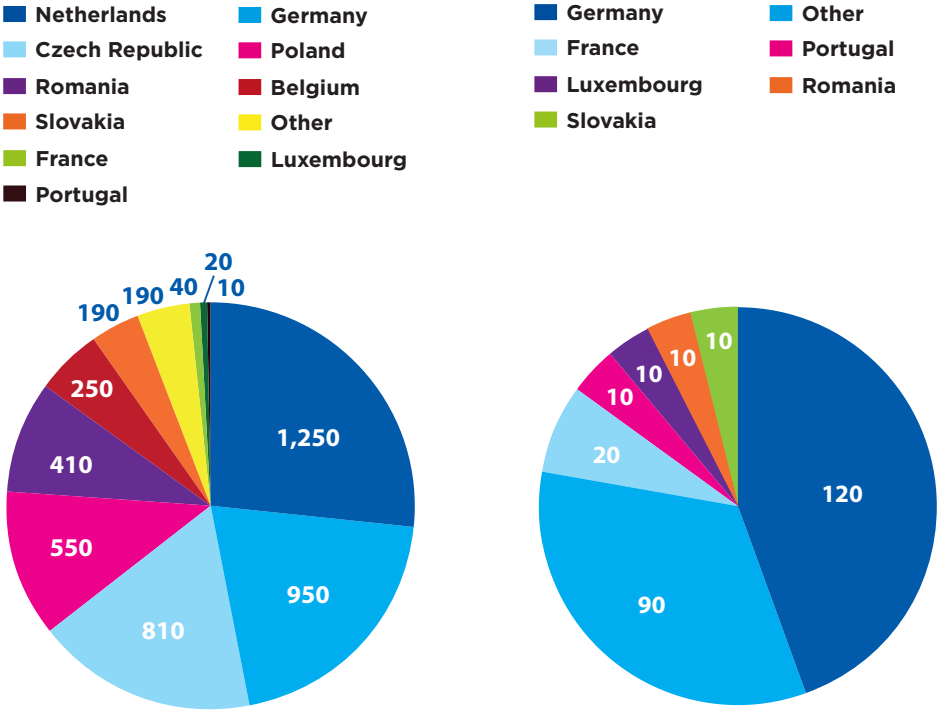
Indeed, figure 47 shows that for passenger transport, workers mainly come from Germany with a share of 44% (in first place) and the "other" category of countries (33%) as illustrated on the graph. France, Belgium, Luxembourg, Portugal, Romania and Slovakia also represent part of the employees, but to a lower extent. Regarding the high share of German workers in passenger transport, it should be kept in mind that there are cases where German passenger transport companies shifted parts of their company, including large parts of their fleet and personnel, to Luxembourg.[23]

Since subsidiaries are separate legal entities from the parent companies, they are subject to the tax regime of Luxembourg, especially income tax and contributions to social security, which are often more favourable than those in other European countries.

Employees from eastern Europe, mostly from the Czech Republic, Poland, and Romania, represent 38% of the IWW freight transport labour force of Luxembourg. This figure seems to confirm the migration flows of inland waterway workers from eastern to western Europe, also observed in countries such as Austria, Germany and the Netherlands. Foreign employees coming from Rhine countries, mainly from the Netherlands, Germany, and to a lesser extent, Belgium and France, represent 53% of the freight transport workers. Moreover, the share of posted workers employed in freight transport has risen over the last year, rising from 29% to 39% in the whole IWW labour force.

[23] Aachener Zeitung, "Flotte der KD Rheinschiffahrt unter Luxemburer Flagge", 2008. The article describes the foundation of a new subsidiary in Luxembourg by one large German shipping company in 2008.

FIG.46 AND 47: **NUMBER OF EMPLOYEES IN IWW FREIGHT** (LEFT) **AND PASSENGER** (RIGHT) **TRANSPORT IN LUXEMBOURG BY NATIONALITY** (AS OF SEPTEMBER 2022)

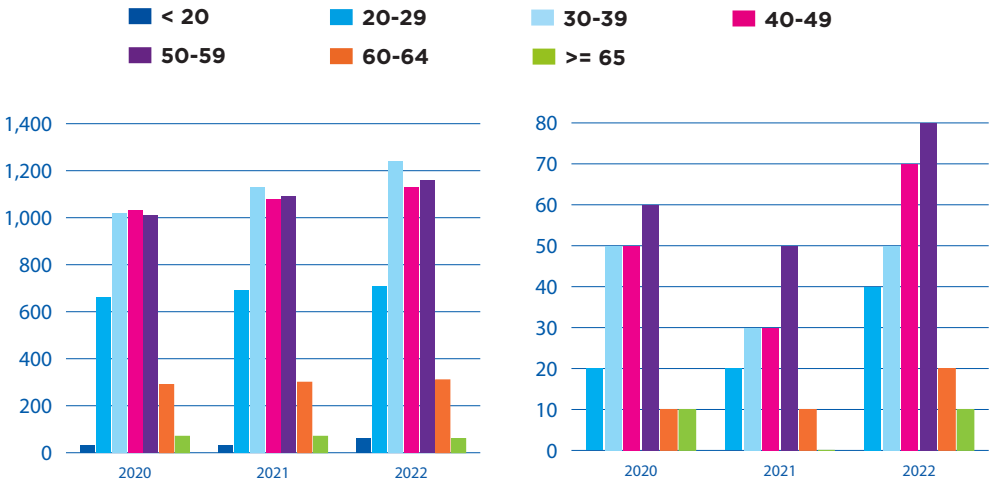


Source: Inspection générale de la sécurité sociale sur la base des données du Centre commun de la sécurité sociale

Most workers in Luxembourg, in both in the freight and passenger transport sector, are aged between 30 and 59 years. A similar age structure can be observed in most IWT countries for which data on the age of IWT workers were available. However, based on the available data for Luxembourg, it is not possible to delineate the age evolution of IWT workers in that country before 2020. Concerning freight transport, between 2021 and 2022, on average, the number of employees slightly increased across all age categories except for

persons over 65 years old. Workers employed in passenger transport in all age categories steadily increased in number between 2021 and 2022. This can be explained by the recovery from the Covid-19 crisis which weighed heavily on the passenger transport sector in 2020 and 2021.

FIG.48 AND 49: **NUMBER OF EMPLOYEES IN IWW FREIGHT** (LEFT) **AND PASSENGER** (RIGHT) **TRANSPORT IN LUXEMBOURG BY AGE GROUP** (AS OF SEPTEMBER 2022)



Source: Inspection générale de la sécurité sociale sur la base des données du Centre commun de la sécurité sociale

DANUBE COUNTRIES

ROMANIA

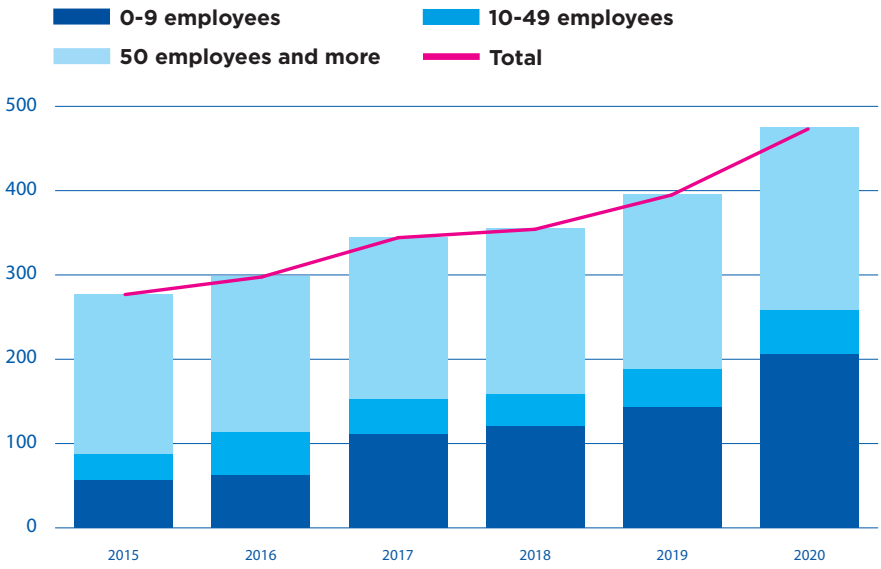
Romania is the largest Danube country measured by the number of persons working in the sector reported by the Eurostat SBS data.[24]

Similar to other countries, Romania has experienced a steady and substantial increase in the number of employees working in passenger IWT over the last years. From 2015 to 2020, that number grew by 71% from 277 to 475. This increase mainly stems from the growth of small enterprises in passenger IWT. The number of employees in companies with a maximum of nine employees almost quadrupled over that time, while the respective number with 50 employees and more increased only by 14%.

Likewise, the number of companies with up to nine employees more than tripled from 36 in 2015 to 139 in 2021, while companies with more than 50 employees remained constant at 2.

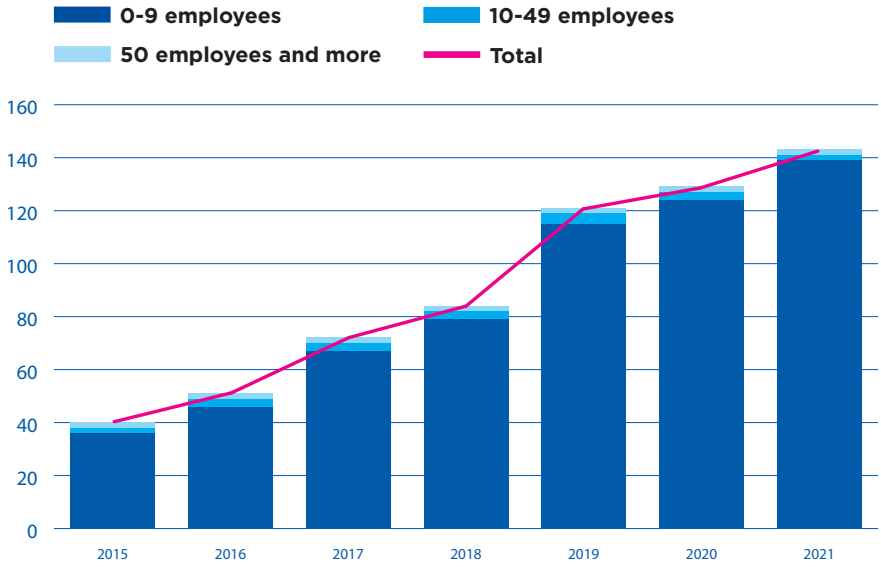
[24] To some extent, Germany, which has a much higher IWT employment than Romania, is also a Danube country, as parts of the Upper Danube are located in Germany. But German IWT is mainly orientated to the Rhine basin. Hence, only a very small share of its employment is related to Danube ports and Danube navigation.

FIG.50: **NUMBER OF EMPLOYEES IN PASSENGER IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

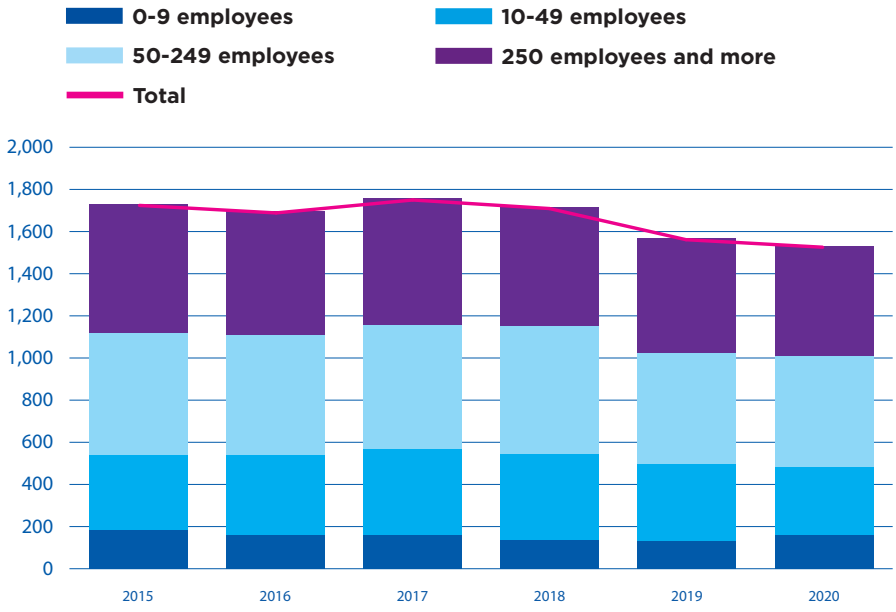
FIG.51: **NUMBER OF ENTERPRISES IN PASSENGER IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

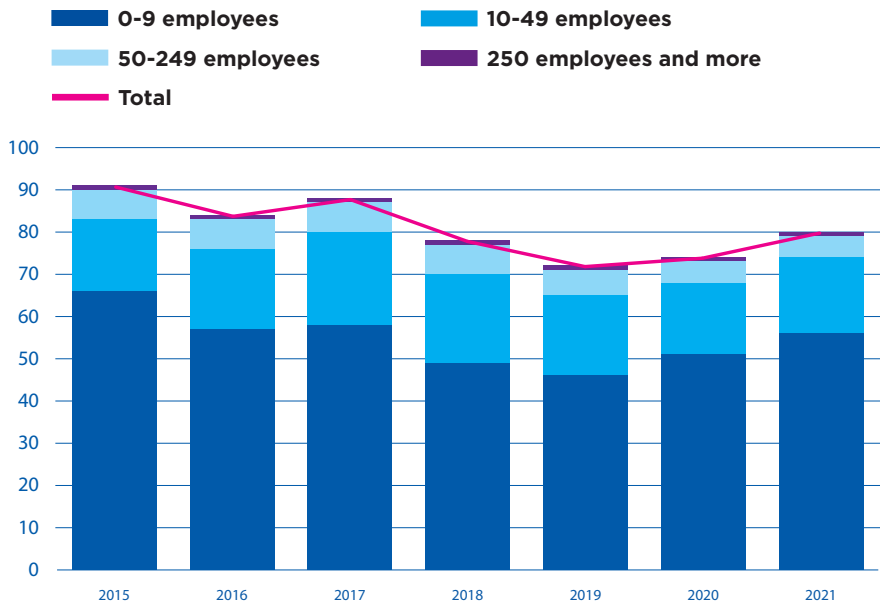
Freight IWT is more important in Romania in terms of number of employees. Nevertheless, the total number of employees in freight IWT declined by 11% from 1,730 in 2015 to 1,530 in 2020. Similarly, the number of companies decreased from 91 to 74 in the same period even though they show an increase in 2021 (+ 6 enterprises).

FIG.52: **NUMBER OF EMPLOYEES IN FREIGHT IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

FIG.53: **NUMBER OF ENTERPRISES IN FREIGHT IWT BY COMPANY SIZE**



Source: National Institute of Statistics (NIS)

In short, Romania's freight sector is far more important when referring to both the number of employees and turnover. However, the relative importance of passenger IWT in terms of employment has increased over the last years. In terms of the number of companies, passenger IWT even overtook and almost doubled the number of IWW freight transport companies in 2020.

SERBIA

According to the Statistical Office of the Republic of Serbia (SORS),[25] in 2022 around 1,100 persons (employees and self-employed) were employed in the Serbian IWT. From 2010 to 2022, the number of employed persons remained rather stable across the years showing only a moderate increasing trend from 2020 onwards.

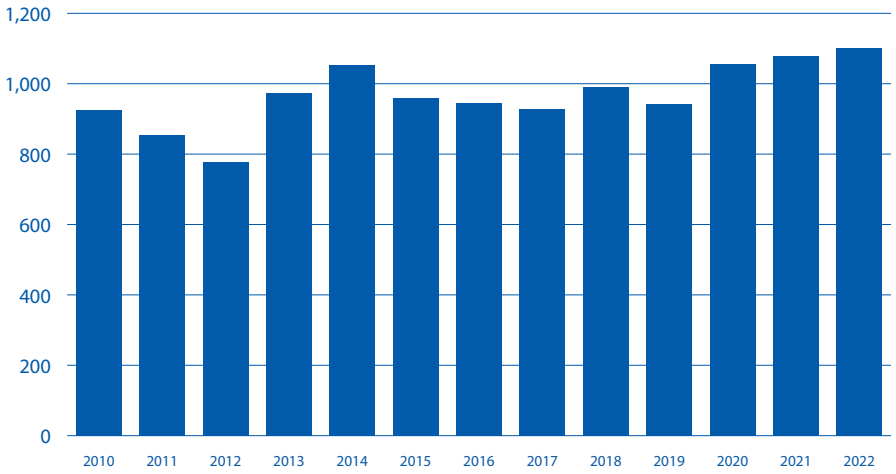
The increase in employed persons registered in Serbian IWT in recent years is directly correlated to the increase in volume of goods transported. The sector, which is mainly dominated by the transport of steel and agricultural products, has indeed experienced a boost due to foreign direct investment from China in the steel industry. The Chinese company that acquired the steel plant invested in technical renovation, thus boosting consistently steel production and raw material transport.

The pandemic of Covid-19 does not seem to have affected the sector in terms of employment since the year 2020 does not register a decrease compared to the previous years but rather an increase (+ 114 workers). One reason could be that, in Serbia, the vast majority of IWT workers are engaged in freight transport.

[25] SORS only gives the number of persons working in water transport as a whole. However, as Serbia is a landlocked country and Eurostat SBS reports only 57 persons employed in the sea and coastal water transport in 2018, it is assumed that the numbers are not substantially distorted by sea and coastal water transport.

The latter has been only moderately affected by the restrictions that were imposed to contain the virus. The distance restrictions that had to be respected due to the pandemic made passenger transport extremely complicated and had negative impacts on employment in this branch of IWT. However, this is barely visible in the Serbian data as the country's passenger transport branch is quite small.

FIG.54: **NUMBER OF PERSONS EMPLOYED IN IWT IN SERBIA** (2010-2022)

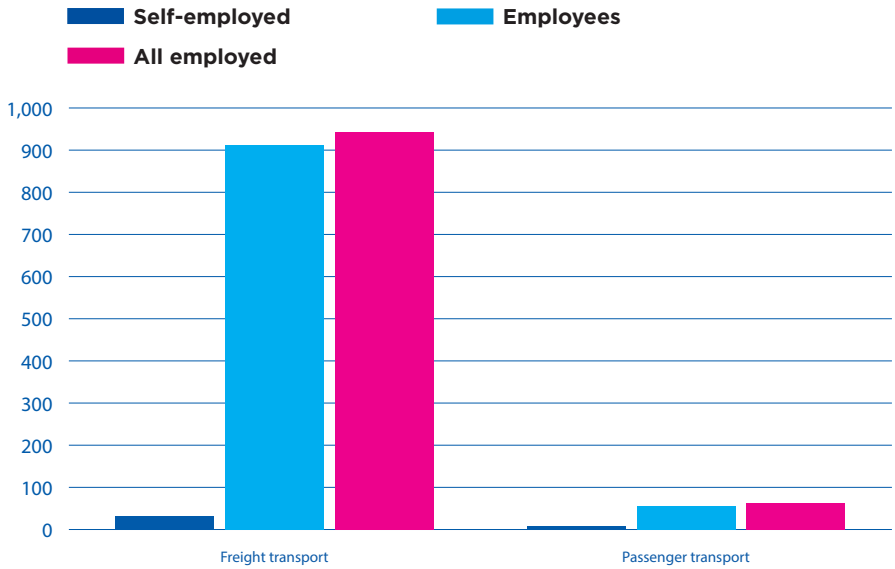


Source: Statistical Office of the Republic of Serbia (SORS)

According to the Eurostat SBS data, in 2020, the freight transport sector counted 944 employed persons, while passenger transport counted only 64. This pattern did not change compared to previous years as freight transport represents the core market sector of IWT in Serbia.

The majority of IWT workers are employees. In 2020, only 3.3% for freight transport and 14.1% for passenger transport were self-employed workers. This pattern is quite typical for many Danube countries, given the history of the company part of the Danube navigation sector. It is dominated by former state-owned companies and has only few small private entrepreneurs compared to western Europe.

FIG.55: **NUMBER OF PERSONS EMPLOYED IN IWT BY TYPE OF EMPLOYMENT** (2020)



Source: Eurostat SBS [sbs_na_1a_se_r2]

According to the national statistical office (SORS) data, the average monthly gross earnings of persons employed in Serbian IWT amounted to around 760 Euros in 2021 and 917 in 2022, as calculated by the year's average exchange rate.[26] The average monthly net salary was instead around 552 Euros in 2021 and 667 in 2022. IWT earnings increased by around 20% between 2021 and 2022. The low wages phenomenon creates an incentive to move to countries with better working conditions and higher salaries. Indeed, 43 Serbian nationals were employed in jobs subject to social security contributions in German IWT in 2021. Concerning Austria, in 2021, the respective number lies between 32 and 42, depending on how many persons were registered in the Austrian AMS database as citizens of former Yugoslavia, Serbia and Montenegro, and who are now Serbian citizens. Overall, the number of Serbian 'migrants' in IWT is relatively low given the low wages in the country.

[26] *According to the National Bank of Serbia, the average exchange rate in 2021 is 1 Euro = 117.5733 RSD and in 2022 is 1 Euro = 117.4588 RDS. https://nbs.rs/en/finansijsko_trziste/medjubankarsko-devizno-trziste/kursna-lista/prosecni-kursevi/index.html*

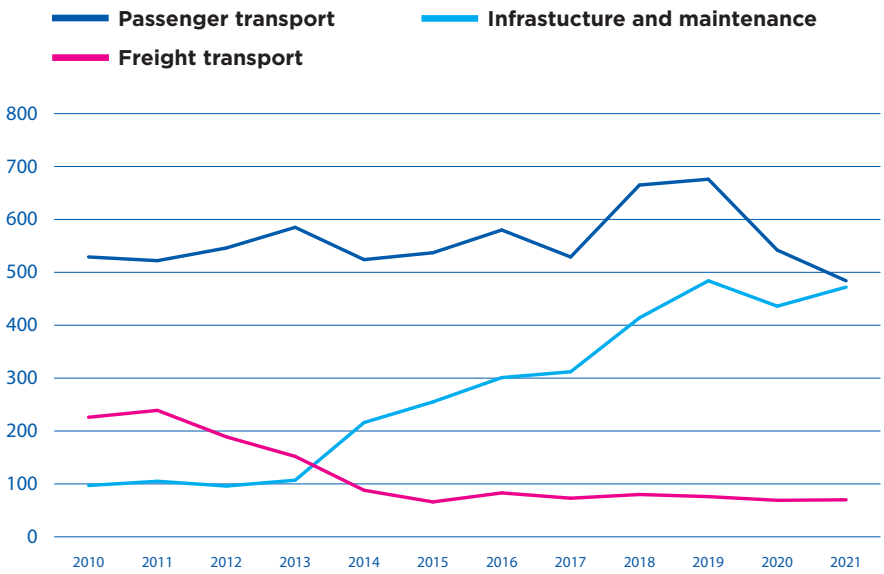
HUNGARY

Hungary is an important country for European inland navigation. It is situated in central Europe on the middle part of the Danube, and its Lake Balaton, the many river cruises on offer and its capital, Budapest, make it a major cruise destination.

The Hungarian Statistical Office (HCSO) produces data based on surveys on the number of employees both in passenger and freight IWT. However, data on employees of passenger transport exclude employees that work in areas such as onboard catering and bar services. The surveys aim at employees working at least 60 hours per month in a Hungarian company with at least five employees.

The vast majority of Hungarian IWT employees work in the passenger transport sector as, in 2021, it accounted for 484 workers, compared to freight transport, which counted 70 workers. Moreover, in the period 2010-2021, the two sectors experienced different trends. On the one hand, the freight transport sector shows a stable trend, remaining below the hundred units from 2014 onwards. On the other, the number of employees of IWW passenger transport illustrates a fluctuating trend. Indeed, while the number of passenger transport employees increased from 529 to 676 between 2017 and 2019, it decreased to 542 in 2020 and to 484 in 2021. The reduction registered in 2020 is a plausible repercussion of the restrictions imposed to contain Covid-19 and the consequent decrease in the circulation of people both at national and international levels. The number of employees working in the sector of service activities incidental to IWT (for instance, the maintenance services of canals and the operation of locks) increased consistently from 97 to 472 between 2010 and 2021.

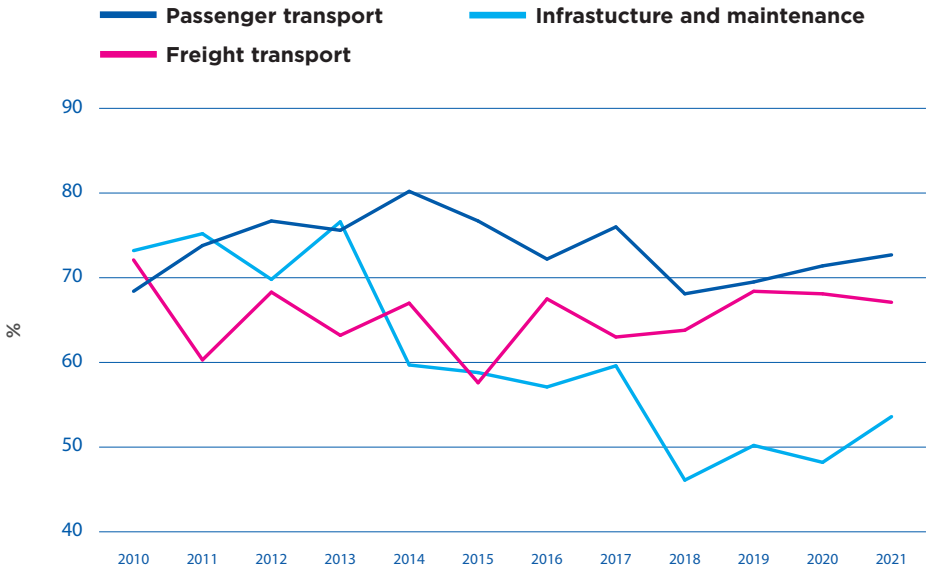
FIG.56: **NUMBER OF EMPLOYEES IN HUNGARY PER SECTOR**



Source: Hungarian Central Statistical Office (HCSO)
Note: the employees taken into consideration in this dataset work at least 60 hours per month in a company with at least five employees.

Figure 57 reports the share of workers engaged in "physical jobs" within the total of IWT employees. The distinction between manual and non-manual professions has been delineated as a practicable, even though not precise, trace between onboard occupations (mainly physical or manual) and ashore occupations (white-collar jobs). In 2021, all categories of workers showed a higher share of employees engaged in physical jobs, therefore more likely to work onboard. For the period analysed, that percentage for passenger transport lies between 60% and 80%, reaching a share of 72.7% in 2021. Differently, the share of freight transport employees who work in a "physical job" oscillated between 60% and 70%, reaching 67% in 2021. The number of manual workers employed in the service activity sector decreased between 2010 and 2021. Starting with 73.2% in 2010, the latter reached its lowest level (46%) in 2018, after which a moderate increase characterised the years 2019, 2020 and 2021.

FIG.57: **SHARE OF EMPLOYEES WORKING IN A "PHYSICAL JOB"** (IN %)

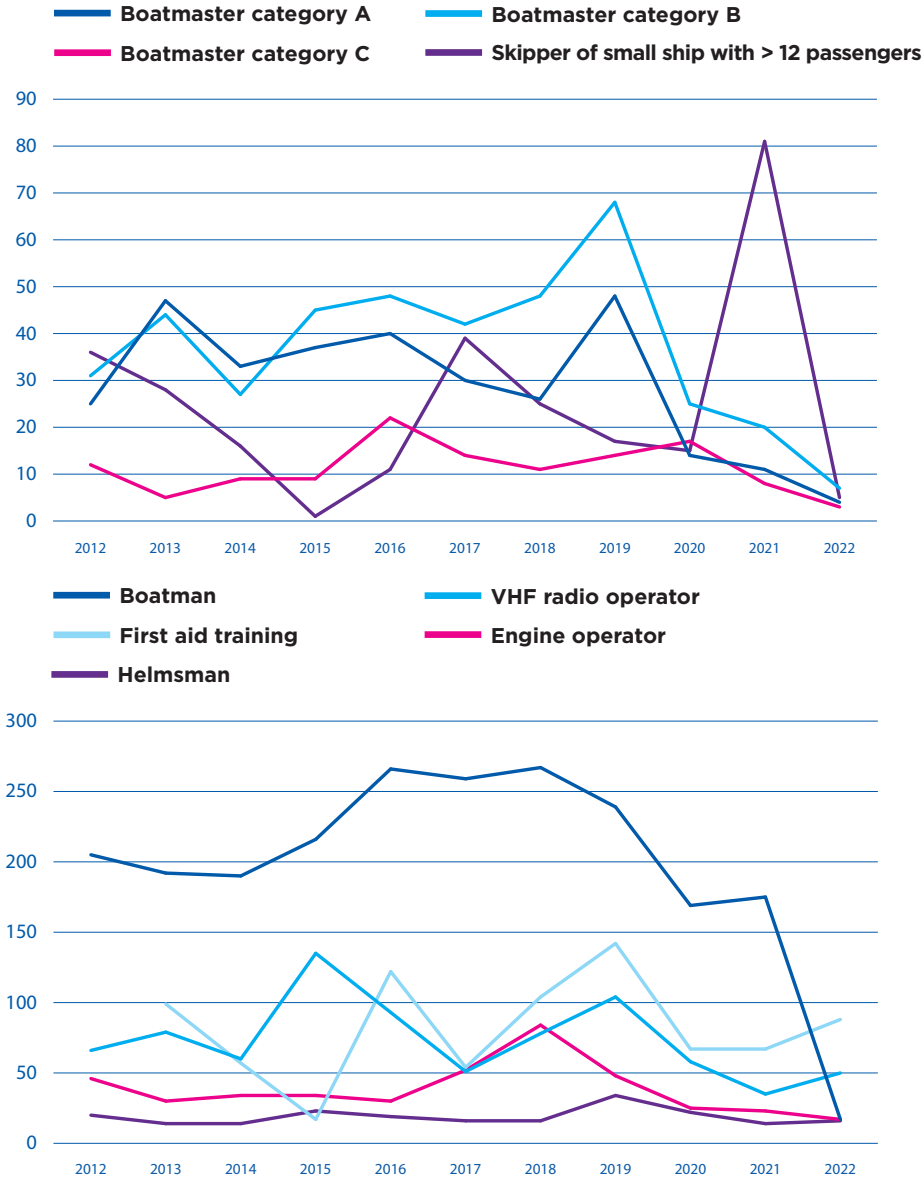


Sources: Hungarian Central Statistical Office (HCSO), CCNR analysis
Note: The employees taken into consideration in this dataset work at least 60 hours per month in a company with at least five employees.

According to a database of service record books maintained by the Shipping Authority of the Department of Transport of the Governmental Office of the Capital City Budapest, the share of shipping certificates that were awarded to women between 2019 and 2022 remained stable at around 11%. Therefore, it can be deduced with some caution that about 11% of employees on board of vessels in Hungarian IWT is female assuming that the margin of error imposed by the imperfections of the service record books does not correlate with gender. Only a small share of boatmasters' certificates were awarded to foreigners (1.4% in 2022), who were mostly Romanians and Slovaks.

The Department for Shipping Authority at the Hungarian Ministry of Construction and Transport provides the data on the annual number of newly issued certificates of qualification. Except for 2022, the boatman certificate is the certificate most often issued in Hungary. The numbers of other certificates fluctuate quite strongly over time.

FIGURES 58 AND 59: **NUMBER OF NEWLY ISSUED CERTIFICATES OF QUALIFICATION IN IWT IN HUNGARY**



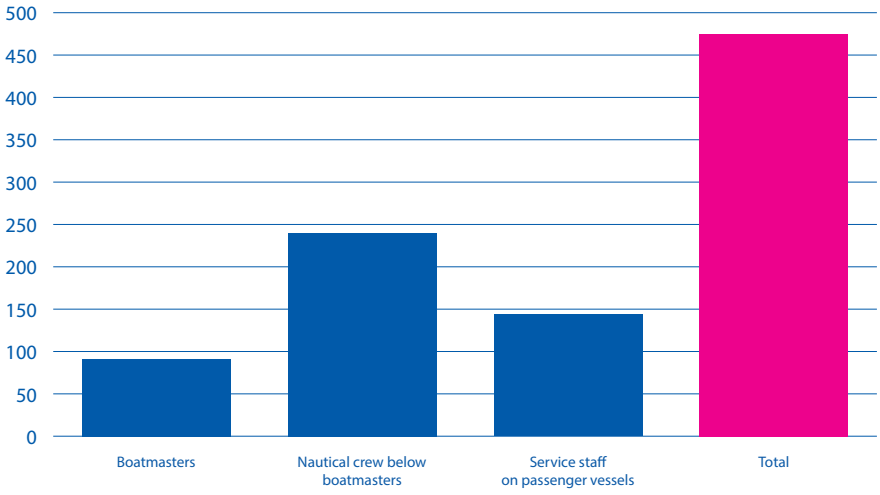
Source: Department for Shipping Authority at the Hungarian Ministry for Innovation and Technology

BULGARIA

Bulgaria is another country with substantial access to the Danube. The Bulgarian Maritime Administration conducted a survey affirming that, in December 2022, the IWT sector counted 56 active companies and 475 employed persons under the National Social Security System.

Among the 475 workers employed in inland waterway transport, 19.2% are boatmasters, 50.5% belong to the nautical crew (below the boatmaster level), and 30.3% form part of the group of persons employed on board other than the nautical crew, such as the accommodation or gastronomical service staff. According to the survey, only the last category of workers is composed both of male and female staff, while the nautical crew is entirely constituted of male workers.

FIGURE 60: **NUMBER OF PERSONS EMPLOYED IN BULGARIAN IWT ON BOARD OF VESSELS BY OCCUPATIONAL CATEGORY IN 2022**



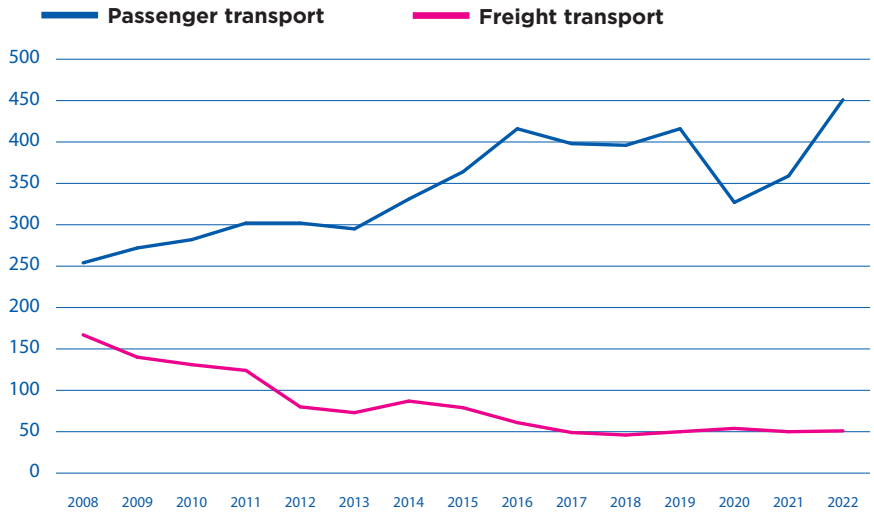
Source: Bulgarian Maritime Administration
Survey of vessel owners and vessel operators conducted in December 2022.

The majority of employed persons are Bulgarian nationals although the country is a destination for Serbian and Romanian IWT employees. Moreover, 35% of IWT workforce are cross-border workers. The Bulgarian National Employment Agency provides employment mediation services to jobseekers who want to work abroad. According to the data registry, in the period from March 2015 to September 2022, 66 Bulgarian workers were employed in non-Bulgarian companies as part of the nautical crew on board river vessels. The major destinations for Bulgarian IWT workers are the Netherlands and Switzerland, followed by France, Cyprus, Spain, Malta and Romania.

AUSTRIA

Austria belongs to the countries which have a higher employment in passenger transport than in freight transport in inland navigation. According to data from the Austrian Public Employment Service (AMS), the number of employees in passenger IWT followed an increasing trend until 2016 and stabilised between 2016 and 2019 on a level of around 400 employees. The Covid-19 crisis caused a reduction in employees, but recovered in 2022, exceeding pre-pandemic levels. The number of employees in freight transport followed a downward trend between 2008 and 2022.

FIGURE 61: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION BY SECTOR ***

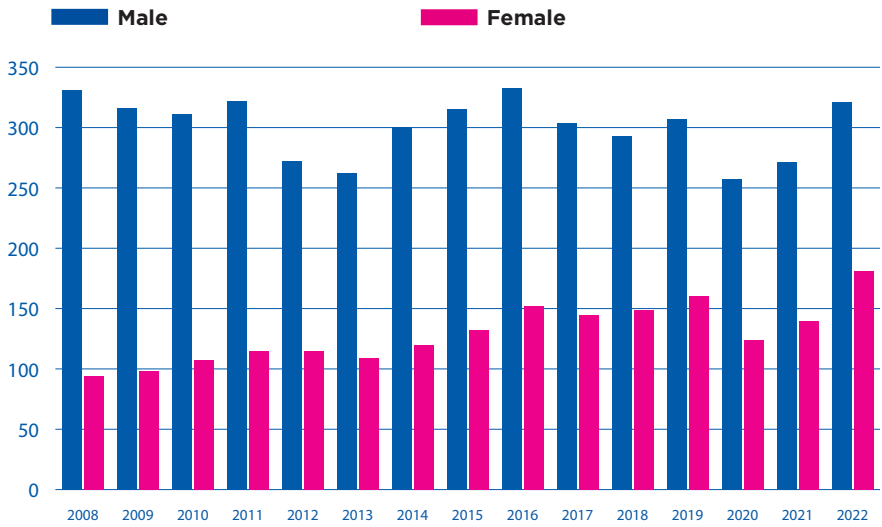


Source: Austrian Public Employment Service

** The number of employees in freight and passenger transport represent the average numbers of employees per year. In passenger transport, there are fluctuations in the number of employees during a year, due to the seasonality of passenger transport activities.*

The AMS data show a rather high share of female workers in Austrian IWT. In 2022, female employees corresponded to 36% of total IWT employees.

FIG.62: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION BY GENDER ***

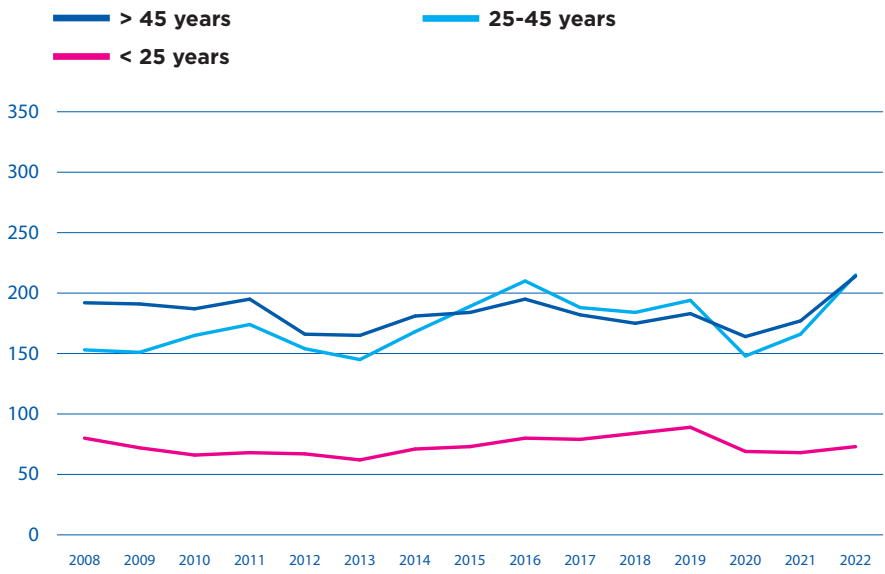


Source: Austrian Public Employment Service

** Including between 0 and 8 employees working in maritime and coastal navigation per year.*

According to the AMS data, the share of employees aged under 25 was 14.5% in 2022. Between 2008 and 2022, this share fluctuated between 15.5% and 19.1%. This last value was reached in 2019. Between 2016 and 2019, the share showed a constant increase, but dropped to 18.1% (2020) and finally to 14.5% (2022).

FIG.63: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION BY AGE GROUP ***

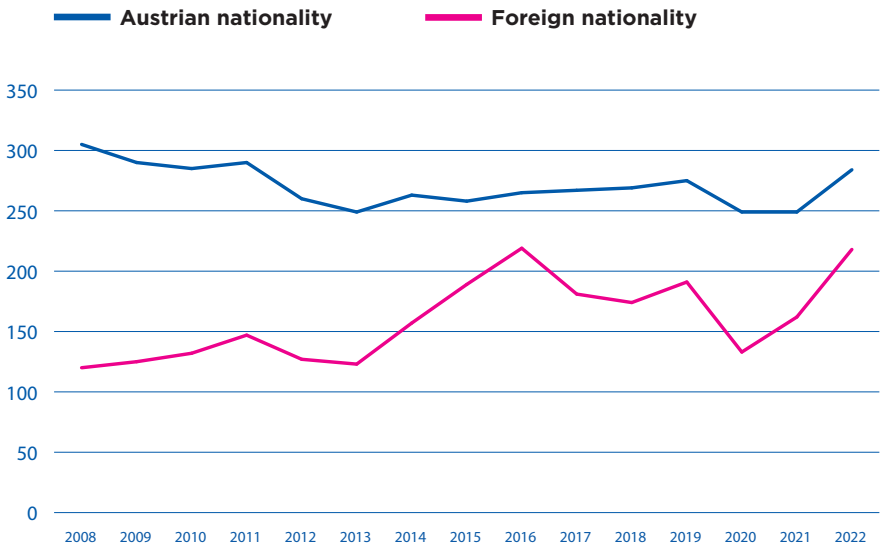


Source: Austrian Public Employment Service

** Including between 0 and 8 employees working in maritime and coastal navigation per year.*

The number of foreigners among the employees in Austrian IWT increased substantially from 120 in 2008 to 191 in 2019. After a drop in 2020 to 133, the number of foreign employees increased to 218 in 2022. In the same period, the number of Austrian IWT employees decreased slightly from 305 to 284. The overall increase of employment in Austrian IWT between 2008 and 2019 can therefore mainly be attributed to a net influx of 106 foreigners between 2013 and 2016.

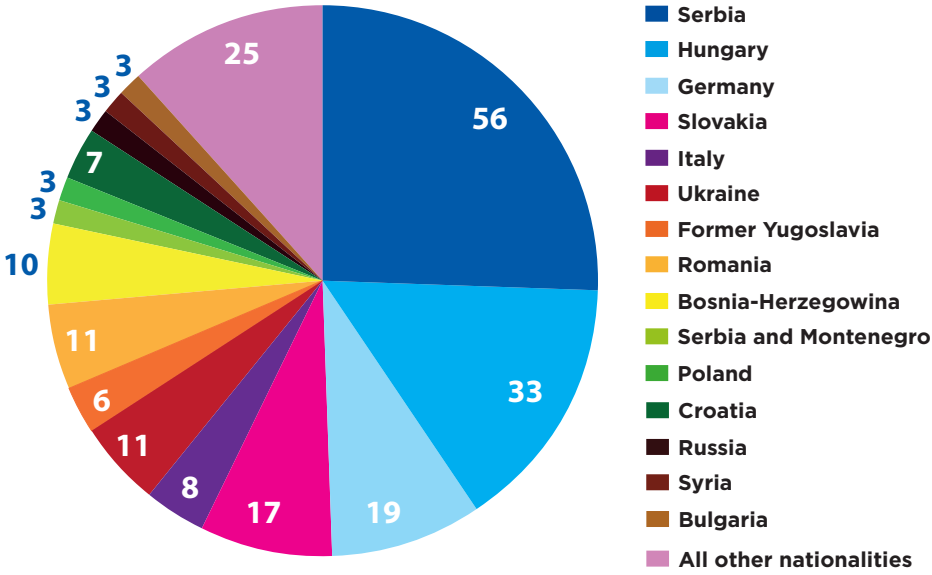
FIGURE 64: **NUMBER OF EMPLOYEES IN AUSTRIAN INLAND NAVIGATION – AUSTRIANS AND FOREIGNERS ***



Source: Austrian Public Employment Service
** Including between 0 and 8 employees working in maritime and coastal navigation per year.*

The largest groups of foreigners in 2022 and in previous years were of Serbian and Hungarian nationality. There are still also persons with 'former Yugoslavia', and 'Serbia and Montenegro' nationalities, although their number is decreasing. Hungarians are in second place behind Serbians.

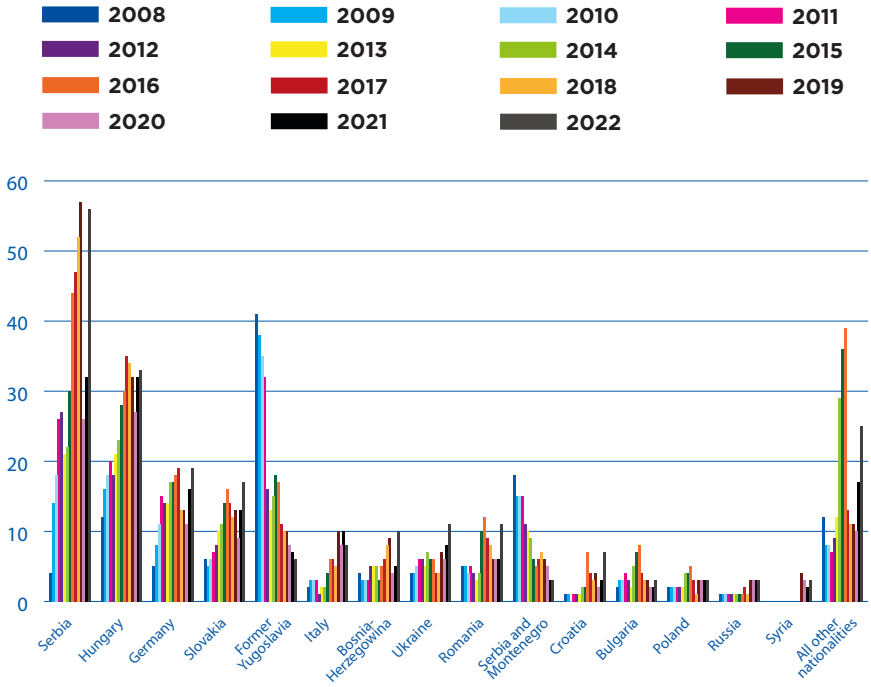
FIG.65: **FOREIGNERS EMPLOYED IN AUSTRIAN INLAND NAVIGATION BY NATIONALITY** (2022)



Source: Austrian Public Employment Service

The next graph shows the development of the number of foreign employees in the Austrian inland navigation sector, for the eight largest nationalities.

FIG.66: **NUMBER OF FOREIGN EMPLOYEES IN AUSTRIAN INLAND NAVIGATION * BY MAIN NATIONALITY GROUP AND YEAR ***



Source: Austrian Public Employment Service

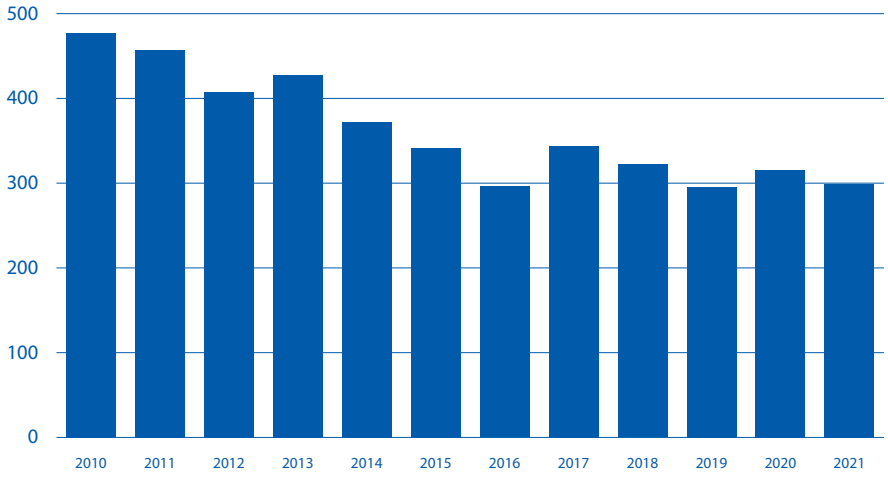
** Only the eight most important foreign nationalities are depicted in the graph.*

The Austrian Employment Service does not have data on the self-employed in Austrian IWT. However, according to the Structural Business Statistics of Statistics Austria, 59 men and 15 women were active as self-employed in Austrian passenger IWT in 2017. In freight IWT, 8 persons were self-employed, none of whom were women.
In early 2023, Austria's largest passenger vessel company offered traineeships for apprentices who earned 548 Euros in their first year of training, rising to 732 Euros in the second and 974 Euros in the third year.

SLOVAKIA

According to data from the Statistical Office of the Slovak Republic (Slovstat), employment (including both employees and self-employed) in Slovakian IWT gradually decreased from 2010 onwards to reach a relative low point in 2016. Employment figures showed a small recovery in the following years, mirroring a relatively stable transport demand from 2016 onwards. As in many other countries, the Slovak IWT sector also suffers from an ageing workforce. In addition, for several consecutive years there has been no inflow of young personnel due to the absence of classes for educating new boatmen in Slovakia. According to the Slovak Ministry of Transport, this situation can be explained by the lifestyle preferences of the younger generation (office hours and free time during weekends).

FIG.67: **NUMBER OF PERSONS EMPLOYED IN IWT IN SLOVAKIA ***



Source: Statistical Office of the Slovak Republic

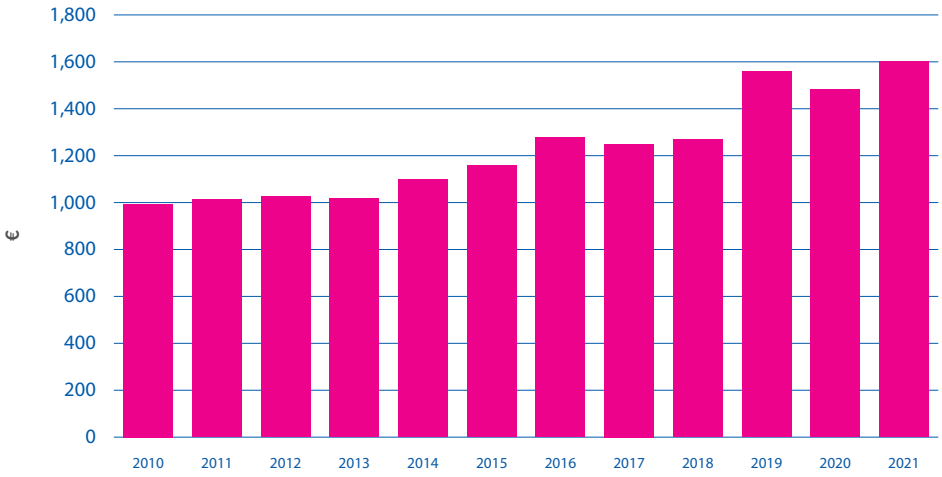
** Includes self-employed*

Despite the rather weak employment trend, turnover in the IWT sector in Slovakia increased continuously during the same period of time. Between 2010 and 2020, the financial turnover doubled, rising from 40 million Euro to 81 million Euro. However, in 2021 the financial turnover decreased to 39 million Euro. As the wage development in Slovakian IWT shows, employment decreased during a period of low and stagnating wages (2010-2015), while it increased during a period of increasing wages (2016-2021). This pattern is explained by the fact that in times of low demand for labour, wages are also impacted negatively. In times of a high demand for labour, wages increase.

The average monthly wages of IWT workers in Slovakia showed some increase, mainly since the year 2016 and onwards. This trend is very similar to the trend in the neighbouring Czech Republic, and is explained by the overall economic dynamics in the second half of the decade between 2010 and 2021. The economic dynamics during this period, which was particularly evident in eastern Europe, was followed by an upward movement in labour demand, and consequently by an increase in the level of wages in many sectors of the economy.

A slightly decreasing trend in the number of Slovak nationals working in German and Austrian IWT in the last years can also be observed. In 2021, 47 Slovak employees worked in German IWT (compared to 53 in 2016) and 13 in Austrian IWT (compared to 16 in 2016).

FIG.68: **AVERAGE MONTHLY WAGE LEVEL IN IWT IN SLOVAKIA** (IN €)



Source: Statistical Office of the Slovak Republic

To summarise, data on IWT employment, IWT wages, IWT turnover and IWW transport demand in Slovakia reflect three different impact channels. One channel originates from the increasing economic activity and dynamics in the Slovakian and, more generally, in the central and eastern European economy during the second half of the decade 2010-2020. This impulse seems to have resulted in an increase in the wage level in the Slovakian IWT sector.

Although wages were increasing, employment was not affected negatively by this (no supply-side orientated labour market effect). Instead, employment stabilised, after a period of decreasing employment figures between 2010 and 2016.

The second impact channel originates from the development in transport demand. The correlation with employment suggests that the latter is, to a large extent, a derived variable, at least in Slovakian IWT, reflecting the trend in transport activity. Both employment and wages

were therefore mainly driven by demand factors (transport demand, labour demand), and not by supply side factors.

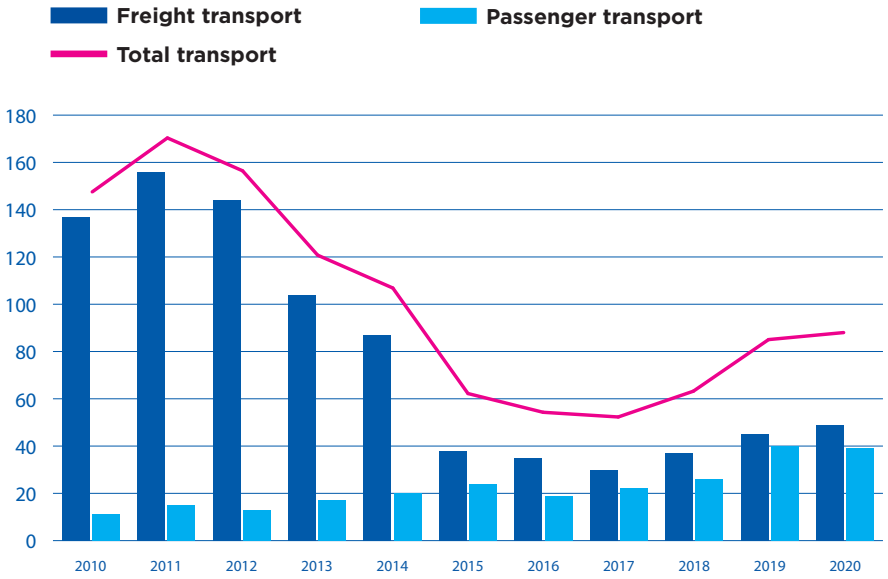
The third impact channel originates from the general trend of the introduction of modern technological equipment on inland vessels. This trend resulted in a tripling of financial turnover per person employed, between 2010 and 2020. In other words, one employed person created a turnover three times higher in 2020 compared to 2010. This rise in labour productivity is most likely the result of the technological development, in this case the upgrading of the technological equipment on board inland vessels.

CROATIA

Croatian IWT plays a minor role, although the country has direct access to the Danube. According to the Croatian Bureau of Statistics, the IWT sector experienced a decrease in the labour force between 2010 and 2020. In 2010, the sector counted a total of 148 employed persons, compared to only 63 in 2018. This downward trend seems to be mainly driven by the freight transport sector, which shows a marked reduction of employed persons between 2010 and 2018. On the other hand, passenger transport remained stable over the years, registering a slight increase, without exceeding the number of 40 workers.

For the period after 2019 it is possible to notice an increase in workers for both freight and passenger transport. However, this increase cannot be attributed to an augmentation of the IWT labour force but rather to a change in the methodology used by the Croatian Bureau of Statistics. After 2019 the scope of units covered by business demography statistics was extended due to the inclusion of additional categories of workers, namely persons involved in independent activities, who pay a lump-sum income tax.

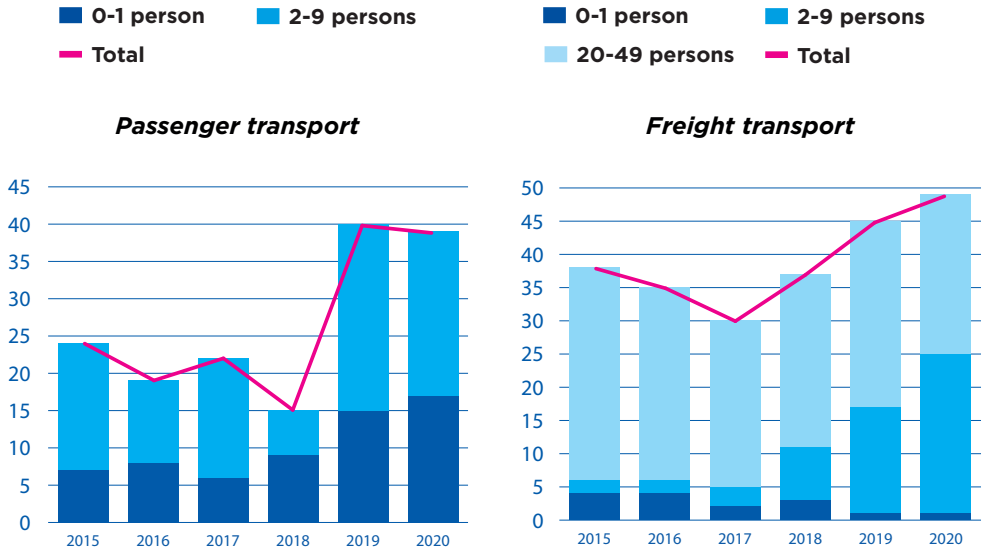
FIG.69: **NUMBER OF EMPLOYED PERSONS IN IWT IN CROATIA**



Source: Croatian Bureau of Statistics – Structural Business Statistics
Note: in 2019 there was a break in the time series. Therefore, for the years 2019 and 2020, the data are not comparable with data from previous years. Before 2019, data did not include natural persons involved in independent activities, who pay a lump-sum income tax.

The category of employed persons includes employees, self-employed workers, partners who regularly work in the unit, unpaid family workers and voluntary workers. Within the Croatian IWT sector, the share of employees on all employed persons is consistently high, even if it has decreased over the last ten years, from 92% in 2011 to 77% in 2020.

FIGURES 70 AND 71: **NUMBER OF EMPLOYED PERSONS IN PASSENGER AND FREIGHT IWT BY COMPANY SIZE**



Source: Croatian Bureau of Statistics – Structural Business Statistics

Croatian IWT sector is mostly composed of medium-small companies from 1 to 50 employed persons. In 2020, passenger transport presented a high share of companies with 2-9 employees (56%) and a consistent number of individual companies (44%). Differently, inland waterway freight transport in Croatia between 2015 and 2020 showed a higher share of medium companies (20-49 persons) compared to small companies of 0-1 and 2-9 persons.

Freight and passenger transport present different labour force compositions from this point of view. While freight transport shows a labour force mainly composed of employees (97% in 2011 and 100% in 2020), passenger transport has a high share (about 50% in 2020) of other categories of workers, typically self-employed workers or unpaid family workers. Indeed, passenger transport workers are mainly employed in small enterprises of 0-1 workers and 2-9 workers.

FIG.72: **SHARE OF EMPLOYEES WITHIN ALL EMPLOYED PERSONS IN CROATIAN IWT SECTOR** (2011-2020)

Source: Croatian Bureau of Statistics – Structural Business Statistics

As in other countries, the share of women among employees in IWW freight transport is low. In 2020 only 5 of the 49 workers employed are women, namely 10%. Data on women working in the passenger transport sector are not available.

It should be taken into consideration that Croatia joined the European Union on 1 July 2013. This might have impacted its labour market substantially, particularly sectors such as inland navigation, in which labour can be shifted to other Member States quite easily. However, an increasing trend of Croatians emigrating to other EU countries to work in IWT cannot be found, at least not in the German and Austrian data.[27]

[27] *Full freedom of movement for Croatians was only granted by Austria as from 1 July 2020*

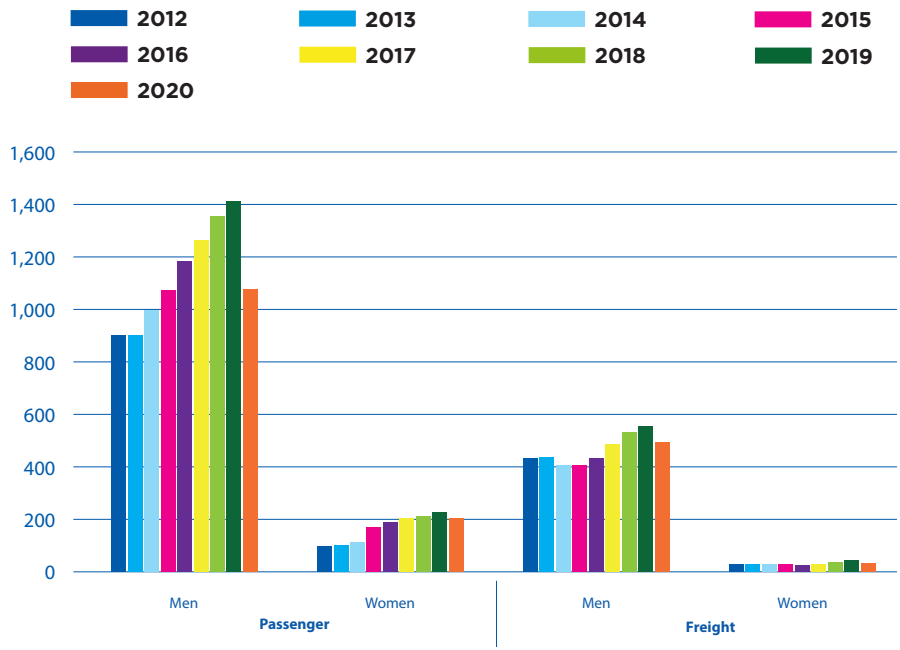
OTHER COUNTRIES

ITALY

Italian IWT is dominated by the passenger sector, which is mostly developed in the largest Italian lakes and in the Venetian Lagoon. According to the Italian National Institute of Statistics (ISTAT), the number of employees in that sector increased gradually and substantially for both men and women between 2013 and 2019. In the same period, the number of male employees in freight IWT increased by a comparatively small margin, while the number of women in that sector stagnated at a low level. One reason behind this trend is low waters, which have persisted severely in the last five years, causing a reduction in the volume of freight transported by the Italian IWT.

In 2020, the measures established to contain the virus Covid-19 and the consequent decrease in circulation of the population for touristic purposes provoked a reduction in the number of workers employed in both passenger and freight transport. This applies especially to male employees of passenger transport, which is mainly touristic, and experienced a substantial decrease, from 1,411 in 2019 to 1,078 in 2020.

FIG.73: **NUMBER OF EMPLOYEES IN IWT IN ITALY BY SECTOR AND GENDER** (2012-2020)

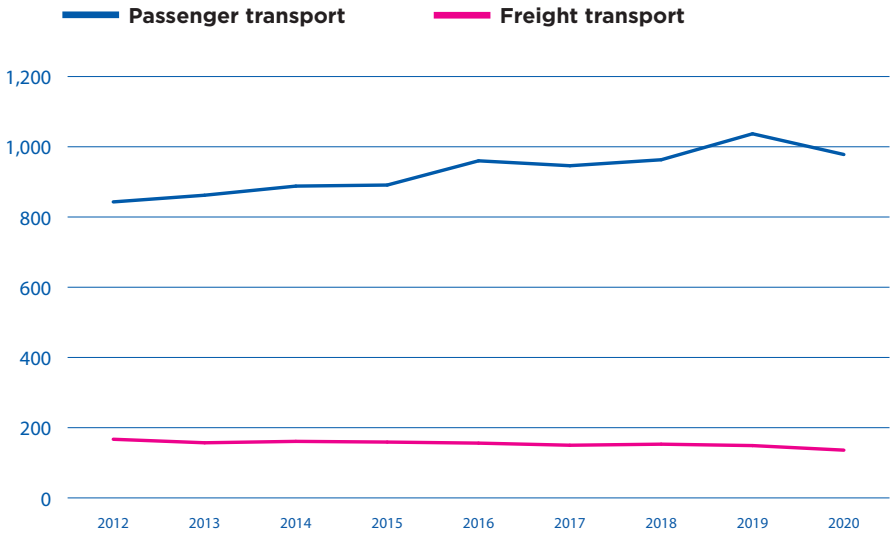


Source: Italian National Institute of Statistics (ISTAT)

In 2020, about 12% of the employees in the passenger sector and about 19% in the freight sector had part-time contracts. For both sectors, the medium-term trend showed increases. Less than 3% of the employees in passenger IWT and about 6% of the employees in freight IWT did not have Italian citizenship.

Although at a lower growth rate than employees, self-employed workers in the passenger sector steadily increased in numbers between 2012 and 2019, before being negatively affected by the pandemic in 2020. As far as the freight sector is concerned, workers who own their own company have continuously decreased over time.

FIGURE 74: **NUMBER OF SELF-EMPLOYED IN IWT IN ITALY BY PASSENGER AND FREIGHT TRANSPORT** (2012–2020)



Source: Italian National Institute of Statistics (ISTAT)

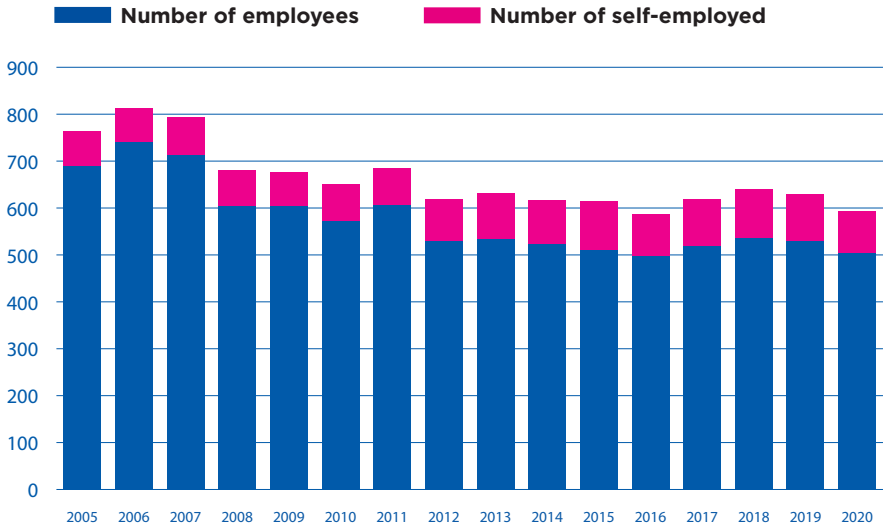
Counting employees and self-employed together, about 83% of all persons employed in Italian passenger IWT and about 97% of all persons employed in Italian freight IWT, work for companies in the Metropolitan City of Venice. Due to the geographical situation of the city, the public transport of citizens and tourists is entirely developed by waterborne means of transportation. Moreover, the city is a popular destination for national and international tourism and a strategic connection between the river Po and the Adriatic Sea. As the ISTAT figures closely resemble the Eurostat SBS figures for Italy, nearly 2,259 persons employed in passenger IWT represent about 11% of all employment in that sector in the EU-27 in 2020 (19,918 persons employed).

CZECH REPUBLIC

At the level of the Czech Statistical Office, the statistical dataset that is available and covers IWT, is an overall dataset covering the whole NACE sector 50 (water transport). This includes IWW, maritime and coastal navigation (both passenger and freight). However, the Czech Republic is a country in central Europe with no maritime waters, therefore this national database relates mainly to inland navigation employment.

In the Czech Republic, total employment decreased after 2007 and again after 2011, but has stabilised since 2012 at a level of around 600 persons. The share of the self-employed within total employment has been relatively stable during the last years (around 15-16% in the last five years).

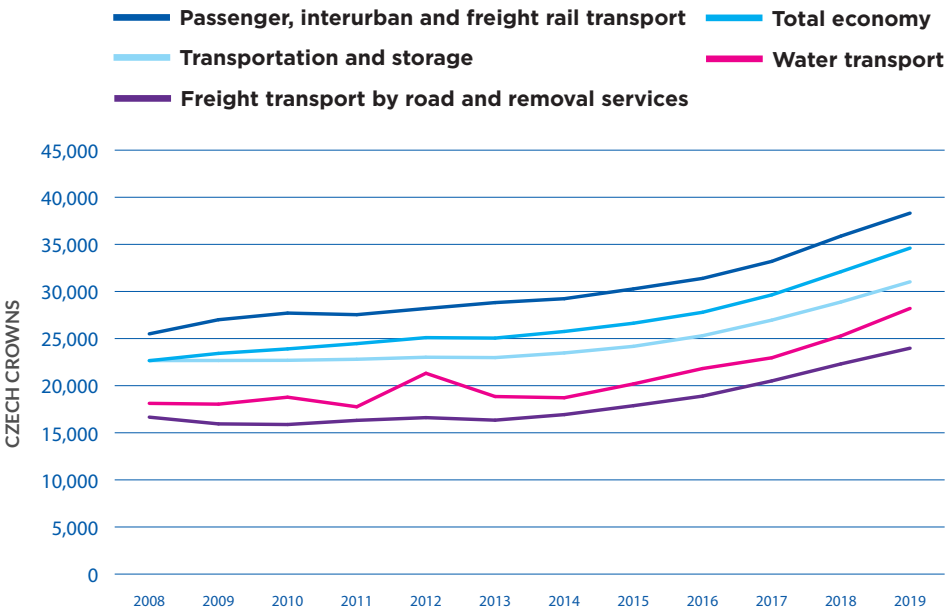
FIG.75: **NUMBER OF PERSONS EMPLOYED IN THE WATER TRANSPORT SECTOR IN THE CZECH REPUBLIC ***



Sources: Czech Statistical Office, CCNR analysis
** Although the Water transport sector (NACE sector 50) includes maritime and inland navigation together, a comparison with Eurostat data for employment in inland navigation shows that at least 99% of the Czech NACE 50 employment is inland navigation employment. The number of self-employed was calculated by deducting the number of employees from all persons employed.*

The evolution of the average monthly gross wage per full time equivalent is shown in the next graph, for different branches of the transport sector and for the Czech economy as a whole. The evolution of wages showed a certain accelerated increase from 2014 onwards.

FIGURE 76: **AVERAGE MONTHLY GROSS WAGE PER FULL TIME EQUIVALENT** (FTE) **IN THE CZECH TRANSPORT SECTO**R (IN CZECH CROWNS) *

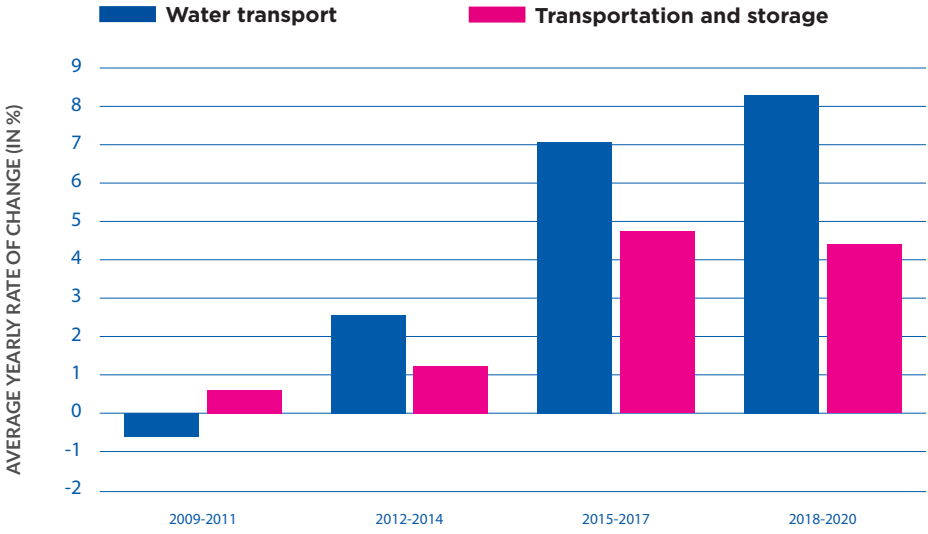


Source: Czech Ministry of Transport
** NACE sector 50*

The higher dynamics of wages in the second half of the last decade becomes evident when calculating the average yearly growth rate of the wages for groups of years. For the years 2009-2011, the average yearly wage growth rate was indeed negative for inland waterway transport (-0.6%). For the whole transport sector this average rate was slightly positive (+0.6%).

The next group of years (2012-2014) already shows a more positive wage development, both for water transport (+2.6%) as well as the whole transportation and storage sector (+1.2%). For the second half the last decade, the growth rates of wages were around 7% to 8% in IWT and slightly below 5% for the entire transportation and storage sector. They were therefore substantially higher than in the years between 2008 and 2014.

FIG.77: **AVERAGE YEARLY RATE OF CHANGE OF THE WAGES PER FULL-TIME EQUIVALENT IN THE CZECH TRANSPORT SECTOR PER THREE YEAR PERIODS** (IN %) *



Sources: Czech Statistical Office and Czech Ministry of Transport, CCNR analysis

The explanation for the increasing wage dynamics can be found in the macroeconomic development. A positive development began around 2014/2015, which is shown by macroeconomic and wage data for the Czech Republic. Favourable macroeconomic conditions boosted the country's GDP, thus again positively impacting wages. Economic growth rooted mainly in significant inflows of EU funds which contributed to an average GDP growth of 2.5% between 2010 and 2019 through a strong domestic demand (public investment and private consumption).[28]

[28] *European Commission, European Semester Country Report Czech Republic 2022 (last consulted 21.07.2022)*

The labour market has substantially benefited from the economic growth. The unemployment rate has steadily decreased since the outset of the economic recovery in 2014. It remains one of the lowest in the European Union and has fallen from 5.1% in 2015 to 2.8%[29] in 2021. The level of employment grew from 74.8% in 2015 to 80%[30] in 2021. Further growth in the IWT sector might be dampened due to a tight labour market and increased shortage in labour. Low unemployment levels and shortages in labour supply push wages further up.

[29] Eurostat [une_rt_a]
[30] Eurostat [lfsi_emp_a]

© Platina

GLOSSARY

20XX-1/20XX-Q1: first quarter

20XX-2/20XX-Q2: second quarter

20XX-3/20XX-Q3: third quarter

BIBB: Federal institute for Vocational Education and Training

CBR: Central Office for Motor Vehicle Driver Testing

CESNI: European Committee for Drawing up Standards in the field of Inland Navigation

CESNI/QP: CESNI Working group on professional qualifications

DANUBE COUNTRIES: Austria, Bulgaria, Croatia, Hungary, Romania, Serbia, Slovakia

DIRECTIVE (EU) 2017/2397 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 12 DECEMBER 2017: a directive on the recognition of professional qualifications in inland navigation and repealing Council Directives 91/672/EEC and 96/50/EC

ECDB: European Crew Database

ETF: European Transport Workers' Federation

EU: European Union

EU-REGULATION 2020/473: defines the standards laying down the characteristics and conditions of use of the databases relating to Union certificates of qualification, service books and logbooks issued in accordance with Directive (EU) 2017/2397.

EUROPE: European inland navigation in this report includes two countries that are not members of the European Union, Switzerland and Serbia.

EUROSTAT SBS: EUROSTAT Structural Business Statistics

FTE: full-time equivalents. One FTE corresponds to the workload of one person with a standard full-time contract. As an example, two persons working 20 hours per week each correspond to one FTE if a standard full-time contract comprises 40 hours per week.

IWT: inland waterway transport

IWW: inland waterway

LNG: liquified natural gas

MEDIAN: a statistical indicator, which should not be confounded with the arithmetic average of a series. The median of a data series, in this case of a wage series, is the value which divides the data series (sorted by size) into two equal halves. 50% of the wages are therefore higher than the median wage, and 50% are lower than the median wage. Compared to the arithmetic average, the median is less influenced by extremely high or extremely low wages. It therefore gives a more realistic picture of the 'typical' wage level.

NACE: Statistical Classification of Economic Activities in the European Community

NEW REGULATIONS FOR RHINE NAVIGATION PERSONNEL (RPN) ON 8 NOVEMBER 2022: entry into force on the Rhine of modern regulations governing professional qualifications and crews aboard inland navigation vessels, from Basel to the open sea.

NPRC: Dutch inland navigation corporation which assembles 120 IWT entrepreneurs and has a fleet of 200 vessels.

POSTED WORKER: according to Directive 2018/957 (the Posted Workers Directive), a posted worker is a worker who, for a limited period, carries out his/her work in the territory of a Member State other than the State in which he/she normally works.

RHINE COUNTRIES: Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland

RHINE PATENT: Rhine certification of qualification as a boatmaster

RPN REGULATION: Regulation relating to the Personnel Navigating on the Rhine ("Règlement relatif au Personnel de la Navigation sur le Rhin")

TKM: tonne-kilometre (unit for transport performance which represents volume of goods transported multiplied by transport distance).

TURNOVER: sales volume net of sales taxes

VERTICAL INTEGRATION (IN LOGISTICS AND IN PARTICULAR IN INLAND NAVIGATION): in general, it means that an IWT company does not only transport goods from point A to point B, and therefore has an influence on the backward and forward parts of the logistics chain. Backward vertical integration is present if an inland waterway transport company also owns the freight forwarding process which is quite often done by other (larger) logistics firms. These freight forwarders negotiate volumes and freight rates with large clients from the chemical, petrochemical, agri-food, or steel industry.

NATIONAL STATISTICS OFFICES

Acronym	Original Name	English Name	Country
BFS	Bundesamt für Statistik	Federal Statistical Office	Switzerland
CBS	Centraal Bureau voor de Statistiek	Statistics Netherlands	The Netherlands
CZSO	Český statistický úřad	Czech Statistical Office	Czech Republic
Destatis	Statistisches Bundesamt	Federal Statistical Office	Germany
DZS	Državni Zavod Za Statistiku	Croatian Bureau of Statistics	Croatia
INSEE	Institut National de la Statistique et des Études Économiques	French National Institute of Statistics and Economic Studies	France
ISTAT	Istituto nazionale di statistica	Italian National Institute of Statistics	Italy
KSH	Központi Statisztikai Hivatal	Hungarian Statistical Office	Hungary
NIS	Institutul Național de Statistică	National Institute of Statistics	Romania
Slovstat	Štatistický úrad SR	Statistical Office of the Slovak Republic	Slovakia
РЗС	Republika Srbija Republički zavod za statistiku	Statistical Office of the Republic of Serbia	Serbia
Statistik Austria	Statistik Austria	Statistics Austria	Austria

OTHER SOURCES

Original Name	English Name	Country
Arbeitsmarktservice Österreich (AMS)	Austrian Public Employment Service (AMS)	Austria
Az Innovációs és Technológiai Minisztérium Hajózási Hatósági Főosztálya	Department for Shipping Authority at the Hungarian Ministry for Innovation and Technology	Hungary
Budapest Főváros Kormányhivatala Közlekedési Főosztályának Hajózási Hatósága	Shipping Authority of the Department of Transport of the Governmental Office of the Capital City Budapest	Hungary
Bundesinstitut für Berufsbildung (BIBB)	Federal institute for Vocational Education and Training (BIBB)	Germany
Bundesagentur für Arbeit	German Federal Labour Agency	Germany
CBR	CBR	The Netherlands
CCNR/ZKR/CCR	CCNR	Europe
Centre commun de la sécurité sociale (CCSS)	Joint Social Security Centre (CCSS)	Luxembourg
Corporation Inland Tanker Barge Owners (CITBO)	Corporation Inland Tanker Barge Owners (CITBO)	Belgium
Deutscher Industrie- und Handelskammertag	Association of German Chambers of Commerce and Industry	Germany
European Commission	European Commission	EU

Original Name	English Name	Country
European Transport Workers' Federation (ETF)	European Transport Workers' Federation (ETF)	Europe
EUROSTAT	EUROSTAT	EU
EUROSTAT structural business statistics (SBS)	EUROSTAT structural business statistics (SBS)	EU
IG River Cruise	IG River Cruise	Switzerland
Innovációs és Technológiai Minisztérium	Hungarian Ministry for Innovation and Technology	Hungary
Inspection générale de la sécurité sociale (IGSS)	Joint Social Security Centre (IGSS)	Luxembourg
Institut national d'assurances sociales pour travailleurs indépendants (INASTI)	National Institute for the Social Security of the Self-employed	Belgium
Ministerstvo dopravy	Czech Ministry of Transport	Czech Republic
Ministerstvo dopravy a výstavby Slovenskej republiky	Slovak Ministry of Transport	Slovakia
NPRC	NPRC	The Netherlands
Office national de la sécurité sociale (ONSS)	National Social Security Office (ONSS)	Belgium
Ports mentioned in the report	Ports mentioned in the report	Europe
Изпълнителна агенция "МОРСКА АДМИНИСТРАЦИЯ"	Bulgarian Maritime Administration	Bulgaria
Българска национална агенция по заетостта	Bulgarian National Employment Agency	Bulgaria

BOOKS, JOURNAL ARTICLES AND STUDIES

Original Name	Country
"2022 Country Report – Luxembourg", European Commission, Brussels, 23 May 2022	Europe
Aachener Zeitung, "Flotte der KD Rheinschiffahrt unter Luxemburger Flagge", 2008	Germany
CCNR/European Commission (2020), Inland Navigation in Europe, Annual market observation report	Europe
European Commission, European Semester Country Report Czech Republic 2022 (last consulted 21.07.2022)	Europe
IG RiverCruise – Der Fluss-Kreuzfahrtmarkt 2022	Europe
Inland navigation in Europe, Market observation, 2023 annual report	Europe
Official information and services (Belgium), page on assisting spouse: https://www.belgium.be/en/economy/business/creation/becoming_self_employed/assisting_spouse	Belgium

LIABILITY DISCLAIMER

Use of the knowledge, information or data contained in this document is at the user's own risk. The European Commission, the Central Commission for the Navigation of the Rhine (CCNR) and its Secretariat shall in no way be liable for use of the knowledge, information or data contained in this document or any ensuing consequences.

The facts presented in the study and opinions expressed are those of the authors and do not necessarily also represent the position of the European Commission, its agencies or of the CCNR on the subject in question. This notice does not constitute a formal commitment on the part of the organisations referred to in the report.

The Thematic report of European Inland Navigation is a common project of the CCNR and the European Commission

CONTRIBUTORS

CCNR

Norbert KRIEDEL (Administrator in charge of market observation, author)

Laure ROUX (Administrator in charge of economic issues, author)

Sarah MEISSNER (Project assistant, author)

Denise PELAGATTI (Trainee, author)

Farida BACAR (Trainee, author)

Lucie FAHRNER (Communication officer, graphic designer)

IN PARTNERSHIP WITH

EBU

ESO

ETF

ARTISTIC DIRECTION - CCNR AND PRESS-AGRUM.COM AGENCY (https://www.press-agrum.com)

PICTURES

© Adobe Stock

© Port of Switzerland (p. 8-9, 111)

© Platina (p. 35, 159)

© Lycée Emile Mathis (p. 106)

TRANSLATION

Veronica SCHAUINGER-HORNE (Proofreading English)

Imprint: March 2024

Published by the Central Commission for the Navigation of the Rhine (CCNR)
2, place de la République CS10023 – 67082 STRASBOURG cedex – www.ccr-zkr.org
ISSN : 2519-1101

Please find all our data at:
www.inland-navigation-market.org