

Executive Summary

Objectives and scope of the study

The aim of this study is to identify the cumulative costs, both direct and indirect, of the most financially burdensome EU legislation and policies that forest-based industry (F-BI) companies active in the EU28 have to comply with. Specifically, the study **objectives** are:

- Quantification of the cumulative direct and (where possible) indirect costs of relevant legislation and policies for the selected F-BI sub-sectors in the EU;
- Demonstration of the evolution of costs of the relevant legislation and policies over time (2005-14) and likely qualitative developments in the coming years;
- Comparison of costs and provision of conclusions on the cost impact of EU legislation and policies on respective F-BI sub-sectors.

Later on, a qualitative comparison is made between the cost structures of the EU F-BI sub-sectors woodworking and pulp, paper & paperboard, given the legislative regime within which they operate in the EU, with those of their main international competitors, operating within their own specific legislative frameworks. (NB in some cases, the latter may include relevant EU legislation). Where relevant and possible, comments are given about implications for the competitiveness of the respective global regions.

The study was initially designed to cover four sub-sectors of the EU forest-based industries, based on the statistical classification of economic activities in the European Community (NACE): woodworking (NACE 16), furniture manufacturing (NACE 31), pulp and pulp-based manufacturing (NACE 17) and printing (NACE 18). However, after the initial data-gathering phase, a decision had to be taken to confine the scope of the study to only **two F-BI sub-sectors – woodworking (NACE 16) and pulp and pulp-based manufacturing (NACE 17)** – due to the very low rate and quality of response to pilot interviews from companies of the other two sub-sectors, and also a lack of sufficiently detailed secondary data.

Hence, the study covers the woodworking sub-sector and the pulp, paper and paperboard sub-sector, for which the available data are sufficient to produce reasonably representative estimates. These include the following sub-sectors: 16.1 sawnwood; 16.21 wood-based panels; 16.23 other builders' carpentry and joinery; 16.24 wooden pallets and other wooden packaging; 17.11 pulp production and 17.12 paper and paperboard.

All pieces of legislation seen as incurring high costs to the EU forest-based industries are included in the study. The relevant regulations and policies are grouped under **eight legislative packages**, comprising the policy areas of: competition, climate and energy, environment, forest-related policies, employment and workers' safety, product policy, transport and trade. However, the competition package has not been addressed quantitatively in the study; businesses reported that competition legislation mainly aims at shaping the competitive environment in which they operate and that it creates no, or very little, cost.

This cumulative cost assessment (CCA) covers the impact to date of the existing legal framework (as at the end of 2014), with cost-related indicators that cover a **10-year period from 2005 till 2014** (quantitative assessment). Following the assessment of the present effects of current EU legislation on the forest-based industries, this section elaborates on future regulatory costs likely to impact the forest-based industries, either based on current legislation with future cost impacts or future legislation (i.e. drafted or already in the adoption process phase as by the end of 2014) under qualitative assessment).

The **territorial scope** of this CCA is the **EU28** and the selected global competitor countries, namely **China, the United States, and Brazil**.

Methodology

As opposed to other methods assessing the costs of policies, this study adopts a **cumulative approach**, by providing a quantitative assessment of all direct costs (monetary obligations, capital expenditure, operating expenses and administrative burden) and (where possible) indirect costs incurred by F-BI companies in the EU in relation to the most relevant EU legislation. This study **does not assess the benefits of EU legislation** and does not aim to provide insights related to the proportionality of costs and benefits of legislation, nor its efficiency or effectiveness.

The methodology of this study draws on previous cumulative cost assessment exercises performed for some EU Member States and the European Commission, such as the latter's CCAs for the aluminium and steel industries respectively (CEPS, 2013a and CEPS, 2013b) and for the Chemical Industry (Technopolis, 2016). It also draws on the established methodologies that have been used for several years by Member States and the European Commission, including the Standard Cost Model, or the Cost-driven Approach to Regulatory burdens (CAR) developed for the Dutch Government. Despite its significant advantages regarding feasibility, the CCA method is less accurate than statistical methods, as it can only provide an estimate of the magnitude of cost borne by companies due to EU legislation.

A total of 57 pieces of legislation were finally selected from initial prioritisation by industry associations as having a significant impact on their respective sub-sectors. Legislative acts were grouped under policy packages, based on the similarity of objectives. National legislation that is not transposed from EU legislation was excluded from the study. Companies - selected from the F-BI with the aid of a Mirror Group - participated in the study. They were asked to report only the costs associated with the requirements set out in the prioritised EU legislation. The selected pieces of legislation were further analysed and the actions that companies have to take to comply with them were identified. The actions were then associated with cost categories identified in the European Commission's Better Regulation Toolbox (European Commission, 2015a): monetary obligations, capital expenditures, operating expenditures and administrative burden and each was quantified accordingly.

The legislative costs borne by F-BI companies were estimated by following a six-stage approach:

- The first step included the **development of a questionnaire** and its **distribution** to a panel of typical plants. The selection of the interviews was performed with the support of industry associations, on the basis of the following criteria: representativeness of activities and structure, comparability of companies and clear business operations.
- Next, data were collected through in-depth interviews with the selected companies. Overall, **in-depth interviews** and **on-site visits** were performed for 49 typical plants, and 103 responses were provided to the survey, covering 21 EU Member States.
- On the basis of these data, **an estimation of the costs** for the panel companies was performed.
- This estimation was further validated through two **validation** and **discussion workshops**. In addition to this validation, testing and adjustments of the cost estimates were done using the results from the **online survey**.
- Lastly, the results and input from all steps were aggregated producing a **cumulative overview of regulatory costs for each sub-sector**.
- Finally, a **quantitative estimation of ETS indirect costs** - based on secondary data - was performed for the pulp, paper and paperboard sub-sector, while a **qualitative assessment of indirect costs related to the price of raw materials** was performed for the woodworking sub-sector.

The analysis of data in the current study did not rely on statistical methods. Although the cumulative cost assessment methodology clearly presents advantages in terms of feasibility, it is less accurate than statistical methods, and mainly provides an estimate of the magnitude of cost borne by companies due to EU legislation. Detailed data was collected among 49 typical plants selected according to a set of criteria, and further adjusted based on the results from a larger sample of 103 responses through an online survey. Validation workshops with both the European Commission and the industry, along with results from the online survey, were in line with cost figures provided by the panel companies. Data was collected assuming the full compliance to legislation, which is not always the case: this could therefore lead, in certain cases, to an overestimation of costs.

A methodological challenge in the assessment of administrative burden relates to the difficulty of identifying the origin of the burden – whether burdens can be solely attributed to the minimum requirements of EU legislation or to going beyond minimum requirements (“gold-plating”) at national level. This was taken into account by asking companies surveyed to report the portion of administrative burden attributable solely to implementation of the European legislation. However, there is no obvious way to ensure that there is no overlap in administrative burden estimates.

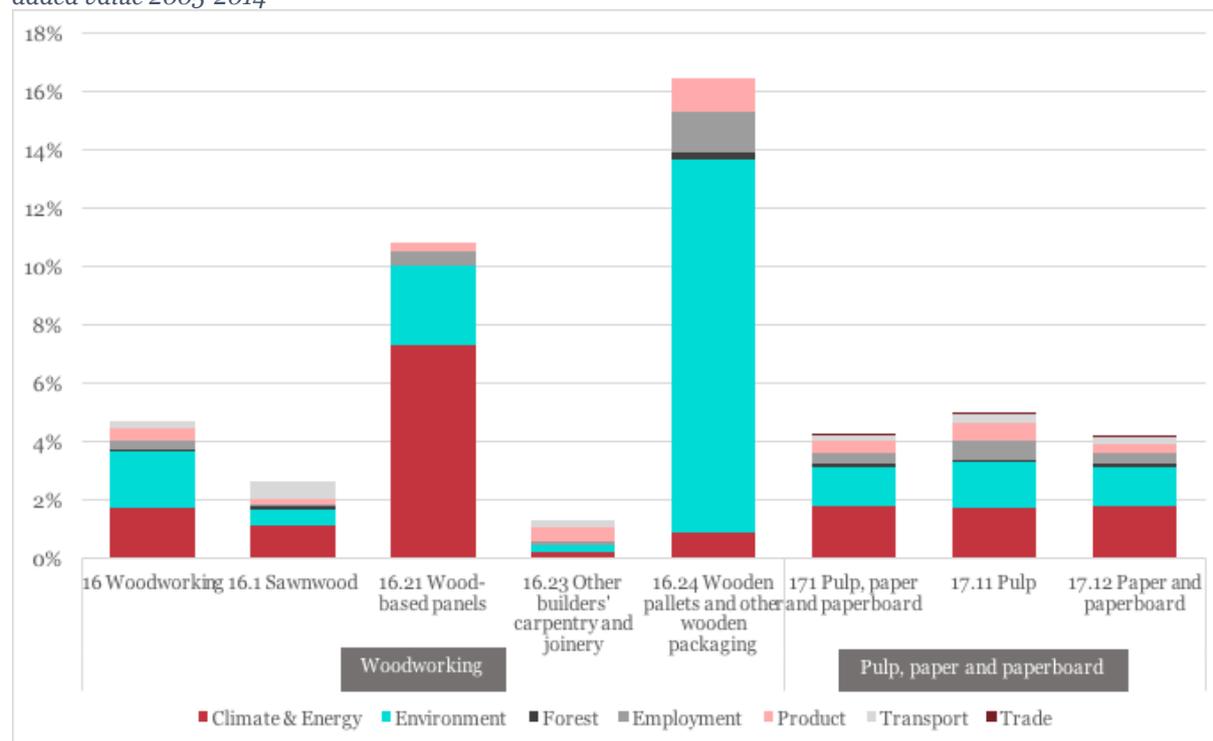
Main findings of the CCA

The EU woodworking industries were derived from NACE code 16 and include: the production of sawnwood, wood-based panels, builder’s carpentry and joinery products, wooden flooring, wooden packaging and other wooden articles. Input materials within the woodworking value chain are, apart from saw logs (fresh wood), industrial by-products (like bark, chips and dust) and used materials (recovered wood). On the other hand, the pulp, paper and paperboard manufacturing sub-sector value chain is derived from NACE code 17 and includes all kinds of pulp and products made of pulp.

The variability of costs across the different sub-sectors, as illustrated in the following figure, is significant and reflects differences in product groups and their value chains. Thus, the highest cost as a percentage of added value is observed in wooden containers and packaging, amounting to 16.4%, and the lowest in builders’ carpentry and joinery, at 1.3%. The cost for wood-based panels represents 10.8% of the sub-sector’s added value, for pulp 5%, for paper and paperboard 4.2% and for sawnwood 2.6%.

Within sub-sectors, variability reflects the size of companies and their organisational structures, efficiency, level of integration and product portfolio. For instance, SMEs in general incur higher costs compared to large firms because the costs to comply with legislation are not linear and cannot be amortised by SMEs on a large volume of products.

Figure 1 Cumulative direct regulatory costs and its composition by legislative package -average annual share of added value 2005-2014



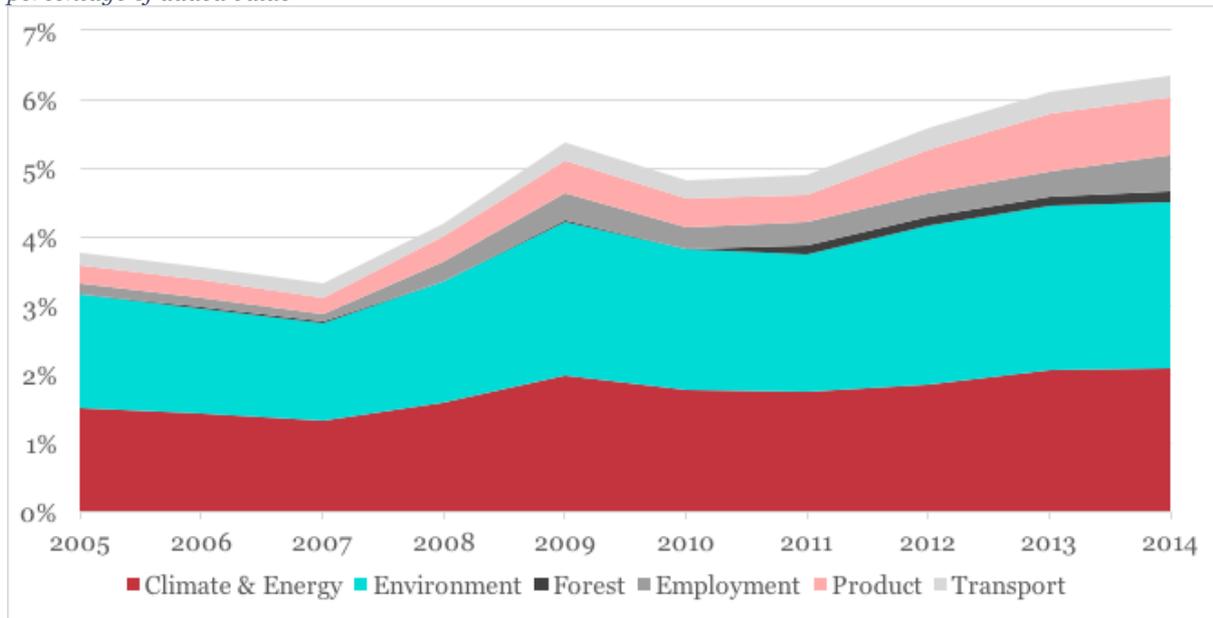
Source: Authors' elaboration based on cost data from companies' books and online survey; comparators of turnover, AV and GOS from Eurostat, Structural Business Statistics

The woodworking sub-sector

When all legislation relevant to **woodworking** companies is cumulated, the estimated average annual total direct cost borne by them during the period 2005-2014 approaches 4.7% of added value, representing around 1.3% of their turnover and 13.7% of the gross operating surplus. Two legislative packages clearly stand out as the main cause of legislative burden, namely the environmental and the climate and energy packages, generating respectively 41.5% and 36.3% of direct regulatory costs for woodworking sectors. Among the cost categories, monetary obligations and operational expenditures dominate. The very high results for the environmental package mostly relate to the relevant parts of the phytosanitary regulations for the wooden pallets and other wooden packaging (e.g. rules on wooden packaging which incorporate the ISPM 15 standard for treatment and marking, which, although it is a standard developed by the International Plant Protection Convention from the U.N.'s Food and Agriculture Organization, has been incorporated into the EU phytosanitary legislation) to prevent the introduction of harmful, plant-borne alien organisms. Significant investments have been necessary for companies to collect and process returned products and wastes in accordance with the principle of extended producer responsibility (e.g. costs of waste management are to be carried partly or wholly by the producer). Personnel costs and other operating and maintenance costs are also associated with these obligations.

Major milestones of the evolution of costs are the establishment of EU climate and energy targets, known as "20-20-20" targets for a low-carbon economy, the revision of the Renewable Energy Directive in 2009, the adoption of the Integrated Pollution Prevention and Control (IPPC) in 2008 and the transposition of the Industrial Emissions Directive in 2013. Other legislative acts such as the Waste Framework Directive or the Construction Product Regulation contribute to costs. It is important to note that, while the following graph certainly illustrates the evolution of regulatory costs over ten years, the trend is also impacted by the evolution of the ratio's denominator, i.e. the value added of the sector.

Figure 2 Evolution of direct regulatory costs for the woodworking sectors over the period 2004-2015 as a percentage of added value



Source: Authors' elaboration based on cost data from companies' books and online survey; comparators of turnover, AV and GOS from Eurostat, Structural Business Statistics

Companies in the wood-based panels sector consistently reported to be affected by indirect costs they attributed to climate and energy policies, and more specifically to the Renewable Energy Directive (Directive 2009/28/EC). Companies reported that the Directive has contributed to increase the raw material costs (mainly wood), and led to the substitution of wood-based panels by less expensive materials in some cases. However, a quantitative estimate of the effect of the competition with bioenergy for is not possible due to a lack of adequate data.

When all legislation relevant to **pulp, paper and paperboard** companies is cumulated, the estimated average annual total direct cost borne by the sub-sectors covered during the period 2005-2014 approaches 4.3% of added value, representing around 0.9% of their turnover, 10.8% of the gross operating surplus, 7.6% of EBITDA and 21.9% of EBIT.

The same two legislative packages clearly stand out as the main cause of legislative burden, namely the climate and energy package and the environmental package, generating respectively 41.5% and 32% of direct regulatory costs for pulp, paper and paperboard sectors. Among the cost categories, monetary obligations, capital and operational expenditures dominate.

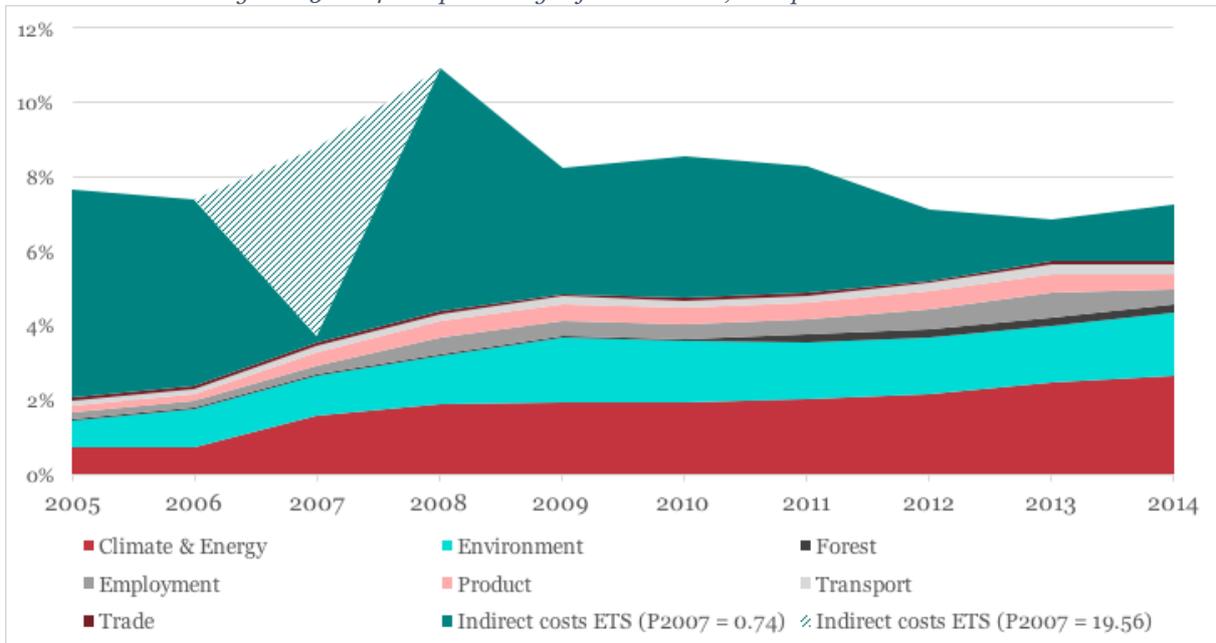
Major milestones of the evolution of costs are the establishment of EU ETS, covering pulp, paper and paperboard since its start in 2005. The second increase in 2012/2013 may also be linked to the ETS, e.g. from 2013 the ETS requires a reduction of 21% of carbon emissions compared to 2005. The Energy Efficiency Directive also came into force during this period and it would also have been preceded by investments to meet new legal requirements.

Results presented above apply to firms of the pulp, paper and paperboard industries where pulp mills sell their market pulp to third parties. An average integrated company of pulp, paper and paperboard will bear direct regulatory costs of approximately 1% of turnover, representing 7.68 EUR/tonne of paper.

Moreover, pulp, paper and paperboard companies undergoing the interview process as well as stakeholders taking the online survey have systematically reported the significant impact of ETS indirect costs of regulation, that occur when utility companies pass-on some of their ETS-related costs to the industry. Such indirect costs from electricity providers become particularly substantial as pulp, paper and paperboard are energy-intensive sectors. Indirect costs from ETS are close to four times as

much as direct costs from the climate and energy package, which contains, inter alia, direct costs from the ETS.

Figure 3 Evolution of direct regulatory costs and ETS indirect costs for the overall pulp, paper and paperboard sector - annual average 2005-2014 as a percentage of added value, with pass-on rate 1



Source: Authors' elaboration based on cost data from companies' books and online survey; comparators of turnover, AV and GOS from Eurostat, Structural Business Statistics * For further details on this figure and underlying hypothesis of Co2 price, see section 3.6.1.3.

While companies from the pulp, paper and paperboard sectors did not systematically report indirect costs incurred by the Renewable Energy Directive (Directive 2009/28/EC), it is likely to also be an issue for the pulp, paper and paperboard sectors, since they use the same types of fresh wood as part of their raw material intake.

Existing legislation and prospective legislative acts (i.e. those new acts already identified but only likely to have their cost impacts during the coming years) will be likely to generate additional compliance costs for the forest-based industries to meet new objectives and standards.

For the **climate and energy package**, such acts will probably include the Clean Air Policy Package and/or the **roadmap for moving to a competitive low-carbon economy in 2050, the 2030 climate & energy framework and the energy roadmap 2050-** although they do not present quantifiable direct costs, they all aim to reduce carbon emission and energy consumption by improving efficiency. Effects from the Third Energy package are not clear-cut as the forest-based industries, while potentially benefiting from the liberalisation of energy markets, may also suffer indirectly from higher power prices because of EU deregulation measures. Similarly, the physical expansion of an integrated energy market may be accompanied by decreasing energy prices since barriers between EU Member States will decrease. The woodworking sector is particularly concerned with the enshrinement of the cascading principle in a detailed legislation and with the revision of the Renewable Energy Directive that may lead to an increase in wood price (i.e. raw material). On the other hand, a new proposal for the LULUCF legislation has been published in July 2016, which should potentially limit the administrative burden on businesses. There is also a high degree of uncertainty for the pulp, paper and paperboard sub-sector, relating to the revision of the ETS. Concern from businesses relate to data collection and verification likely to bring further administrative burden and to the lack of harmonisation in EU compensation scheme that leads to rising electricity costs among Member States.

Currently, the pulp, paper and paperboard sub-sectors are included in the Carbon Leakage List and receive a higher share of free allowances. Future cost impacts from ETS will substantially depend on its ongoing revision and the implications for the updated carbon leakage list (2014-19).

Environmental legislation likely to affect the woodworking sector in the future relate to the harmonized EU VOC-Classes, depending on the products that will be covered in the new requirements of VOC emissions and potentially rising operating costs of labelling and administrative costs. On the other hand, the main costs from environmental legislation for the pulp, paper and paperboard sub-sector are expected to emerge from the Industrial Emission Directive, as BREFs will require capital expenditures in new machines and equipment, operating expenses of personnel, training and maintenance.

Regarding the **forest-related package**, further and more consistent coordination of the enforcement of the EU Timber Regulation is encouraged by businesses to bring down the current costs of administrative burden emanating from the different transposition of the regulation.

Regarding the **employment package**, both woodworking and pulp, paper and paperboard sub-sectors may be impacted by the amendments on better workers' protection against cancer causing chemicals, now under proposal, as adding 13 new substances to the original list could increase administrative burden for hazard identification and risk assessments, capital expenditure for equipment and operating costs of training.

Insights on international competitiveness

A qualitative comparison is made between the cost structures and costs impacts of regulation of the EU F-BI sub-sectors woodworking and pulp, paper & paperboard, given the legislative regime within which they operate in the EU, with those of their main international competitors (Brazil, China and the United States), operating within their own specific legislative frameworks. The international comparison of cost structures and the cost impacts of regulation has been done using secondary data, and further complemented with the results from two questionnaires: 1) a questionnaire for relevant associations, federations and industry experts, followed up with telephone interviews; and 2) a shorter on-line questionnaire for companies in the target countries.

Overall, the **comparison of cost structures for the woodworking sub-sectors** in the EU, Brazil, China and USA shows significant differences in the relative importance of particularly raw materials costs, energy costs, labour costs and service costs.

For the woodworking sector, raw material costs' relative share of costs is much higher in China than in the USA, and in Brazil but similar to EU. Prices of wood raw material as a global commodity are expected to rise due to increasing demand for wood and wood-based products of verified legal origin. Employment costs are relatively highest in Brazil (27%), followed by the USA (22%). In China the employment costs form only 10% of total costs. In monetary terms, average employment costs are much lower in China than in Brazil and the USA. Increasing living standards particularly in China, but also in Brazil, and corresponding employment cost increases are set to reduce the competitive advantage of these countries on this cost category.