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SLOVENIA
Country Market Statement 2019

Slovenian Forestry Institute
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Ministry of Agriculture, Forestry and Food
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1. General economic trends

This Chapter is reproduced from the publication: Autumn forecast of economic trends 2019. Institute of Macroeconomic Analysis and Development (IMAD), 2019.

The autumn forecast, issued by the Institute of Macroeconomic Analysis and Development of the Republic of Slovenia, envisages GDP growth of 2.8% this year and a similar growth in the next two years. Economic growth in the period 2019-2021 will be lower than in the past three years. The slowdown of economic growth in Slovenia will to a large extent be the result of negative contribution of external trade and lower growth in gross capital formation. With the continuation of vigorous growth in the construction segment, investment growth will remain relatively strong. Despite a somewhat slower growth in foreign demand, export growth will strengthen in 2019. In the next two years, total export growth will ease, as will total import growth. Given the latest forecasts from international institutions, economic growth in trading partners will also ease off this year. Due to weak activity in manufacturing on a global level and significantly slower growth of world trade volumes, output in manufacturing and export orders are decreasing in euro area as well, particularly in the German economy. At the same time, the slowdown of growth will also influence the gradual rising of unit labour costs growth, therefore further improvement in export competitiveness is not expected in the next two years. As the easing of import growth will be slower than that of the export owing to relatively robust domestic consumption, the contribution of international trade to GDP growth will be negative.

In the beginning of 2019 private consumption has continued to rise moderately, government investments have also risen in the same manner, but have slowed down significantly during the year compared to the previous year. A significant contribution to further solid growth will come from domestic consumption. Growth in private and government consumption will ease off gradually. Growth of gross fixed capital formation slowed down by 2.6% compared to the previous year and will remain similar in the next two years.

2. Policy measures

In the last five years Slovenian forests have been endangered by extensive overpopulation of spruce bark beetles, which resulted in the Act Regulating Additional Measures for Remedying Damage due to the Overpopulation of Bark Beetles (Official Gazette of the Republic of Slovenia No 14/18), which took effect in March 2018. This Act specifies additional measures for remedying damage due to the overpopulation of bark beetles to help the affected forest owners. The overpopulation of bark beetles, according to the Act Regulating Additional Measures for Remedying Damage due to the Overpopulation of Bark Beetles, is a situation, where more than 400,000 m^3 trees have to be cut down in a single calendar year because of a bark beetle attack and the estimated damage is the same as or greater than the threshold, defined for a natural disaster by regulations, which regulate natural disasters. In August 2019 proposal to amend Act Regulating Additional Measures for Remedying Damage due to the Overpopulation of Bark Beetles was submitted to intersectoral examination (i.e. interministerial coordination), which aims to ensure an even faster and more efficient implementation of sanitary felling and preventive protective measures of elimination and prevention of the spread of bark beetles in forests, to simplify some procedures, as well as to ensure the preservation and strengthening of the biotic balance in forests.

In 2018 and 2019 Slovenian Government adopted several measures for a more efficient forest rehabilitation after natural disasters, i.e. the Decree on measures for the rehabilitation and restoration of forests after windstorm natural disaster pursuant to the Rural Development Programme of the Republic of Slovenia 2014-2020 (Official Gazette of the Republic of Slovenia Nos 10/2019 and 47/2019) and the Decree on measures for the rehabilitation and restoration of forests after the ice storm natural disaster between 30 January and 10 February 2014 pursuant to the Rural Development Programme of the Republic of Slovenia 2014-2020 (Official Gazette of the Republic of Slovenia Nos 71/2018 and 47/2019).

All stated measures were oriented towards mitigating damage in the forests. Image 1 below shows the felling of coniferous trees due to the overpopulation of bark beetles.

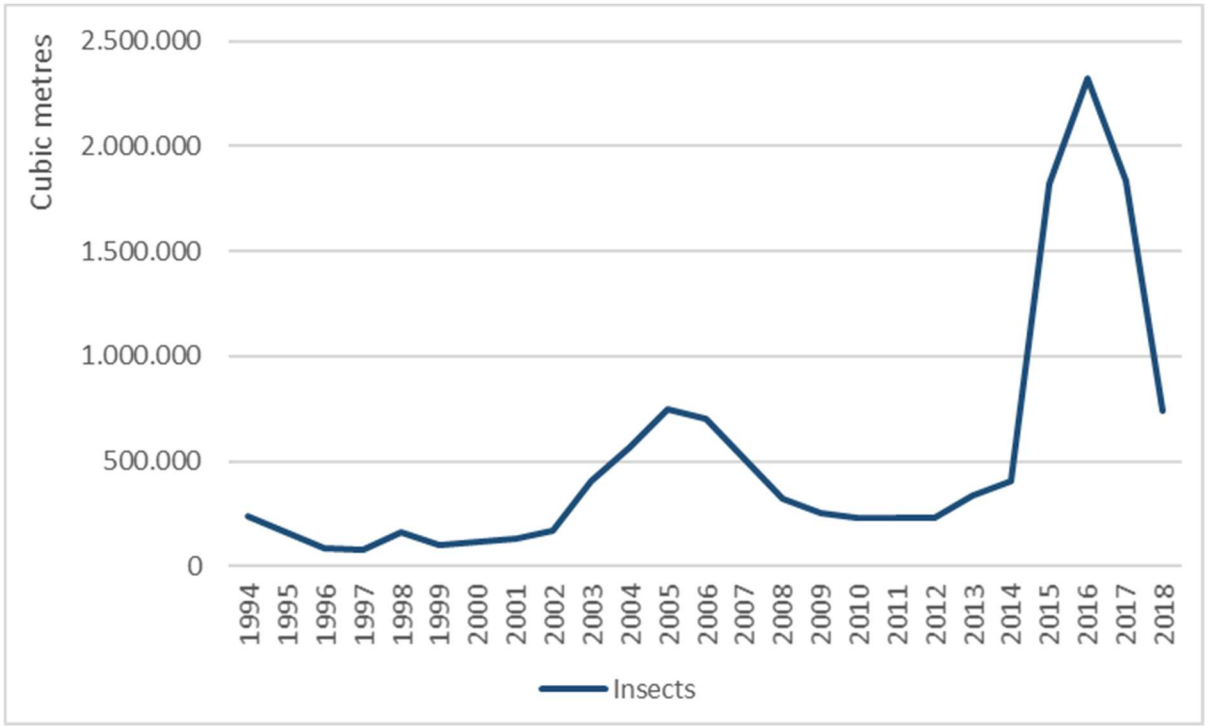

Image 1: The volume of felled coniferous trees, attacked by insects in the period 1994-2018 (source: SFS, processing SFI-DFTE)

The current developments, connected to climate change and rehabilitation following natural disasters in forests, divisions between forest visitors and their owners, as well as the search for a broader sustainable balance between many interests in the forest are only the main challenges among several that forest policy makers are faced with. In Spring 2018, the Ministry of Agriculture, Forestry and Food (MAFF) prepared an extensive overview of the implementation of the Operational programme for implementation of National Forest Programme 2017-2021 (OP NFP), which represents a link between the basic strategy document National Forest Programme (Official Gazette of the Republic of Slovenia No 111/07) and documents, which form the foundation for planning, implementation and monitoring of forest policy measures on lower levels. The development began of a so-called „forest dialogue“, which includes all representative government and non-government stakeholders. The „forest dialogue“, which is an informal process, developed under MAFF, confirms the strong commitment to the common vision and future of the Slovenian forest policy as well as to the sustainable, close-to-nature and multifunctional forest management. MAFF is preparing changes and amendments to the OP NFP on these bases, which are to be adopted by the Slovenian government by the end of 2019.

In July 2018 the Regulation on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry (LULUCF) entered into force (Official Gazette of the Republic of Slovenia No 156/18). Regulation includes land by size and purpose and specifies rules of accounting for sinks and greenhouse gas emissions. Like other member states Republic of Slovenia will also contribute from the LULUCF sector. An important objective here is that the stated sector in the period from 2021 to 2025 and from 2026 to 2030 produces no net emissions, i.e. that emissions do not exceed sinks. In 2018 Slovenia prepared the National plan for the accounting for emissions and sinks of greenhouse gases in forestry with reference values from forest management, which was submitted to the European Commission on 31 December 2018. The evaluation of drafts, presenting of comments, negotiations and corrections to the final product are taking place in 2019.

In August 2018, the Ministry of Infrastructure resubmitted the proposal for a Resolution on the National Energy Concept for public hearing to ensure compliance with the Energy Act (EZ-1). This is a strategy document, which will concern a wide spectrum of stakeholders - active participants in the energy sector or consumers in terms of industry and citizens. Document specifies guidelines with ambitious objectives in different areas of energy policy until the year 2030 or 2050. It does not include specific projects, but rather presents strategic guidelines and sets up a policy framework, in which the path is open to business initiatives of companies and individuals. In April 2019, the Ministry of Infrastructure submitted the proposal for regulation Act Amending the Energy Act, which is to enter into force in the second half of the year. In August 2019, the amended draft of the action strategy paper „Comprehensive National Climate and Energy Plan (NEPN)“ was prepared, ordered by the Ministry of Infrastructure and coordinated by the Energy Efficiency Centre of the Jožef Stefan Institute. For the period until the year 2030 (with an outlook until the year 2040), NEPN specifies objectives, policies and measures in five dimensions of energy union, i.e.: 1) decarbonisation (GHG and RES emissions); 2) energy efficiency; 3) energy security; 4) internal market, and 5) research, innovation and competitiveness. NEPN is an important document, as it also foresees an increase in the use of wood for energy purposes.

In December 2017 the document Action plan for energy efficiency for the period 2017-2020 (AN-URE 2020) was adopted. In accordance with the requirements of the Directive 2012/27/EU on energy efficiency, Slovenia has adopted a national objective of improving the energy efficiency by 20% until 2020. The objective is that Slovenia's 2020 primary energy consumption be no more than 7.125 Mtoe, which means that it must not, given the baseline year 2012, rise by more than 2%. The existing building stock represents the sector with the highest potential to achieve energy savings. To achieve the objective, one quarter of it will have to undergo an energy-related renovation until 2020, which means approx. 22 million m^2 of building area. Energy use in buildings will be reduced by almost 10% with this. Measures in the plan are distributed by sectors: households, public sector, economy and transport. Successful implementation of AN URE 2020 is instrumental also for the achievement of objectives regarding the minimization of GHG emissions and the achievement of 25% target share of renewable energy sources (RES) in the balance of gross end-use energy consumption by the year 2020, as energy efficiency is among the most cost-effective measures to achieve these objectives. It also contributes significantly to the objectives regarding air quality.

The Rural Development Programme 2014-2020 enables the implementation of measures which support the development of wood industry and forestry, for example:

- Sub-measure 6.4 - Support for investments in the establishment and development of non-agricultural activities.
- Sub-measure 8.6 - Investments in forestry technologies and in processing, mobilisation and marketing of forest products. In the context of this sub-measure two operations are conducted, i.e. investments in the purchase of new mechanisation, and logging and harvesting equipment, as well as investments in operations prior to industrial processing.
- Sub-measure 9.1 - Setting up producers' groups and organisations in the agricultural and forestry sector. This sub-measure encourages the setting up and operation of producers' groups in the agricultural and forestry sector, where these groups are set up for the purpose of joint action on the market.

The public tender for co-financing of district heating systems based on energy from renewable sources for 2017-2020 enables financial incentives for investments into new district heating systems based on energy from renewable sources (DH RES) and DH RES micro systems. Investors who are broadening existing DH RES systems or installing new boilers run on wood biomass as an energy source for the existing DH system (hereafter: operations) are also entitled to financial incentives within the following context:

- Installation of DH RES systems with boiler capacity up to 10 MW or installation of DH RES micro systems with boiler capacity up to 1 MW;
- Expansion of existing DH RES system network with or without the installation of additional boilers run on wood biomass;

- If the use of solar energy as an additional energy source contributes to improved economy of the whole DH RES system, the solar system for sanitary hot water can also be included in the operations.

In the framework of smart specialisation, the government has supported STRATEGIC RESEARCH & INNOVATION PARTNERSHIPS (SRIP) - NETWORKS FOR THE TRANSITION INTO CIRCULAR ECONOMY. The key goal of SRIP lies within the development of breakthrough technological fields, product directions, high-tech products and services in the value chains for the penetration of global markets while at the same time bolstering human resources, innovation and entrepreneurship, transfer of knowledge and technologies between the business subjects and the SRIP members, with the potential for investments capabilities that work inside the focus fields S4. The vision of the *SRIP – Circular economy* is to sustainably increase the efficiency and competitiveness of the domestic economy in the transition into circular economy.

For the operation of *SRIP – Circular economy* it is important that Slovenia has joined the Initiative „Circular Economy 100 regions" of the Ellen MacArthur Foundation, which is one of the world's leading organisations in the field of circular economy. Within the „Circular Economy 100 regions", trainings of multipliers are performed in the organisation of the Association of Municipalities and towns of Slovenia (SOS), SPIRIT and the Chamber of Commerce and Industry of Slovenia. The SRIP action plan was prepared in 2017 and is currently in the reconstruction phase.

The SRIP defines four focus fields, closely linked to wood, i.e:

• The focus field *Biomass and alternative raw materials* is centered on the sustainable mobilization of biomass, lingo-cellulose, bio-refineries for the isolation of polymer biomass building block, extracts and bio-refineries that produce alternative raw materials for the developments of innovative (bio)products.

• The focus field *Secondary raw materials* centers on the processing of industrial and construction waste, processing of biological waste into value products, the circular economy of material flow for electronic waste and the technology for the treatment of waste water as well as acquisition of energy from these sources.

• The focus field *Functional materials* centers on sustainable composites and advanced packing/materials.

• The focus field *Processes and technology* centers around bio-based green chemicals and materials, production processes and polymer processing, biotechnological compounds, the continued production of compounds and new production equipment with management.

3. Bioeconomy in Slovenia

Given natural conditions in Slovenia, lignocellulosic biomass is represented in a great extent, as it's accessibility and affordability are key factors in the transition into bioeconomy. Despite a great potential in raw material, local distribution makes it harder to collect it. Quality and price comparability are naturally also important, as they represent an additional obstacle, when extracting resources and guaranteeing a sustainable supply. The introduction of bioeconomy is also greatly influenced by the social context, as it is defined, on the one hand, by policies on national and international levels and, on the other hand, by users of products in the bioeconomy.

Social context

On national level in Slovenia, bioeconomy is not uniformly defined and recognised as an independent area. As a result, it is scattered in different industries in strategy and government documents as well. On the level of policy in Slovenia, bioeconomy is defined by the strategy document from 2018 „ Roadmap towards the circular economy in Slovenia", which stresses the systemic transition from linear into circular model of economy, where industry (economy), policy makers and society (citizens) have an important role. Document for the development of circular economy emphasises four areas: (1) food

system, (2) forestry value chain, (3) manufacturing, and (4) mobility. „Slovenia's smart specialisation strategy“, prepared by the Government Office of the Republic of Slovenia for Development and European Cohesion Policy, states among priorities three focus areas of sustainable use of resources; i.e. (1) networks for the transition into circular economy, (2) sustainable production of food, (3) smart buildings and homes, including wood chain. In the „Slovenian Development Strategy 2030“ the Government of the Republic of Slovenia summarises the concepts of bioeconomy in two of the 12 objectives; i.e. (1) low carbon circular economy - with the objective to increase the share of renewable energy sources in end-use energy consumption - and (2) sustainable management of natural resources - with the objective to increase the share of agricultural land used by total area, to improve the quality of watercourses and reduce the ecological footprint. Despite a fragmented strategy of introduction of bioeconomy concepts in Slovenia, the mentioned documents for the forestry and wood processing industry foresee an increase of sustainable use of woody biomass and an increase of added value of the area considered.

Marketing of new products of biological origin and the preparedness of users of bioeconomy products to pay for them are the two factors that influence the dynamics of development of bioeconomy besides the mentioned policies. Compared to conventional products, the bioeconomy products typically have a higher price on the market due to the development of new technologies and establishing of new systems. On the level of Slovenia, the situation in the area of preparedness to pay and consumption of bioeconomy products and biobased products is poorly researched. Focus groups research emphasises the inconsistency of labelling for biobased products on the market, which also causes misunderstandings and a lack of consumer confidence. What's more, consumers support the production of biobased products, but are not prepared to pay more for them.

The significance of the use of wood and woody biomass in the structure of added value of the bioeconomy in Slovenia

Analysis of the state of bioeconomy in the last two decades (between 2000 and 2017) in the area of use of wood and woody biomass has shown that forestry, wood processing and furniture industry, and paper industry represent 33% or EUR 739.5 million of annual gross added value.

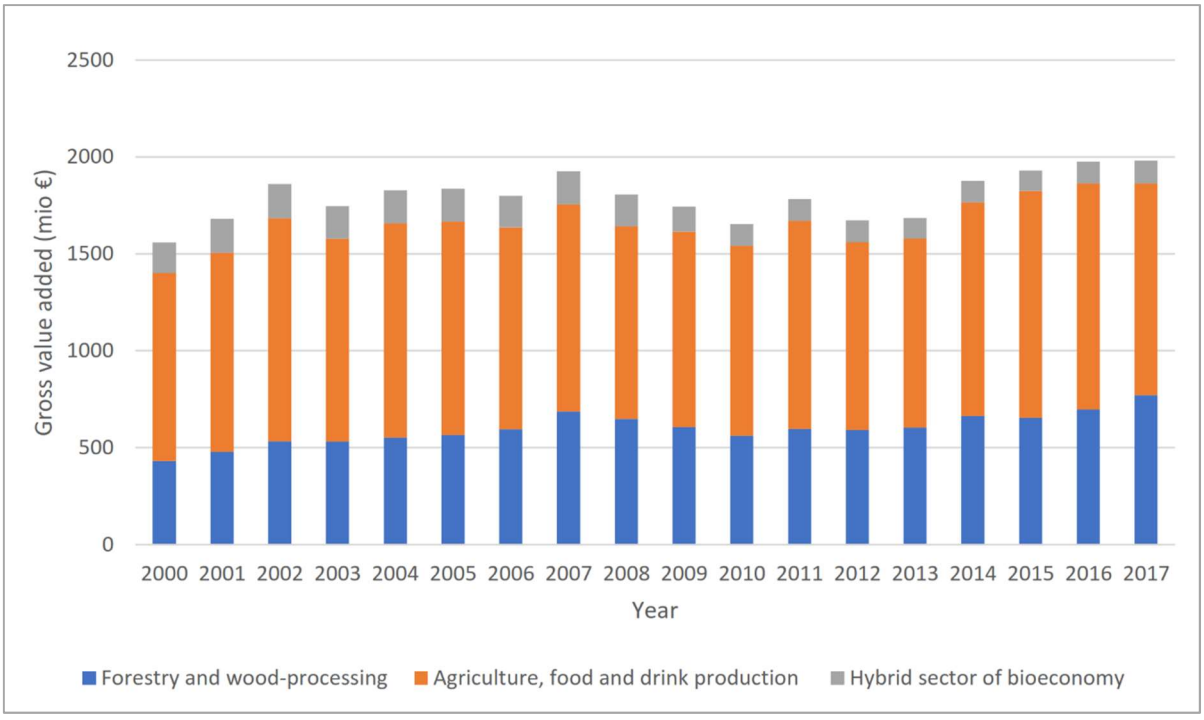

Image 2: Added value, which is represented in the Slovenian bioeconomy by two main sectors, i.e. „forestry and wood processing“, „agriculture, food and drink production“ as well as hybrid sectors, which partially belong to bioeconomy (SURS, 2019).

A potential resource for starting the biorefinery processing and production of new biobased products is lower quality wood, i.e. *firewood*, *wood chips, particles and wood residues*. Production of these woody biomass categories in 2018 amounted to 2,500,000 m^3.

Bioeconomy in different sectors in Slovenia

Forestry

Added value in forestry between years 2000 and 2017 was on average 27% or €166.5 million of annual added value. During the period considered, the significance of forestry has been growing constantly and has in the year 2017 already amounted to 36% or €271.3 million of total added value. The number of employees within forestry has, despite the increase of the added value, in the first decade of the new millennium fallen from 2,400 to 1,600, but in the second decade the downward trend has stopped. The number of employees in companies and at sole proprietors is around 1.500 on an annual basis.

Wood processing and furniture industry

Wood processing and furniture industry is a so-called „hybrid sector" in the area of wood use. The European Commission acknowledges a 65% biobased production to the sector considered given the added value. Wood processing and furniture industry is characterised by the highest added value in the area of wood use; i.e. 44% of the average gross added value in the area of use of wood and woody biomass in the period between years 2000 and 2017. The trend of the number of employees in the area of wood processing and furniture industry is on average negative. In the year 2000 the number of employees was 23,200 and has until year 2015 fallen to 12,300, since then the number has until year 2017 risen to 13,000.

Paper industry

Within the added value of the area considered, the paper sector represents on average 29% (€169 million) of annual gross added value. The contribution to the added value of the use of wood has been falling in the last two decades. In the year 2000 the contribution of the paper sector was 31%, whereas in the year 2017 it was 25%. The number of employees in the paper industry also shows a negative trend. In the year 2000, 10,700 workers were employed, the lowest number was in 2013 (3,900), whereas in the year 2017 the number of employees was 4,300.

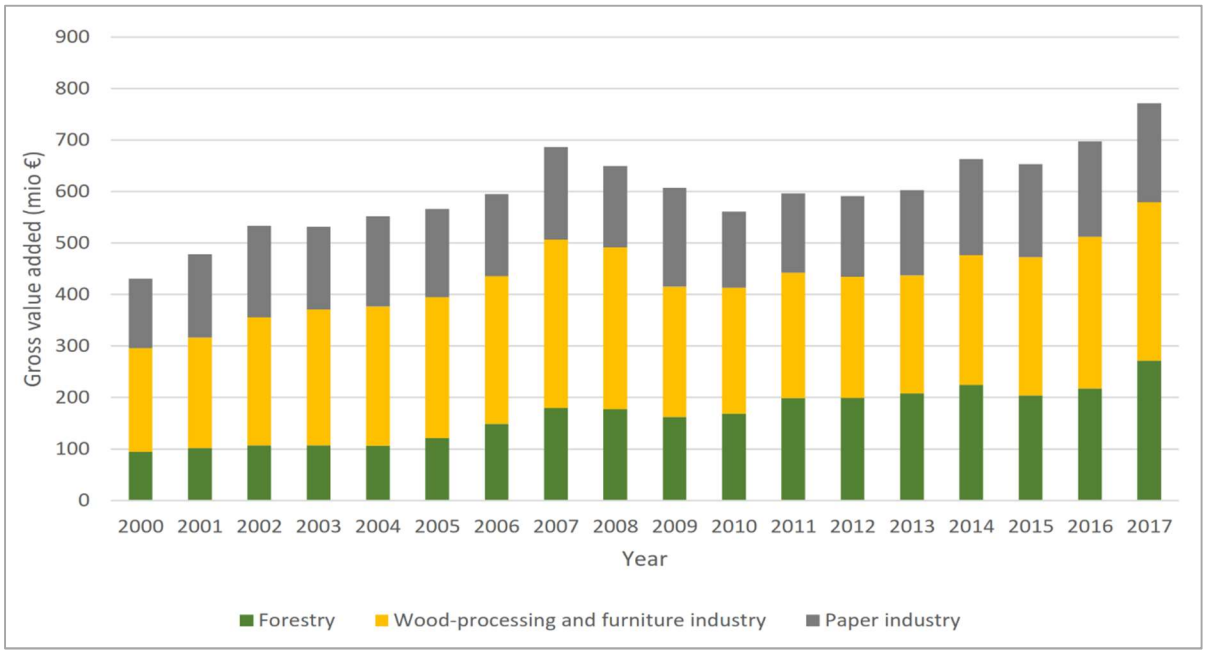

Image 3: The contribution of forestry, wood processing and furniture industry, and paper industry to the gross added value of the use of wood and woody biomass in the bioeconomy in the last two decades (SURS, 2019).

The possibilities of further development of the bioeconomy in selected sectors

The bioeconomy has a development potential in the area of the replacement of products of the fossil fuel industry with biobased products, primarily through the development of chemical digestion of lignocellulosic biomass. With the implementation of modern chemical wood processing, changes in the market of lower quality wood and wood residues are to be expected primarily as well as investments in biorefinery installations.

Paper industry and pulp production

In the past decades, the technological development was oriented primarily in the direction of efficiency of existing technological processes, whereas today the development in the industry of the production of paper and pulp (PPI), through bioeconomy, implements the possibility of an upgrade of technological process and the increase of the added value of the sector through biorefineries. PPI development through upgrades into biorefinery installations enables the possibility of an increase of the added value and enables also the production of other products besides the production of paper, a cascading use of wood and a decrease of carbon footprint.

Construction

The advantage of the use of wood as a building material in construction is, on the one hand, connected to the carbon sequestration and, on the other hand, the intention is to avoid using materials, which are a product of the industry, tied to the fossil fuels. In addition, the possibility of the use of wood as a building material has also increased the development of technological processes of wood processing.

Textile industry

The production of textile from cellulose fibres is tied to the acquisition of cellulose and nanocellulose. For the future, the production of cellulose for the purpose of the production of textile, is mentioned as an upgrade of the paper industry, which has been facing a decrease of paper production in the last decades due to digitalisation. Given the global nature of the industry, great negative impacts on the environment are also connected to the textile production, which are dependent on the type of fibre. The production of cotton and synthetic fibres (primarily polyester) accounts for between 2 and 9 tons of emissions of CO_2, whereas the emissions of the production of cellulose fibres from lignocellulosic biomass are 1 ton of CO_2 for a ton of produced fibres. As a result, the increase of the share of use of lignocellulosic biomass and a greater added value of bioeconomy in the textile industry can be expected.

4. Market factors

Data sources: IMAD, SURS, SFS and SFI

Economic growth, which after having peaked in 2017 (4.9%) started to slow down last year (4.1%), has further slowed down in the first half of the year (2.9%). Consumption of households has continued to increase moderately due to the still rising employment as well as a higher growth in wages and social transfers. The strong growth of investment in civil-engineering works has continued, which is also a result of stronger government investments; furthermore, the investments in machinery and equipment have also risen somewhat. Their growth has significantly eased at a still high capacity utilisation and favourable financing conditions, which is attributed to the easing of export orders, an increased uncertainty in the international context and worsened expectations of companies. Together with the negative contribution of changes in inventories this is a significant factor of this years' deceleration of GDP growth. The growth of a major part of the exports has also eased, which reflects a slower growth in foreign demand. Total export growth has risen in the first half of the year, contributed significantly by the accelerated export growth of pharmaceutical and medical devices, which mostly originated from import (and not as much from domestic production). Enhanced import of these products together with a robust growth of domestic consumption has influenced the accelerated import growth. The contribution of international trade balance to the GDP growth was therefore slightly negative. The economic growth has, in the first half of the year, despite the ease off, significantly surpassed the EU average (3.1%

compared to 1.5%, seasonally adjusted) and was slightly above the long-term average (2.7%) (IMAD 2019).

In mid-December of 2017 one fifth of Slovenian forests was affected by a strong windstorm, which damaged 2.2 million m^3 of woody mass, predominantly spruce. The total value of planned work for the rehabilitation of forests was €7 million. Less than a year later, at the end of October 2018, the forests were yet again affected by a windstorm, but the extent of damages was one tenth of the windfall of 2017. Due to the increasingly frequent and extensive natural disasters in forests, for the past six consecutive years, the rehabilitation of damaged forests has been the priority activity of SFS, forestry sector, forest owners and the contractors for forestry works.

The factor, which affected the market in 2018, still included the Croatia's measure in June 2017 to limit (prohibit) the export of unprocessed oak wood for two years (until June 2019). Prohibition was a result of an adopted regulation on phytosanitary measures to prevent the spread of the oak lace bug *Corythucha arcuata* (Say, 1832), which was published on 1 June 2017. The measure intervened in the oak wood market and has affected the business of Slovenian companies, which import oak wood from Croatia (round wood, lower quality wood, wood chips, etc.) and/or perform services of wood processing for customers, who buy the wood in Croatia. In July 2019 the unprocessed oak wood market was released again.

The wood processing industry (NACE C16) is continuing its positive trends, and the production index increased by 10.1% in the first seven months compared to the same period in the previous year. Sales revenues increased by 9.8% in the first seven months compared to the same period in the previous year: 9.4% on the domestic market and 10.1% in export.

The positive lever in the use of wood products in construction are Eco Fund grants and credits for efficient energy consumption (construction of low energy buildings, energy adaptation and renovation of buildings, builders' joinery, insulation of buildings...), and green public procurements, which continuously promote the construction of public wood buildings.

5. Developments in the wood products market

Data sources: SURS, IMAD, CCIS: Wood Processing and Furniture Association, CCIS: Paper and Paper Converting Industry, SFI; recalculations, analysis and interpretation of SFI

a) Roundwood

2018

In 2018 the volume of production of forest wood assortments has increased compared to the previous year (+12%) due to the continuation of sanitation of damage caused by bark beetles and the two windstorms in forests at the end of 2017 and in October 2018. The production was higher in most assortments by tree species compared to 2017, except for non-coniferous roundwood as well as non-coniferous split and round pulpwood.

The production of forest wood assortments amounted to 5.1 million m^3 net. The scope of conifer roundwood amounted to 3.5 million m^3 (+19%), and that of deciduous trees to 1.7 million m^3, which is 0.5% less than in the previous year. Acquisitions of forest wood assortments from private forests have decreased in conifers by 3% compared to 2017, on the other hand, acquisitions of deciduous trees have increased by 8%. For deciduous trees, acquisitions have increased the most in firewood (+50%). Total roundwood exports in 2018 have remained almost the same as in 2017 and amounted to 2,6 million m^3, whereas roundwood imports have risen to 524,000 m^3 (+6%), whereby the foreign trade surplus for all forest wood assortments has consequently fallen minimally by 1% (2.1 million m^3). The largest surplus was recorded in conifer logs (1.4 million m^3).

2019

This year, the production of forest wood assortments was also significantly affected by the sanitation of damage caused by bark beetles, which have overpopulated predominantly due to the damages in the forests, caused by the windstorms of 2017 and 2018. This year, damage caused by bark beetles is at higher levels in comparison to the same period in the previous year. Due to priority rehabilitation of damaged coniferous trees, the felling of deciduous trees was lower, which caused a lack of beech roundwood in Slovenian sawmill companies. Additionally, there is a large demand for lower quality wood of deciduous trees by fibreboard producers domestically and in neighbouring countries.

The amount of acquisitions from private forests has, in the first seven months of this year compared to the same period in the previous year, in the category of industrial non-coniferous roundwood risen by 37%, and in the coniferous category fallen by 20%. In the first seven months of this year, the acquisitions of conifer logs were predominant, although they have decreased by 22% compared to the same period last year. Next was conifer pulpwood (round and split), which has also decreased in comparison to the same period last year (-16%). In the mentioned period, the acquisitions of category other industrial non-coniferous roundwood (+ 64%), non-coniferous logs (+39%) and firewood (+32%) have increased the most compared to the same period last year.

Data for foreign trade of industrial roundwood for the first half of this year show a decreased export of coniferous trees and an increased export of deciduous trees in 2019 compared to the previous year. Given the state of the foreign trade in the first half of this year, import and export of firewood will decrease.

b) Wood biomass for energy

The largest consumer of wood fuels are households using predominantly firewood, which they acquire from their own forests or the market. Households use more than 1.6 million tons of wood fuel, predominantly logs, followed by pellets, chips and finally briquettes. Next is the industry, which needs wood as an energy product to produce process heat and for heating (SURS 2018). The use of wood in the larger energy systems (power plants, systems for co-generation of electricity and heat, and larger heating plants) is still relatively low (230,000 tons). We have no data on the use of wood in public buildings and in the service sector.

Monitoring of wood production is practically impossible, as the number of small providers (forest owners) is too big and the production is scattered across whole Slovenia. Additional problem is a great self-supply of households. Most households, which used firewood for heating (56%), got the firewood from their own forest or the forest of relatives. Which means that more than half of households, which use firewood for heating, are self-suppliant.

The price of firewood with humidity levels of approx. 20% and lengths between 25 and 33 cm amounted to €163 at the end of the heating season 2018/2019, which is 3% more compared to the beginning of the heating season. The Slovenian Forestry Institute monitors wood fuel prices and regularly publishes them at http://wcm.gozdis.si/cene-lesnih-goriv.

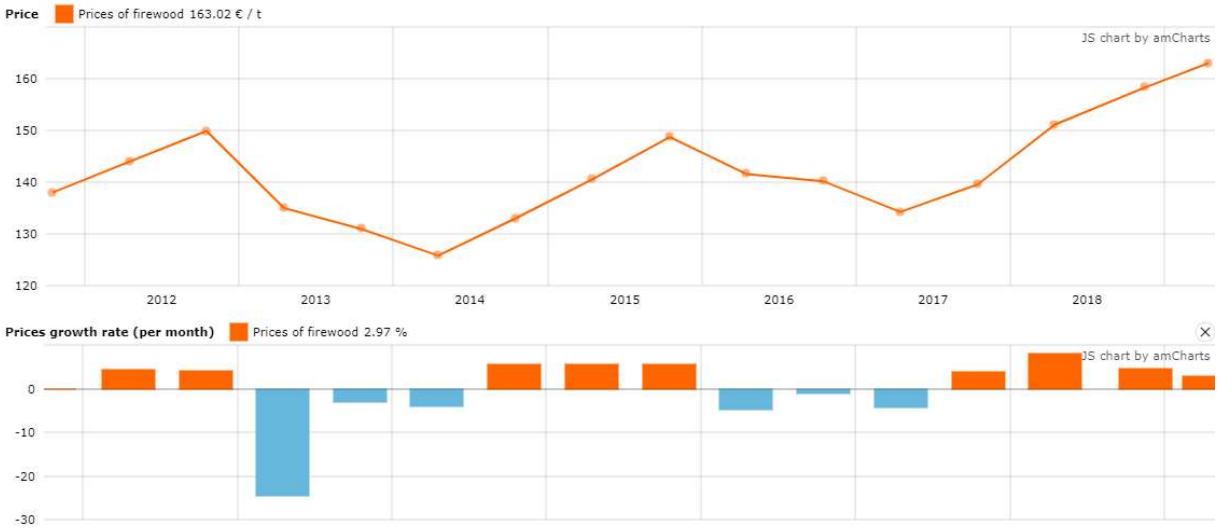

Image 4: The prices of billets (in EUR/t with VAT) between 2011 and 2019.

According to the last collection of data on the production of pellets in Slovenia, which was conducted by the Slovenian Forestry Institute in May 2019, there are currently 20 producers of pellets in Slovenia. None of them produce more than 50,000 tons of pellets, but three of them have production of 15,000-50,000 tons. The production of pellets in Slovenia amounted to 118,000 tons in 2018. Therefore, the production in the last three years has been somewhat constant and is dependant predominantly on the available raw material. Considering the collected data on the production as well as export and import of pellets, the balance consumption of pellets exceeded 150,000 tons. Foreign trade with pellets has returned to the normal state in 2018, compared to the significant changes in the previous year, when export amounts were greater than import amounts, and so Slovenia was net importer of pellets in 2018. The main consumers of wood pellets are households, followed by larger public buildings and other users.

Compared to the year before, in 2018 the export of pellets has decreased by more than 2,000 tons and was 188,500 tons, which is still a high number. The predominant part of Slovenian pellet production is exported to Italy (92%). The volume of pellets imported into Slovenia was significantly higher in 2018, by almost 50,000 tons (26%) compared to the previous year. Most pellets are imported from Romania (26%), followed by Bosnia and Herzegovina (14%) and Austria (14%).

Pellets as the most expensive form of wood biomass are 38% cheaper (EUR 60/MWh) than heating oil, whose price fluctuated around EUR 96/MWh in the first half of 2018. The difference between the prices of heating oil and pellets increased by 4% compared to the previous year. A ton of pellets, packed in 15 kg bags, cost EUR 280 on average after the end of the heating season 2017/2018. Compared to the same period in the previous year, prices have increased by four percent.

The quality of wood pellets, available on the Slovenian market, improved significantly compared to the previous year, when comparing, according to an independent analysis of pellet quality on the Slovenian market, the share of pellets classified as A1 (60% of samples) and A2 (24%). In 2015 still, the share of pellet samples belonging to the A1 quality class only amounted to 24% and in the analysis of 2018, it amounted to 68%.

Wood chips are predominantly used for energy purposes, and the Thermal Power Plant Ljubljana is by far the largest consumer with an annual consumption of over 100,000 tons. The consumption of wood chips in the production of wood products (fibreboards, pulp, chemicals) amounts to less than 10% of the total consumption in Slovenia. Wood chips manufacturers are technologically well equipped. In the first half of 2018 there were more than 200 wood chippers in Slovenia, 41 of which can achieve a production capacity between 100-200 nm^3/h and 11 of which can achieve a production capacity above 200 nm^3/h. Yearly production scope remains at a high level due to the sanitation following the damage caused natural disaster. In 2018 Slovenia was a net exporter of conifer wood chips and a net importer of deciduous wood chips. In wood chips import, deciduous wood chips prevailed (62%), and in export, conifer wood chips held the greatest share (77%) in 2018. Last year, wood chips export amounted to 420,000 tons, while import amounted to 112,000 tons. In 2018, wood chips were predominantly imported from Croatia (80%) and exported primarily to Austria (54%) and Italy (35%).

The price for best-selling wood chips with humidity approx. 30% and particle size of approx. 31 mm averaged at EUR 75/t at the end of the heating season 2018/2019, which is approximately 3% less compared to same period last year.

c) Certified wood products

263,000 ha of forests are certified by the FSC system, which represents more than 22% of the complete forest area in Slovenia, where these are predominantly national forests (share of 89%).

The area according to the system PEFC for certified forests is increasing and now encompasses 292,200 ha. Since 2017 this area has increased significantly, as the company *Slovenski državni gozdovi d.o.o.* With the total area of certified forest of 231,500 ha was included in the regional certification scheme PEFC.

Companies use the FSC and PEFC certificates for tracking wood predominantly as a marketing mechanism for export markets and compliance with green public procurement policies. The number of companies with the FSC certificate for tracking certified wood (CoC) is currently 238 and the number of companies with the PEFC certificate for tracking certified wood (CoC) is 62.

d) Value-added wood products

The Slovenian furniture industry produced net sales revenues in the amount of EUR 366 million in 2018, which is 6% more compared to 2017. The share in the net sales revenues structure in foreign markets for the furniture industry NACE C31 amounted to 43% last year. Foreign market sales recorded an increase of 3.4% last year. The most intensive destinations for furniture exports are Germany, Italy and Austria. The imports of furniture in Slovenia in 2018 were also predominantly from Italy, Germany and Austria.

The furniture industry production index (the entire furniture industry in NACE C31), which also includes the production of wooden furniture, increased by 2.9% in the first seven months of this year compared to the same period in the previous year. The net sales revenues within the comparative periods increased by 3.5%, with 3.6% on the domestic and 3.3% on foreign markets compared to the same period in the previous year.

e) Sawn softwood

Slovenian sawmills maintain a high level of processing, which is a consequence of increased log quantities in the market due to forest rehabilitation following the windstorm in 2018 and bark beetle gradations in 2018 and 2019 as well as market surpluses and subsequent lower log prices.

The sawn softwood industry in Slovenia is still hindered by the unfavourable structure of sawmills in size and technological equipment, but changes are expected in this area, as several investments are underway into technological modernisation and the increase of capacity of existing sawmills, as well as investments into new sawmills.

f) Sawn hardwood

Sawn hardwood production in Slovenia in the year 2018 is on the same level as the year before. Due to forest rehabilitation, there was a lack of supply of non-coniferous logs in the sawmills this year as well. Compared to 2018, when positive movements were noted on the European sawn hardwood market, a harder financial year is expected for the sawmill industry in Europe in 2019. Sawn deciduous tree wood export and import in Slovenia in 2018 were much greater than in the year before; export increased by 50% and import by 28%. It is estimated that this year, the volume of production will be similar, export growth will slow down somewhat, whereas import is estimated to further increase.

The quantities and values recorded in the production, the import and export of sawn wood from tropical tree species are negligible. A similarly low level of sawn wood from tropical trees foreign trade is foreseen for this year.

g) Wood-based panels (including veneer)

The production of all types of wood-based panels (including veneer) increased by 2% in 2018 and their consumption increased by 9%, which reflects the continuation of a favourable trend in residential buildings construction and construction in general. For 2019, an even greater volume of production is estimated (approx. +4%), while the consumption will decrease on the account of increased export of some types of wood-based panels.

In 2017, 187,000 m^3 of particle boards (including OBS boards) were used in the manufacture of furniture and in construction, which amounts to an 8% increase compared to the previous year. A slight increase in the consumption of particle boards is expected in 2019 and 2020 mainly as a result of the increasing use of OBS boards. Particle boards originate entirely from imports, as the last remaining manufacturer of particle boards in Slovenia filed for bankruptcy at the end of 2015. A new investor is expected to re-launch the production in 2021.

The consumption of fibreboards increased in 2018 by 62% compared to the year 2017 and is again at the similar level as in previous years except for 2017. For 2019 a decrease in consumption in this product category is estimated again, due to the similar volume of production and considerably increased export amounts.

Production of veneer decreased slightly in 2018 compared to the previous year (-18%). The best part of sliced veneer manufacture is performed as a service for customers within the EU.

Plywood panel production is dominated by tri-layer shuttering composite conifer panels. Most of manufactured products are exported. We estimate that favourable manufacture and export results, which are a result of positive trends in the European construction sector, will continue also in 2019 and 2020. We estimate that that the production of wood products category shall increase by more than 30% by 2020.

h) Pulp and paper

The scope of mechanical pulp production decreased by 3% in 2018 compared to the previous year. In 2018, the import of mechanical pulp represented 5% of the total import of all types of pulp, while the export represented 53%. Pulp export is negligible as the production in Slovenia is entirely integrated.

According to CCIS data, the whole Manufacture of paper and paper products industry (C 17) produced 0.73 million ton of products in 2018, which is a 2% decrease from 2017. Export and predominantly import have increased. In the first seven months of 2019, the C 17 industry recorded a -1% decrease in the industrial production index compared to the same period in 2018. Sales revenues in C 17 also decreased by -1.1% in the first seven months of this year.

i) Innovative wood products

2018 Silver National Innovation Award, awarded each year by the Chamber of Commerce and Industry of Slovenia, was awarded to the company Ledinek Engineering, d. o. o. for their product UNIPRESS - a press for pressing and gluing of wood strips into strip panels of requested widths with the possibility of in-between openings without the ejection of wood strips. The innovation concerns the field of machinery for working wood to produce of wooden houses. The UNIPRESS enables the longitudinal gluing of strips of different lengths into strip panels of requested widths as well as the creation of openings (for windows, doors) with wood savings. The innovative construction of the press enables a continuous production and pressing of wood strips into panels of big dimensions. With this press it is possible to design in-between openings during the process of wood pressing. It represents a new and fresh approach, enabling a greater utilisation of wood - the input raw material - and thus less waste material.

2018 Silver Innovation Award in Pomurje region was awarded to the company Cipot Boštjan s.p. for their product electric wooden blinds. Electric wooden blinds are made of natural wood and are made to measure. The fitted electric motor enables precise shading with the opening and closing of wooden strips. In the event of a power failure, the blinds can also be moved manually.

2018 Silver Innovation Award in Gorenjska region was awarded to the company INT vrata d.o.o. for their innovation, i.e. hidden wooden gates aligned with the façade. The P 621 model has a perfected minimalistic design. At first glance the gates are not visible. The wooden battens on the façade continuously flow along the gate. The elegant appearance is continued on the inside, where the door frame is hidden in the wall. As a standard, a patented anti-curving system is built-in, which enables the manufacture of doors to the height of tree meters. The innovative attachment of battens prevents the curving of the massive wood. LED lighting and fingerprint unlocking are possible.

j) Residential construction and construction

The value of construction work increased in 2018 by 29% compared to the previous year, of which the biggest increase was in the construction activity type of reconstruction and the change of use of buildings (+57%). The biggest value of construction work, performed in 2018, is represented by new buildings. The value of construction work increased by 35% in construction of buildings, and by 29% in construction of residential buildings, compared to 2017. The biggest value of construction work, performed in 2018 in the category of residential buildings, is represented by new buildings (58%).

The value of construction work increased in the first half of this year by 14.4% compared to the same period in the previous year. In construction of buildings, the value of construction work increased by 11.9% and the value of civil engineering by 15.1%. Growth of residential investments will be boosted this year and the scope of it is expected to increase from the somewhat low level. The decreasing trend in the construction of residential buildings came to an end in 2015 and has steadily risen from 2016 onwards - with the number of completed residential buildings increasing by 7.6% in 2018 compared to the previous year, although the number of finished residential buildings has remained on the same level as in 2017. Positive trends and an increase in construction of private and public non-residential buildings and objects are expected this year also, while residential buildings construction shall increase even faster than in the previous year.

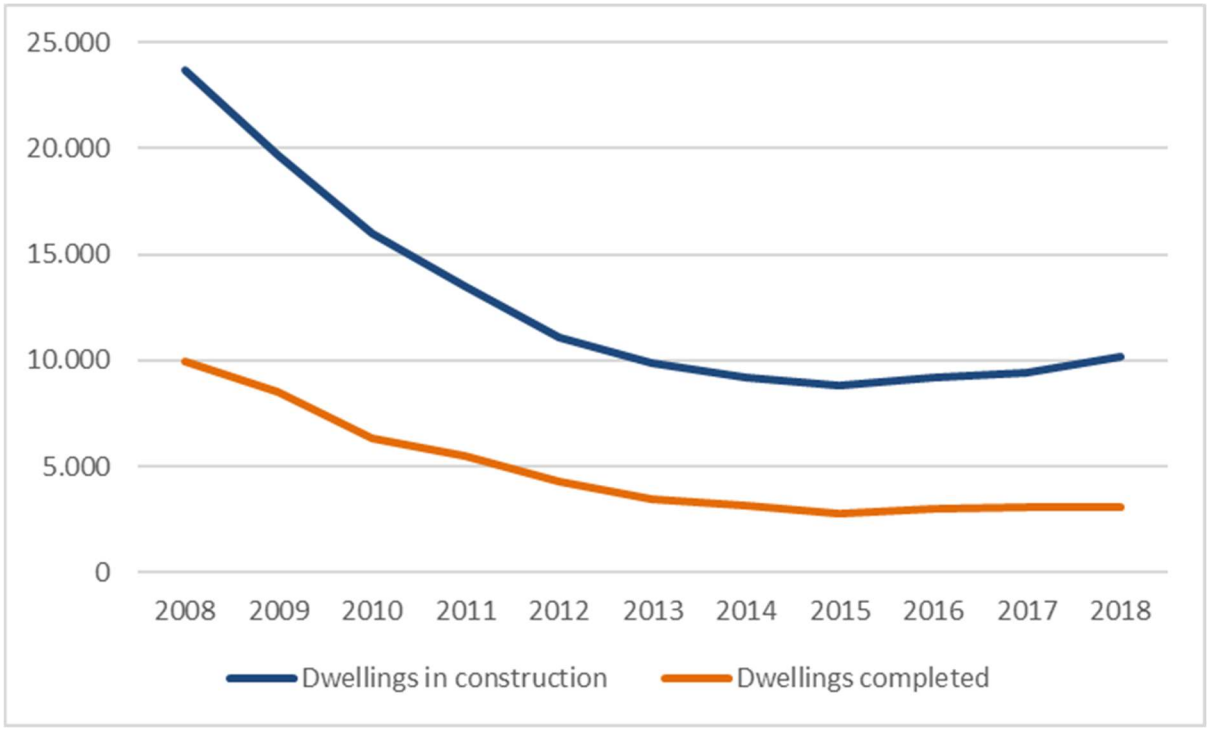

Image 5: The number of dwellings in construction and dwellings completed for the period 2008-2018 (SURS)

Company activity within the Manufacture of other builders' carpentry and joinery (NACE: C16.230), which consists of the manufacture of prefabricated wooden buildings, builder's joinery (windows, doors, stairs…) and glued laminated roof trusses and roofing, continued positively also last year. According to CCIS, this segment gained a EUR 21 million net profit last year, which exceeded the net profit gained in 2017 by 23.7%. The growth of sales revenues created by companies in this industry on foreign markets decreased by 4.1% compared to 2017, nonetheless net sales revenues in foreign markets have increased by 2.6%.

Slovenia is a traditional net exporter of wooden windows and doors. The export of wooden doors decreased by 6% in volume last year, while the export of wooden windows increased by 6%. Both the export of wooden windows (+12%) and wooden doors (+13%) increased in volume last year.

6. Tables

a) Economic indicators

	2018	Autumn forecast (September 2019)		
		2019	2020	2021
GROSS DOMESTIC PRODUCT				
GDP, real growth (%)	4.1	**2.8**	**3.0**	**2.7**
GDP, nominal growth (%)	6.4	**5.4**	**5.5**	**5.2**
GDP in EUR billion, current prices	45.8	**48.2**	**50.9**	**53.6**
Exports of goods and services, real growth (%)	6.6	**7.8**	**5.0**	**4.8**
Imports of goods and services, real growth (%)	7.7	**9.2**	**5.8**	**5.5**
External balance of goods and services (contribution to growth in pps)	*-0.2*	***-0.5***	***-0.2***	***-0.2***
Private consumption, real growth (%)	3.4	**3.4**	**2.7**	**2.2**
Government consumption, real growth (%)	3.2	**2.2**	**1.7**	**1.4**
Gross fixed capital formation, real growth (%)	9.4	**6.8**	**6.8**	**7.0**
Change in inventories and valuables (contribution to growth in pps)	*0.2*	***-0.2***	***0.0***	***0.0***
EMPLOYMENT, EARNINGS AND PRODUCTIVITY				
Employment according to the SNA, growth in %	3.2	**2.5**	**1.4**	**0.8**
Number of registered unemployed, annual average (in '000)	78.5	**74.1**	**70.8**	**67.6**
Registered unemployment rate (%)	8.2	**7.7**	**7.2**	**6.9**
ILO unemployment rate (%)	5.1	**4.3**	**4.0**	**3.8**
Gross earnings per employee, nominal growth (%)	3.4	**4.6**	**5.1**	**4.9**
Gross earnings per employee, real growth (%)	1.6	**2.8**	**3.1**	**2.5**
- private sector	2.3	**2.3**	**3.2**	**2.5**
- public sector	1.3	**4.0**	**3.0**	**2.6**
Labour productivity (GDP per employee), real growth (%)	0.9	**0.3**	**1.5**	**1.9**
BALANCE OF PAYMENTS STATISTICS				
Current account BALANCE (EUR bn)	2.6	**2.3**	**2.4**	**2.3**
- as a % of GDP	5.7	**4.9**	**4.7**	**4.3**
PRICES AND EFFECTIVE EXCHANGE RATE				
Inflation (Dec/Dec), %	1.4	**2.3**	**2.2**	**2.3**
Inflation (annual average), %	1.7	**1.8**	**2.0**	**2.3**
Real effective exchange rate deflated by unit labour costs, growth (%)	0.8	**0.1**	**0.4**	**0.5**
ASSUMPTIONS				
Foreign demand (imports of trading partners), real growth (%)	3.6	**3.0**	**3.2**	**3.3**
GDP in the euro area, real growth (%)	1.8	**1.0**	**1.1**	**1.2**
Oil price (Brent crude, USD/barrel)	71.0	**62.9**	**57.4**	**56.5**
Non-energy commodity prices (USD), growth (%)	3.9	**-2.0**	**2.15**	**1.5**
USD/EUR exchange rate	1.181	**1.123**	**1.115**	**1.115**

Source: IMAD (Institute of Macroeconomic Analysis and Development of the Republic of Slovenia), Autumn Forecast of Economic Trends, September 2019. Year 2018 SURS, BoS, ECB, EIA, 2019–2021 IMAD forecasts.

b) Production and foreign trade

Product	Unit	Revised data		Estimate	Forecast
		2017	2018	2019	2020
Sawlogs and veneer logs, coniferous					
Removals	1000 m^3	2,200	2,553	2,210	2,200
Imports	1000 m^3	15	29	50	30
Exports	1000 m^3	1,271	1,436	1,000	1,200
Apparent consumption	1000 m^3	944	1,146	1,260	1,030
Sawlogs and veneer logs, non-coniferous					
Removals	1000 m^3	295	280	280	310
Imports	1000 m^3	50	45	42	45
Exports	1000 m^3	181	126	180	190
Apparent consumption	1000 m^3	164	199	142	165
of which, tropical logs					
Imports	1000 m^3	1	1	1	1
Exports	1000 m^3	1	0	0	1
Net Trade	1000 m^3	0	1	1	1
Pulpwood (round and split), coniferous					
Removals	1000 m^3	532	659	570	560
Imports	1000 m^3	180	208	198	180
Exports	1000 m^3	417	483	400	380
Apparent consumption	1000 m^3	295	384	368	360
Pulpwood (round and split), non-coniferous					
Removals	1000 m^3	376	344	320	300
Imports	1000 m^3	74	68	63	60
Exports	1000 m^3	310	233	340	290
Apparent consumption	1000 m^3	140	179	43	70
Wood chips, particles and residues					
Domestic supply	1000 m^3	1,300	1,300	1,300	1,320
Imports	1000 m^3	297	248	210	210
Exports	1000 m^3	745	836	960	890
Apparent consumption	1000 m^3	853	712	550	640
Other industrial roundwood, coniferous					
Removals	1000 m^3	20	33	30	33
Other industrial roundwood, non-coniferous					
Removals	1000 m^3	47	52	47	44
Wood fuel, coniferous					
Removals	1000 m^3	153	198	180	170
Wood fuel, non-coniferous					
Removals	1000 m^3	886	920	900	950

Product	Unit	Revised data		Estimate	Forecast
		2017	2018	2019	2020
Sawnwood, coniferous					
Production	1000 m^3	625	690	750	750
Imports	1000 m^3	526	709	741	730
Exports	1000 m^3	613	880	1,000	980
Apparent consumption	1000 m^3	539	518	491	500
Sawnwood, non-coniferous					
Production	1000 m^3	120	120	125	125
Imports	1000 m^3	103	133	141	130
Exports	1000 m^3	116	130	181	160
Apparent consumption	1000 m^3	107	123	85	95
of which, tropical sawnwood					
Production	1000 m^3	0	0	0	0
Imports	1000 m^3	2	2	2	2
Exports	1000 m^3	1	1	1	1
Apparent consumption	1000 m^3	1	2	2	2
Veneer sheets					
Production	1000 m^3	22	18	18	18
Imports	1000 m^3	11	12	12	12
Exports	1000 m^3	21	22	24	24
Apparent consumption	1000 m^3	12	8	6	6
of which, tropical veneer sheets					
Production	1000 m^3	1	1	1	1
Imports	1000 m^3	0	0	0	0
Exports	1000 m^3	1	1	1	1
Apparent consumption	1000 m^3	1	0	1	0
Plywood					
Production	1000 m^3	86	89	98	121
Imports	1000 m^3	45	47	48	49
Exports	1000 m^3	66	73	81	82
Apparent consumption	1000 m^3	65	62	65	88
of which, tropical plywood					
Production	1000 m^3	0	0	0	0
Imports	1000 m^3	13	14	15	15
Exports	1000 m^3	0	0	0	0
Apparent consumption	1000 m^3	13	14	15	15

Product	Unit	Revised data		Estimate	Forecast
		2017	2018	2019	2020
Particle board (including OSB)					
Production	1000 m^3	0	0	0	0
Imports	1000 m^3	179	190	197	200
Exports	1000 m^3	6	7	6	7
Apparent consumption	1000 m^3	173	183	191	193
of which, OSB					
Production	1000 m^3	0	0	0	0
Imports	1000 m^3	24	27	32	32
Exports	1000 m^3	1	2	1	1
Apparent consumption	1000 m^3	22	26	31	31
Fibreboard					
Production	1000 m^3	120	126	127	127
Imports	1000 m^3	60	59	60	60
Exports	1000 m^3	153	144	170	160
Apparent consumption	1000 m^3	26	41	17	27
Hardboard					
Production	1000 m^3	0	0	0	0
Imports	1000 m^3	13	10	13	13
Exports	1000 m^3	12	11	12	12
Apparent consumption	1000 m^3	1	0	1	1
MDF/HDF (Medium density/high density)					
Production	1000 m^3	120	126	127	127
Imports	1000 m^3	47	48	47	47
Exports	1000 m^3	142	133	158	148
Apparent consumption	1000 m^3	25	41	16	26
Other fibreboard					
Production	1000 m^3	0	0	0	0
Imports	1000 m^3	0	0	0	0
Exports	1000 m^3	0	0	0	0
Apparent consumption	1000 m^3	0	0	0	0

Product	Unit	Revised data		Estimate	Forecast
		2017	2018	2019	2020
Wood pulp					
Production	1000 m.t.	95	92	95	95
Imports	1000 m.t.	241	249	250	250
Exports	1000 m.t.	6	5	8	8
Apparent consumption	1000 m.t.	330	336	337	337
Paper & paperboard					
Production	1000 m.t.	747	731	735	760
Imports	1000 m.t.	631	687	720	725
Exports	1000 m.t.	648	649	660	665
Apparent consumption	1000 m.t.	730	769	795	820
Wood pellets					
Production	1000 m.t.	115	118	120	123
Imports	1000 m.t.	176	228	200	210
Exports	1000 m.t.	178	188	165	150
Apparent consumption	1000 m.t.	113	158	155	183