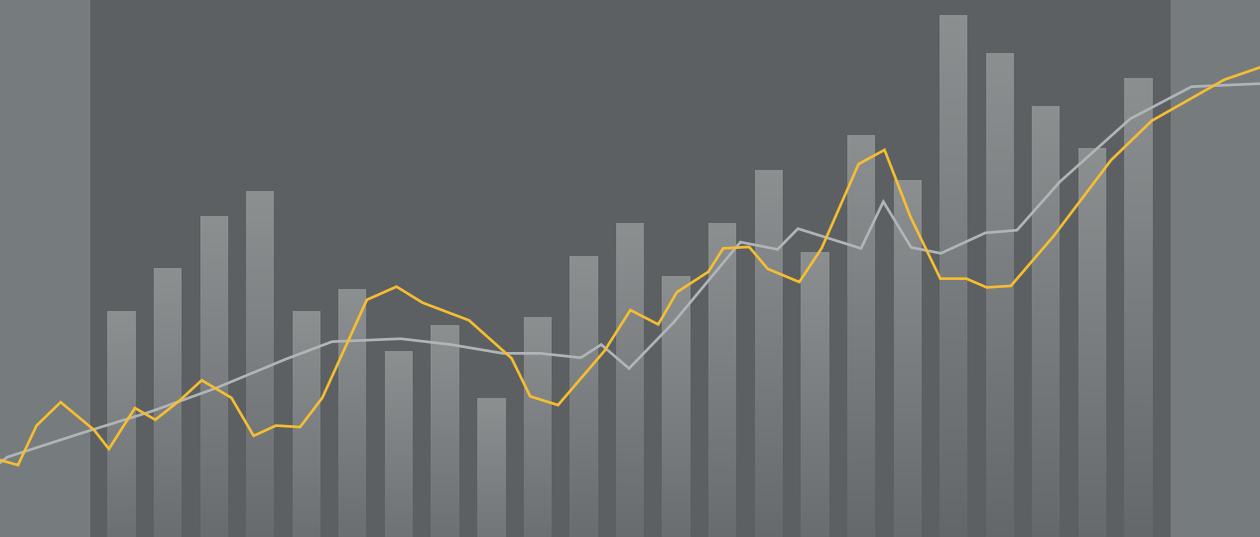


De Økonomiske Råd
Formandskabet

PRODUCTIVITY 2022

SUMMARY AND
RECOMMENDATIONS



**REPORT FROM
THE DANISH NATIONAL PRODUCTIVITY BOARD**

I.1

SUMMARY AND RECOMMENDATIONS

The productivity report from the Chairmanship of the Danish Economic Councils, which constitutes the National Productivity Board, consists of four chapters. The following contains the entire chapter I and a brief presentation of the conclusions in the remaining three chapters.

PRODUCTIVITY REPORT 2022

Chapter I	Current economic policy
Chapter II	Trends in productivity
Chapter III	Trends in market power of Danish firms
Chapter IV	Explanations for the trends in the market power of Danish firms

I.2

CURRENT ECONOMIC POLICY

Chapter I contains assessments of current economic policy initiatives of relevance to productivity under the following areas:

- Foreign labour
- Increased corporation tax for financial institutions
- The management of COVID-19 and support packages
- Relocation of education and training places
- Climate policy

FOREIGN LABOUR

The government will make it easier to access foreign labour ...

The current labour shortage in the Danish economy has increased attention in the political debate on measures that give firms better access to foreign labour. In January 2022, the Government, together with the Socialist People's Party, the Social Liberal Party and the Christian Democrats, proposed various measures to make it easier for firms to recruit foreign labour.

... e.g. by lowering the threshold for the Pay Limit Scheme

The proposal entails, among other things, changes to the Pay Limit Scheme that allows firms to recruit labour from outside the EU. The changes will temporarily reduce the threshold employees are required to pay foreign workers under the scheme by almost DKK 75,000 from just under DKK 450,000. This is to be in place for two years from July 2022, cf. Box I.1. In a study Dam (2021) finds that a DKK 25,000 increase in the threshold in 2016 led to a decrease in the inflow of foreign labour of approximately 200 people over a three-year period, corresponding to approximately 15 percent of the total inflow under the scheme. This suggests that lowering the floor could lead to an inflow of foreign labour, albeit of a limited order of magnitude.

BOX I.1 PROPOSALS FOR STRENGTHENED INTERNATIONAL RECRUITMENT

The Government, together with a number of parliamentary parties, has proposed several measures to ease restrictions on accessing international labour from third countries that are not members of the EU. The proposal includes the following elements:

- Reduction of the threshold for the Pay Limit Scheme from DKK448,000 (2022 level) to DKK 375,000 for the period from 1 July 2022 to 1 July 2024
- Expansion of the positive list for persons with a higher education so that the scheme will include a wider range of job titles
- More firms will have access to the fast-track scheme, which makes the process of hiring a foreign worker quicker. Among other things, the size requirement for a firm to be eligible to apply under the scheme is reduced from 20 to 10 full-time employees

Under the relaxed rules, residency and work permits will be granted for five years. However, new residency permits under the relaxed requirements can only be granted as long as the average of the previous three months' seasonally adjusted gross unemployment rate does not exceed 3.75 percent.

Increased inflow of foreign labour can increase productivity

An increased inflow of foreign labour can help increase productivity. Foreign workers can bring new knowledge and new ideas, which can lead to new and more efficient ways of organising workflow processes. Furthermore, more foreign labour can lead to the domestic labour force being able to use its skills more efficiently. This will be the case if there is complementarity between the qualifications of the domestic and the foreign labour forces, for example, due to differences in levels of education and skills. Foreign labour can also lead to domestic workers with similar education and skills moving away from jobs with a high content of manual work and towards other types of jobs with more complex requirements and higher wages, cf. Foged and Peri (2016).

In some cases, foreign labour can reduce wages and employment

However, there is a risk that an increased inflow of foreign labour may reduce employment and wages of domestic workers with similar qualifications and thus have redistributive consequences. This could be the case if the qualifications of the foreign labour force are close substitutes for the qualifications of the domestic labour force, so that foreign labour could, to some extent, displace the domestic labour force. In the reverse case, where the qualifications are complementary to the domestic labour force, an increased inflow of foreign labour would be expected to have positive spillover effects on the wages and employment of the domestic labour force.

Empirical results do not point in a clear direction

The results from empirical studies of the consequences for wages and employment of foreign labour in Denmark are ambiguous. Malchow-Møller et al. (2012) find, for example, that wages fell for unskilled native workers when the proportion of immigrants increased in a workplace. Conversely, Foged and Peri (2016) find that both wages and employment for relatively low-educated young natives increased when the proportion of unskilled refugees increased in a municipality. However, they also found that employment fell for older unskilled workers. An analysis in De Økonomiske Råds formandskab (2017)¹ (The Chairmanship of the Economic Councils) finds that, especially in the short term, there is a negative correlation between increases in the proportion of immigrants in general in the labour market and employment among unskilled natives in Denmark. On the other hand, the results of an analysis in De Økonomiske Råds formandskab (2017) indicate that wages are not reduced for domestic workers with a relatively low wage, while wages for domestic workers in the middle and upper part of the wage distribution may increase slightly. In Malchow-Møller et al. (2019), there is a positive wage spillover effect of foreign experts. Thus,

1) Note that all the publications by De Økonomiske Råds formandskab referred throughout are in Danish with an English summary of the main conclusions and recommendations.

in the years after a firm has hired a highly specialised foreigner, there is an increase in the salaries of the other highly educated employees.

Reduction of the threshold is positive, but it should be made permanent

While it is difficult to assess the distributional consequences of a general increase in the inflow of foreign labour, an increase in immigration of people with medium and high incomes is not expected to result in any significant income distribution consequences, cf. the De Økonomiske Råds formandskab (2017). As the threshold for the Pay Limit Scheme is almost DKK 450,000, the proposed reduction could increase the inflow of foreign labour with medium to high incomes. Therefore, it is positive that the threshold is reduced for a period, but the Chairmanship continues to recommend that the reduction be made permanent, rather than only applying for a two-year period.

The Government's proposal contains a cyclical element

In addition to the measures that the Government is proposing being temporary, they also only apply as long as the seasonally adjusted average gross unemployment rate over the three preceding months does not exceed 3.75 percent, cf. Box I.1. Thus, the proposal contains an element of cyclical dependence.

Not obvious that cyclical rules are appropriate

The Chairmanship's proposal for a permanent reduction of the threshold does not involve such a cyclical element, as it is not found to be appropriate. A reduction in the threshold is a structural improvement and should not be influenced by cyclical fluctuations. In addition, the current system already contains significant cyclical dampening elements. In periods of strong demand and good employment opportunities in the Danish economy, there will thus automatically be an increased inflow of foreign labour, which will put a damper on firms' shortages of labour. For example, Basso et al. (2018) find that foreign labour constitutes a significant buffer in the labour force in the euro area, in the sense that foreign labour is far more mobile and more responsive to local economic fluctuations than the domestic labour force.

The war in Ukraine may affect the inflow of foreign labour to Denmark

The war in Ukraine may affect the inflow of foreign labour. A significant number of Ukrainian refugees can be expected to come to Denmark in the near future. In March 2022, a special law was passed in the Parliament which will allow refugees from Ukraine to obtain a residency permit quickly. Thus, they will also quickly have the ability to participate in the Danish labour market.

Job training lifts employment - at least in the short term

A recent study of the last 40 years of integration policy points out that, among other things, early job training can get refugees into employment more quickly, cf. Arendt et al. (2022). However, the extra employment disappears after a period, and the people who have been in job training gain weaker Danish language skills during that period. This

can affect their long-term employment opportunities; hence, the long-term net effect on employment of job training is uncertain.

Industry packages may be relevant for the integration of Ukrainian refugees

Furthermore, inspiration can be found in the so-called industry packages that were introduced in 30 municipalities in the period 2013 to 2018. The purpose of these was to match newly arrived refugees with local industries (e.g., cleaning and care) where there were recruitment challenges. With the industry packages, the refugees were also given basic skills aimed at being able to work in the industry in question. Foged et al. (2022) find that the industry packages contributed to a significant improvement in the refugees' employment opportunities. One year after arrival, the employment rate of the affected refugees was thus 5-6 percentage points higher compared to the refugees who came to the country before the scheme was introduced. After two years, this difference was 10 percentage points. This corresponds to an increase in the refugees' employment rate of approximately 50 per cent.

INCREASED CORPORATION TAX FOR FINANCIAL INSTITUTIONS

The Government has proposed a tax surcharge on financial institutions

In February 2022, the Government presented a proposal for an increase in corporation tax from 22 percent to 26 percent for companies in the financial sector. The increase will help finance the elements of the 2020 law granting a new right to early retirement for certain workers.

Taxes that serve revenue purposes should be levied on broad tax bases

If a tax surcharge imposed on one particular sector cannot be justified by market failures existing in that sector or by special treatment of the sector in other parts of the tax system, imposing it would lead to distortions that weaken overall productivity.² Therefore, taxes that exclusively serve a revenue purpose should be imposed on as broad a tax base as possible and should not be targeted at specific activities or sectors. A tax surcharge can, for example, lead to financial services becoming more expensive and to firms and consumers therefore reducing their consumption of financial services. Overall, this points in the direction that, from an economic point of view, there would be too low a level of activity in the financial sector.

2) It is not entirely obvious whether there is an overall over- or under-taxation of the consumption of financial services. The De Økonomiske Råds formandskab (2020) thus points out that firms' consumption of financial services is overtaxed, while household consumption is undertaxed.

An ACE tax is more targeted in terms of taxing the above-normal returns

One type of market failure that could potentially call for special tax treatment is a weak competitive situation, which would be reflected in above-normal profits in the sector in question. There are various indications that there is above-normal profit in the financial sector, cf. De Økonomiske Råds formandskab (2020). However, a corporation tax surcharge is not particularly targeted at reducing any extraordinary profit. Regardless of whether there are above-normal profits in the financial sector, it would be more appropriate to tax the sector on the basis of a so-called ACE tax (ACE: allowance for corporate equity). Such a tax includes a deduction so that the normal returns are not taxed - only any above-normal profits are included in the final tax base. This would lead to fewer distortions than if a tax surcharge in the form of higher corporation tax were implemented.

THE MANAGEMENT OF COVID-19 AND SUPPORT PACKAGES

Learn from the experience of COVID-19

COVID-19 is no longer classified as a critical public health threat to Denmark, but there is a risk that it may become so again, just as other epidemics may arise. Therefore, it is important to use the experience of the last couple of years to assess how epidemics are handled so that the economic costs to society are as limited as possible.

Problematic that testing and contact tracing still cannot be evaluated

Compared with other countries, the scope of testing in Denmark has been very large. It has used a lot of resources, but may have been an appropriate part of the overall infection control strategy, cf. the De Økonomiske Råds formandskab (2020). However, it is important that these measures, as well as the restrictions that are introduced, are continually evaluated to ensure that society benefits as much as possible from the resources used and that the most effective restrictions are applied. In connection with the current pandemic, however, the measures and data collection have not been put in place and carried out in such a way that they can be evaluated satisfactorily. This is unfortunate, and in future, the implementation of measures and data collection should be planned in such a way that impact studies are possible. A similar recommendation can be found in the De Økonomiske Råds formandskab (2020).

Only a few randomised trials

All over the world, only a few of the measures implemented in connection with the COVID-19 crisis have subsequently been able to be evaluated. A scoping review article published in 2022 identified only 41 randomised trials assessing non-pharmaceutical interventions to prevent COVID-19, cf. Hirt et al. (2022).

Support packages can be beneficial in acute health crises, but involve costs

In the event of acute health crises that lead to activity-limiting restrictions, there are good arguments for the public sector to make support packages available to citizens and businesses - and it is important that they know in advance the parameters and rules applying under lockdowns. However, there are also economic costs of support packages. If they are maintained for too long - even after activity-limiting restrictions have been lifted - they can weaken reallocation, as support packages reduce the likelihood that less productive firms will be out-competed by more productive firms. As illustrated in Chapter II, reallocation have been an essential component of overall productivity growth. The expectation of future support packages may also lead to so-called moral hazard; if firms expect to be *de facto* covered by an insurance scheme in the event of an epidemic, it will weaken their incentives to undergo costly investments in order to become more resilient to such episodes.

Working group has presented recommendations on support packages for new epidemics

In December 2021, a working group under the Ministry of Industry, Business and Financial Affairs, delivered the report on the principles for support packages for new epidemics, (Principper for hjælpepakker ved nye epidemier, in Danish only), which made recommendations in four main areas:

- Use of support packages
- Design of support packages
- Rapid effect of support packages
- Re-establishment of well-functioning markets

The working group's recommendations in the four areas are presented in Box I.2.

Support packages should be reserved for situations with significant activity-limiting measures

The Chairmanship agrees with several of the working group's assessments, including that support packages should be reserved for situations where, as a result of an acute health crisis, measures of a significantly activity-limiting nature are implemented. The Chairmanship also agrees that support packages should not be used in the event of ordinary economic downturns, just as support packages should not compensate for structural changes in the economy.

BOX I.2 PRINCIPLES FOR SUPPORT PACKAGES FOR FUTURE EPIDEMICS

In December 2021, the working group's report on principles for support packages in the event of new epidemics (Principper for hjælpepakker ved nye epidemier, in Danish only), was published.^{a)} The report contains 18 recommendations on four main themes:

1. Use of support packages

The working group points out that support packages should be used in the event of sudden health crises of a temporary nature where there is a need for restrictions that significantly limit activity in society. Conversely, infection prevention measures, such as the uses of passes showing proof of vaccination, negative test results or previous recovery and mask wearing, which do not significantly restrict the possibility of carrying on business, should not in themselves provide access to support packages

In addition, support packages should not compensate for structural changes and are not suitable for traditional economic downturns or repeated epidemics. Support packages should also be 'help to self-help' in nature, in the sense that they encourage companies to return to a normal level of activity.

The working group also states that private actors should themselves ensure they have accumulated financial buffers to avoid a lack of liquidity in the event of health crises. Furthermore, the working group emphasises that if epidemics prove to be a recurring phenomenon, the possibility of moving to private insurance schemes to a greater extent for managing the economic consequences should be examined.

2. Design of support packages

The working group points out, among other things, that support packages should be phased out as soon as possible so that they do not support firms that are not viable under normal circumstances. They also state that guarantee and loan schemes may be appropriate instruments in some types of health crises, while in others, compensation schemes may be more relevant.

The working group also concludes that general compensation schemes based on objective criteria are preferable to more targeted schemes. The working group justifies this on the basis that general schemes are easier to apply and administer, and that they have the advantage that they also cover firms whose activities are not directly limited by restrictions, but that are subcontractors to others firms that are affected.

a) The working group consisted of people from government ministries and professional experts.

BOX I.2 PRINCIPLES FOR SUPPORT PACKAGES FOR FUTURE EPIDEMICS, CONTINUED

3. Rapid effect of support packages

The working group recommends, among other things, that an inter-ministerial plan be prepared that outlines the division of responsibilities between the various authorities and describes best practice in relation to the administration of support packages. It is also emphasised that support packages should be transparent and involve the shortest possible application processing time, and that well-known IT systems be used.

The working group also points out that a balance must be struck between the need for rapid payment of compensation and the need for controls. The more acute a crisis, the more weight should be given to the first consideration.

4. Re-establishment of well-functioning markets

The working group emphasises, among other things, that support packages should not be maintained longer than necessary, and that an exit strategy should already be developed alongside of the development of the support packages. This can, among other things, specify how the support packages are to be phased out, including expiration dates and rules for repayment of any loans.

Finally, the working group notes that support packages with eligibility requirements in the form of a given decrease in sales revenues automatically contribute to the support packages being phased out as activity in society increases.

The Chairmanship considers that targeted schemes are preferable to general ones ...

The working group also points out that general support schemes are preferable to more targeted schemes. The working group justifies this on the basis that general schemes are easier to apply and administer, and that firms that are not directly closed down but are subcontractors to firms that are closed down are automatically covered. However, the Chairmanship does not share the working group's assessment that general compensation schemes are the most appropriate way to provide support. General compensation schemes have a number of costs that do not occur to the same extent in the case of targeted schemes and which make targeted schemes generally the most appropriate.

... partly because general schemes risk hindering structural change

Among other things, there is a risk that general schemes will support firms and industries that are not affected by the health crisis, but which, for other reasons, are experiencing declining demand. Thus, support packages may weaken structural adjustments in the economy. General schemes also exacerbate the problem that support schemes tend to

encourage firms to stay closed in order to receive compensation. Finally, general support packages may exacerbate the previously mentioned moral hazard problem in the form of firms undertaking fewer costly investments to make their business models resilient to future epidemics.

Studies suggest that compensation schemes may have negative side effects

The fact that compensation schemes can have negative side effects in the form of weakening the underlying adjustments in the economy, and of influencing firms' behaviour in an inappropriate direction, is supported by two empirical studies. Mattana et al. (2020) find that the wage compensation schemes in connection with the first lockdown in 2020 were particularly used by people in job categories that even before the COVID-19 crisis had weakened employment opportunities. The results in Borgensgaard (2022) indicate that the wage compensation scheme was also used by employees who the firms did not plan to dismiss.

Support packages should be reserved for firms that are *de facto* or *de jure* locked down

When Denmark was affected by COVID-19 in early 2020, there was great uncertainty about the nature of the public health crisis as well as the economic situation. There were, therefore, good arguments for making support packages available quickly, and administrative considerations spoke in favour of doing so in the form of general schemes rather than targeted ones. The associated costs of the compensation schemes were to be viewed as a kind of necessary 'cost of war'. Now, however, the situation is different - there is time to prepare for any future epidemics. Therefore, in future, the principle should be that support packages are reserved for the firms that are *de jure* locked down as a result of a health crisis and the firms that are *de facto* locked down, for example, because a large part of their business consists of being subcontractors to those that are *de jure* locked down. The administrative systems should be prepared so that this will be possible.

The state has taken on a significant credit risk during the COVID-19 pandemic

In connection with the COVID-19 pandemic, a number of measures were introduced aimed at ensuring that firms had access to liquidity. Among other things, deadlines for VAT and tax payments were postponed, and interest-free loan schemes were introduced later. No credit assessments were made in connection with the schemes, and the state thus took on a credit risk.

Important to ensure rapid transition to market conditions

The working group points out that such schemes may be appropriate, especially at the beginning of a health crisis, where there may be great uncertainty and during lockdowns. However, the working group also emphasises that there is then a need for a gradual return to firms undertaking borrowing on more normal market terms. The Chairmanship agrees that liquidity and loan schemes may be appropriate under exceptional circumstances, but that borrowing on market terms should be

rapidly reinstated. In particular, the possibility of obtaining interest-free loans should be reserved for exceptional circumstances when the financial markets do not function normally.

RELOCATION OF EDUCATION AND TRAINING PLACES

Agreement on relocation of education and training places

In June 2021, the Government entered into a broad political agreement with the Liberal Party, the Danish People's Party, the Socialist People's Party, the Red-Green Alliance, the Conservative People's Party, the New Right, Alternativet and the Christian Democrats on providing more education and training places outside Denmark's four largest cities. This involves both the relocation of existing training places and the creation of new ones. The agreement contains a target to relocate or scale back 10 percent of the places in higher education in the largest cities. The agreement also includes the ambition for 60 percent of the places in educational programs in the so-called caring professions, i.e., early childhood education, teaching, nursing and social work, to be outside the four largest cities in the long run. Following the conclusion of the political agreement, the educational institutions have presented plans for its implementation, which means that a total of 6.4 percent of places must be relocated or abolished. In a March 2022 supplementary agreement, the parties to the agreement concluded that the plans fall within the political objective of the original agreement.

The relocation could promote economic activity outside the cities at the expense of productivity ...

To the extent that the agreement's intention to move students from the largest cities to other places in the country becomes a reality, the assessment of the overall effect will depend on a political trade off between efficiency and the desire to promote economic activity in the areas outside the major cities, cf. the De Økonomiske Råds formandskab (2021b). On the one hand, relocation can promote business activity outside the major cities. On the other hand, it can damage productivity if more graduates settle outside the big cities, as the productivity gains from working in urban areas are thus eliminated, cf. the De Økonomiske Råds formandskab (2021b).

... but the positive effects are diminished if the places are abolished instead of being relocated

The beneficial effect on economic activity in the areas outside the largest cities is only present to the extent that the agreement increases the number of students in these areas. The universities' preliminary plans for the implementation of the agreement indicate that they plan to significantly reduce enrolment numbers in the cities rather than relocate places, cf. the Universiteterne (2022) (The Universities, in Danish only). This will reduce the beneficial effects for the regional areas.

Limiting uptake can affect productivity

A reduction in enrolments may lower the overall level of education of the population in the long run. It is difficult to draw a conclusion about the impact of this on productivity. At face value, the effect would be expected to be negative, but if the younger generations instead choose other educational programs or are able to find other employment with higher value added as a result, the effect could be positive.

CLIMATE POLICY

Broad political agreements and the 70 percent target

New projections and higher quota price since last year's assessment

In the De Økonomiske Råds formandskab (2021a), the Chairmanship analysed the costs of achieving the 70 percent target by 2030 through uniform greenhouse gas taxation. The modelling indicated that the tax should amount to around DKK 1,200 per tonne of CO₂e in 2030 to achieve the target, and that the tax level depends crucially on the potential of CCS (Carbon Capture and Storage) in 2030. Since then, the Danish Energy Agency has updated the climate projection, and the quota price forecast in 2030 has increased. Likewise, broad political agreements have been reached that reduce emissions from forests and land use (LULUCF) by 2030 and thus the required reductions needed to meet the 70 percent target. Updated estimates indicate that these changes together do not significantly change the required tax, which should be around DKK 1,250 per tonne of CO₂e by 2030.³

Political agreements on climate can increase the cost of the 70 percent target ...

In addition, a number of other broad political agreements on climate have been concluded that reduce some emissions that would otherwise have been subject to taxes. Since the summer of 2020, broad political agreements have been entered into that are estimated to reduce emissions by 2030 by a total of DKK 5.2 million tonnes of CO₂e, see Table I.1. With the exception of the agreement on green tax reform, these broad political agreements must be expected to increase the economic costs of achieving the 70 percent target, as the agreements are based on subsidies and other measures, rather than on a uniform greenhouse gas tax.

3) Cf. the note *Opdaterede beregninger af dansk klimapolitik frem mod 2030* (Updated calculations of Danish climate policy leading up to 2030, in Danish only), which is available from The Economic Council's website.

... but could reduce the required tax to approximately DKK 1,000 per tonne CO₂e

If the reductions in the agreements are cost-effective, the agreements will not affect the required tax level in 2030. This may seem counterintuitive, but it is due to the fact that the agreements do not change the marginal reduction, and thus the level of the tax required to reach the 70 percent target. If, on the other hand, the reductions in the agreements are not cost-effective, the economic costs will increase. However, the agreements will mean that the cost of the marginal reduction needed to reach the 70 percent target will be lower, and thus the level of the required tax will be lower. If it is assumed that the agreements meet the reduction targets that they aim to deliver, cf. Table I.1, and that two thirds of the reductions are more expensive than DKK 1,250 per tonne of CO₂e, a uniform greenhouse gas tax of approximately DKK 1,000 per tonne of CO₂e will be required by 2030 to reach the 70 percent target. If, on the other hand, the agreements only deliver half of their targeted reductions, a tax of approximately DKK 1,200 per tonne of CO₂e will be required to reach the 70 percent target.

The tax must be higher if agriculture is exempted

The October 2021 broad political agreement on green conversion of Danish agriculture set the 2030 reduction target for the agricultural and forestry sector's greenhouse gas emissions relative to the emissions in 1990. Estimates indicate that this reduction target would be achieved with a uniform greenhouse gas tax of DKK 1,000 per tonne of CO₂e that also included methane and nitrous oxide emissions from agriculture. If the reduction target for agriculture were achieved in another way, a pure CO₂ tax that does not include emissions of methane and nitrous oxide in agriculture of approximately DKK 1,000 per tonne of CO₂, would also be sufficient. If emissions in agriculture are only reduced by half of the required reduction, a pure CO₂ tax of approximately DKK 1,300 per tonne of CO₂ would be required to reach the 70 percent target.

A higher tax insures against the political agreements not delivering as expected

A tax of DKK 1,200-1,300 that is aimed at the 70 percent target can thus be viewed as an insurance policy that reduces the risk of not meeting the target. A higher tax will entail an additional cost in the order of DKK 1-2 billion, but conversely, the certainty of meeting the target without the need for very expensive reduction measures in the last years leading up to 2030 will increase. If the political agreements nevertheless deliver as assumed, and if agriculture achieves the reduction target, the reductions with a tax of DKK 1,200-1,300 will exceed the 70 percent target. At the same time, a higher tax could reduce total emissions by 2030 and presumably reduce the additional costs of achieving climate neutrality by 2050.

TABLE I.1 POLITICAL AGREEMENTS IN THE CLIMATE AREA

The table shows the Government's estimates for greenhouse gas reductions in 2030 as a result of broad political agreements entered into since the summer of 2020, which were therefore not included in De Økonomiske Råds formandskab (2021a).

Agreements	Contents	Emissions in 2030, mill. tonnes CO₂e
<i>Fremtiden for olie- og gasindvinding i Nordsøen</i> (December 2020) The future of oil and gas extraction in the North Sea)	End oil and gas extraction by 2050 etc.	-0.01
<i>Grøn omstilling af vejtransporten</i> (December 2020) Green conversion of road transport)	Reorganization of car taxes, CO ₂ displacement requirements etc.	-2.1
<i>Finansloven for 2021 and Stimuli og grøn genopretning</i> (December 2020) Budget Act, 2021 and Stimulus and green recovery)	Subsidies for phasing out oil and gas boilers, housing improvements, energy efficiency renovations and taking peatland areas out of agricultural use, etc.	-0.2
<i>Grøn Skattereform</i> (December 2020) (Green tax reform)	Increase in energy taxes on industrial processes etc.	-0.5
<i>Grøn omstilling af dansk landbrug</i> (October 2021) (Green conversion of Danish agriculture)	Reduction requirements for livestock digestion emissions, requirements for more frequent slurry removal, subsidies for taking peatlands out of agricultural use, collective measures, private afforestation, etc.	-1.9
<i>Investeringer i et fortsat grønnere Danmark 2022</i> (December 2021) (Investments in an ever-greener Denmark 2022)	Expansion of offshore wind, subsidies for CO ₂ capture etc.	-0.51
Agreements since the De Økonomiske Råds formandskab (2021a) in total		-5.22

Source: Klima-, Energi- og Forsyningsministeriet (2021) and the texts of the Agreements (all in Danish only).

The Expert Group for green tax reform

The expert group proposes three green tax reform models

In February 2022, the expert group for green tax reform published its first report. In it, the expert group proposes three models that, according to their estimates, all ensure greenhouse gas reductions from industry, non-road transport and energy-related emissions from agriculture, forestry and waste totalling DKK 3.5 million tonnes of CO₂ by 2030. This required reduction is based, among other things, on the assumption that the broad political agreements deliver their expected reductions and that agriculture meets its reduction target.

Risk of additional costs by using a sector-specific approach

The limitations of the expert group's recommendations follow from the group's terms of reference, but the Chairmanship considers that it is not appropriate to set reduction requirements and tax rates for individual industries. Such an individual approach runs the risk that reductions would be too large in some industries and too small in others relative to the cost-effective distribution of the measures, which would be ensured by a uniform greenhouse gas tax. Despite the sector-specific approach, the expert group's assessment of the level of the CO₂ tax required is of the same magnitude as the average CO₂ tax on the emissions in question that is implied by the Chairmanship's updated estimates.

The Chairmanship recommends a full tax rebate of the quota price

Model 1 is the most cost-effective of the expert group's three models, but it does not involve completely uniform CO₂ taxation. First, the expert group proposes that only half of the quota price be rebated. Uniform CO₂ taxation, however, entails a full tax rebate of the quota price in exchange for all free quotas allocated by the EU being handed over to the state. The Chairmanship considers that a full rebate of the quota price is more consistent with a pioneering country strategy. A full tax rebate will ensure that the incentive to implement CO₂ reductions is the same in both the quota sector and the non-quota sector, which is the most cost-effective incentive structure, and one that, it would be hoped, other countries, including the EU countries, would be inspired to follow. At the same time, effective taxation in the quota sector becomes independent of the market-determined quota price, which reduces uncertainty to the benefit of investment in the sector.

The expert group's model 1 is more expensive than uniform taxation

In addition, the expert group's model 1 implies that existing energy taxes are not fully phased out and that existing CCS subsidies are maintained. This means that the effective CO₂ taxation (including of negative emissions) in the expert group's model 1 is not uniform. Estimates using the Chairmanship's modelling framework indicate that the expert group's model 1 involves additional costs of approximately DKK

2 billion annually compared with a uniform CO₂ tax that ensures the same reductions.

Reduction in the risk of leakage in models 2 and 3 is limited

Models 2 and 3 primarily differ from Model 1 by having a reduced tax rate for the cement industry and higher subsidies for CCS. According to the expert group, this increases the annual economic costs by approximately DKK 1 billion in 2030. On the other hand, according to the expert group, the models would achieve a reduced risk of leakage and the existing sectoral structure, including of the cement industry, would be maintained. It is the Chairmanship's assessment that the long-term reduction in the risk of leakage achieved by models 2 and 3 is limited.

Reductions via CCS lead to leakage via the EU quota market

The limited reduction in the risk of leakage in models 2 and 3 is due firstly to the fact that both the cement industry and the CCS measures that are to generate a significant share of the cement industry's reductions are in the quota sector. In the long run, leakage in the quota sector is close to 100 percent regardless of how the reductions are made. Thus, there is hardly any significant reduction in leakage in models 2 and 3 in the long run. It cannot be ruled out that models 2 and 3 would lead to some reduction in leakage in the period leading up to 2030; however, it is the Chairmanship's assessment that this reduction is uncertain and presumably limited. This is due to high transport costs, limited import competition and high markups in the cement industry, cf. estimates in Chapter III of this report. This leads to the tax having a smaller effect on price increases for Danish cement, and that the risk of leakage is smaller. At the same time, the Danish cement industry is more CO₂-intensive than the European average and significantly more CO₂-intensive than the EU benchmark for greenhouse gas emissions from cement production. Overall, the most significant benefit of the expert group's models 2 and 3 is, therefore, probably not reduced leakage, but primarily reduced adjustment costs of changes in the sectoral structure.

I.3

SUMMARY OF THE REST OF THE REPORT

The following is a summary of the remaining three chapters in the productivity report.

CHAPTER II, TRENDS IN PRODUCTIVITY

Chapter II provides an overview of the trends in productivity. The chapter discusses the potential long-term effects of the COVID-19 crisis, the potential effects of the war in Ukraine and the possible causes of the weakly increasing productivity growth in recent years.

Too early to draw conclusions about productivity in 2020-21

Productivity growth in 2020 and 2021 was strongly affected by the COVID-19 pandemic, which resulted in significant fluctuations. The estimates of both production and employment are subject to uncertainty and are affected by unusual movements. In light of this, it is too early to draw conclusions about the underlying causes of the trend.

Long-term effects of the pandemic are discussed

There are a number of different reasons why the COVID-19 pandemic could have long-term effects on productivity trends in Denmark. The chapter follows up on some of the channels discussed in Chapter III of the Chairmanship's latest productivity report. It is concluded, among other things, that COVID-19 related school closures are not expected to lead to a loss of learning for primary and junior high school students, just as there is no reason to expect negative effects of a longer period of high unemployment. On the other hand, there are signs that the extent of remote working (e.g. working from home) will be higher in the future, which may be associated with efficiency gains.

The war in Ukraine has real economic effects

The war in Ukraine has real economic effects, also in Denmark. Depending on the length and outcome of the war, the effects may prove to be long lasting. The war and sanctions against Russia have initially reduced the availability of raw materials, causing yet another disruption of international supply chains, which have already been under significant pressure during the pandemic. This increases commodity prices, which, all else being equal, dampens demand. In the longer term, the war could lead to reduced trade, greater defence spending, and a re-organisation of the supply of energy. This can give rise to productivity losses, as it requires adjustments in consumption and production.

Signs that the decline in productivity growth has come to an end

Hourly productivity growth in Denmark slowed over a longer period leading up to the turn of the millennium. This gave rise to a debate about what the underlying causes were and, in particular, about whether the weak trend would continue. However, the trend over recent years indicates that the decline has come to an end, and there are instead signs of a slight increase in productivity growth.

Big contribution from activity moving between firms

Just over half of the productivity growth over the period 2000-18 can be attributed to reallocation of economic activity between firms. This is due to effects from firms entering and exiting the market, and also from

shifts in activity towards the existing firms that are the most productive. The remainder of the productivity growth over the period can be attributed to increases in productivity in the individual firms. In particular, there has been an increasing contribution from the internal growth of existing firms since the years leading up to the end of the 2010s. This may be due to Danish firms reaping productivity gains from increasing participation in the international division of labour.

CHAPTER III, TRENDS IN THE MARKET POWER OF DANISH FIRMS

Chapter III examines the trends in competition in Denmark, and the importance of competition for productivity is also discussed.

Strong competition ensures low prices, which benefits welfare

Strong competition reduces firms' market power, which benefits welfare and productivity. When competition is weak, firms are able to charge higher prices, which reduces household consumption opportunities, leading to welfare losses. Strong competition, on the other hand, keeps prices down and closer to firms' marginal costs.

Strong and equal competition increases productivity

At the same time, strong competition can encourage firms to use the most efficient workflow practices and the latest technologies. This ensures a high level of productivity in the individual firms. More equal competition is also an advantage for productivity, as it leads firms to use labour and capital most efficiently. This provides efficient resource utilisation at the community level.

The chapter uses markups to shed light on the trends in competition

The chapter examines the trends in competition estimated using markups of Danish firms over the period 2000 to 2018. The markups indicate the extent to which the firms set their prices higher than their costs. If competition is weak, markups are high because firms have the market power to set higher prices than their costs warrant.

Main conclusion: Markups have increased

The main conclusion in the chapter is that markups of Danish firms increased over the period 2000 to 2018. In 2000, prices were 5 percent above costs, while this figure had risen to 18 percent in 2018. This indicates that competition has become weaker. The increase in the markups is greatest in the manufacturing sector, but there have also been increases in the service sector.

Larger spread in markups is associated with reduced efficiency

At the same time, the differences between the market power of the individual firms have increased, which may lead to a less efficient distribution of labour and capital among the firms. Thus, the spread in markups has increased. This development may be due to the fact that

some firms have gained greater benefits from globalisation or new technologies than others, as discussed in Chapter IV.

CHAPTER IV, EXPLANATIONS FOR THE TRENDS IN THE MARKET POWER OF DANISH FIRMS

Chapter IV examines a number of possible explanations for the increase in the markups of Danish firms.

Globalisation increases productivity

Globalisation implies economic gains and higher productivity. The increased international division of labour means that goods and services are produced in places where they are manufactured most efficiently. When a firm trades with other countries, it can also acquire new knowledge about organisational structures and technologies, and thereby increase its productivity.

Greater competition from imports may have reduced market power

Globalisation means that Danish firms are exposed to increased import competition, i.e., increased imports of competing products and services from abroad. This may have contributed to reducing the markups of Danish firms.

Unequal benefits of imports of semi-finished products can increase markups

However, other aspects of globalisation may have contributed to increasing the markups. An analysis in the chapter finds that firms increase their productivity and market share when they are given better opportunities to import semi-finished products or goods for resale. This may be due to the fact that cheaper imported goods give them an advantage that other firms do not have because they import goods that have not experienced the same price drop.

Increased demand for exports from Danish firms may have increased the markups

Another analysis in the chapter finds that increased demand for export goods may have increased Danish firms' productivity and mark-ups. The analysis over the period 2000 to 2018 shows that there has been an increase in the demand for the types of goods produced by Danish firms. The results indicate that greater demand for a firm's goods increases its productivity and its markup. The effect on productivity may be due, for example, to gains from knowledge spillovers associated with trade. Such gains may have led to unequal competitive advantages for those firms that have experienced increased demand for their goods, and thus increased market power.

The overall effect of globalisation on competition is uncertain

Overall, it is difficult to say whether globalisation has affected markups positively or negatively. On the one hand, import competition may have reduced the market power of firms, while on the other hand, the unequal gains from increased trade may have increased the market power of some firms.

But the benefits of globalisation are diminished if they result in more unequal market power

Under all circumstances, there are likely to be gains associated with globalisation in the form of productivity gains. These productivity increases result in lower prices for consumers and thus higher welfare. However, the size of the gains may have been reduced by those firms that experienced greater productivity having also gained more market power. Thus, the fall in prices, and hence the increase in consumer welfare, will be smaller than it would have been in a situation with stronger competition.

New technologies increase productivity, ...

The chapter also discusses the importance of new technologies for competition. New technologies are one of the primary driving forces behind increased productivity and are thus a benefit to firms and society.

... and if the gains are unevenly distributed, they may increase markups

If some firms take greater advantage of the technologies than others, they can increase their market power and thus reduce competition. This is a similar mechanism to that described in the case of globalisation. Studies from other countries indicate that IT may have provided greater benefits to certain firms and thus increased their market power. For example, large firms may benefit from economies of scale in the development of software for internal use. The chapter examines whether something similar applies in Denmark, but this does not seem to be the case. On the other hand, existing studies show that the emergence of robots may have contributed to the increase in markups.

The increase in markups is not due to changes in regulation

Regulation is important for competition, but there are no signs that the legislation has become more anti-competitive in Denmark. Thus, there is no indication that changes in regulation of competition can explain the increase in markups.

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