De Økonomiske Råd
Formandskabet

DANISH ECONOMY AUTUMN 2018
SUMMARY AND RECOMMENDATIONS

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Employment has risen by around 200,000 people since 2013. The increase in employment is supported by expansions in the structural workforce, particularly as a consequence of increases in retirement ages. The planned tightening of next year's fiscal policy is appropriate given that the prospect of high growth in demand suggests that economic policy should dampen activity in the economy.

This report presents a new study of the effects of changes to the taxation of labour income on the choice of working hours. The study finds an average elasticity of working hours with respect to the marginal tax rate of 0.1, which corresponds to previous studies for Denmark. The degree of uncertainty should be emphasized when Danish ministries present impact assessments of tax reforms.

The results of a new analysis that estimates the employment impact of completing a vocational secondary education are presented. For unskilled young people with a low probability of completing a vocational secondary education, estimates of the employment effect are relatively high.

ENGLISH SUMMARY

This report from the Chairmanship of the Danish Economic Council consists of three chapters:

- Economic outlook and public finances
- Taxation and labour supply
- Unskilled workers' attachment to the labour market

Chapter I presents the outlook for the Danish economy and discusses the state of the public finances. Chapter II empirically examines labour supply responses to tax changes. Chapter III investigates the labour market behaviour of unskilled people since 2000.

CHAPTER I: ECONOMIC OUTLOOK AND PUBLIC FINANCES

The Danish economy has experienced high growth rates of over 2 per cent the last three years, and GDP is projected to grow by around 2 per cent in the coming years, cf. table A. In 2018, GDP growth is expected to be slightly weaker, at approximately 1¼ per cent, due to temporary factors. In November 2018, GDP over the period 2015-17 was revised upwards by Statistics Denmark. The structural level of GDP in 2025 is forecast to be approximately the same as was assessed in the spring, which means slightly lower growth in the years leading up to 2025. The forecast average GDP growth for the period 2021-25 has thus been lowered from about 2 to approximately 1¾ per cent per year.

Employment has risen by around 200,000 people since 2013 and is projected to increase further by more than 100,000 by 2025. In 2018 employment is projected to exceed the structural level by about 30,000 people.

The relatively high growth in demand implies increased pressure on the economy's resources in the coming years. However, the increase in employment is supported by expansions in the structural workforce, particularly as a consequence of increases in retirement ages.

TABLE A KEY FIGURES OF THE OUTLOOK FOR THE DANISH ECONOMY

	2017	2018	2019	2020	2025 [a]
	DKK bn.	-------- Real growth rate, per cent.			---------
Private consumption	1,017	2.5	2.6	2.9	2.3
Public sector consumption	536	1.0	0.8	0.5	0.8
Gross fixed capital formation	462	8.4	1.2	1.6	0.2
consisting of:					
Residential investment	103	11.2	2.0	0.1	0.4
Business fixed investment	286	8.7	0.7	3.0	-0.1
Public sector investment	73	2.0	2.0	-1.7	1.2
Stockbuilding[b]	9	-0.1	0.2	0.0	0.0
Total domestic demand	2,024	3.3	2.0	2.0	1.4
Exports of goods and services	1,188	-0.5	4.2	4.1	3.8
Imports of goods and services	1,033	3.0	3.6	4.1	3.4
GDP	2,178	1.3	2.4	2.1	1.7
Key indicators					
Consumer prices, percentage change[c]		0.8	1.8	1.9	2
Unemployment, per cent[d]		2.9	2.7	2.6	2.8
Current account, DKK bn.		116	127	123	177
Current account, per cent of GDP		5.3	5.5	5.2	6.3
General gov. budget balance, DKK bn.		-8	0	-3	2
General gov. budget balance, per cent of GDP		-0.3	0	-0.1	0.1
Hourly wage costs, percentage change		2.4	2.9	3.2	3.2
Terms of trade, change in percentage points		-2	1	-1	-0.4
Employment gap, per cent[e]		1.1	1.2	1.1	0.0

a) The column shows projected average annual growth from 2021 to 2025 for all variables except unemployment, the current account, the general government balance and the output gap. For these variables the column shows the projected value in 2025.
b) Contribution to GDP growth in percentage points.
c) Implicit private consumption deflator.
d) Percentage of total labour force. National definition.
e) Percentage of structural employment. National definition.
Source: Statistics Denmark, National Accounts and own calculations.

The increase in employment and the pressure on the labour market are projected to lead to higher wage growth. This will dampen export growth and, thereby, contribute to a gradual normalization of the economic situation. Thus, the relatively high growth projected for the next years is expected to end in a so-called "soft landing". However, there are risks to this scenario. On the one hand, there is a risk that

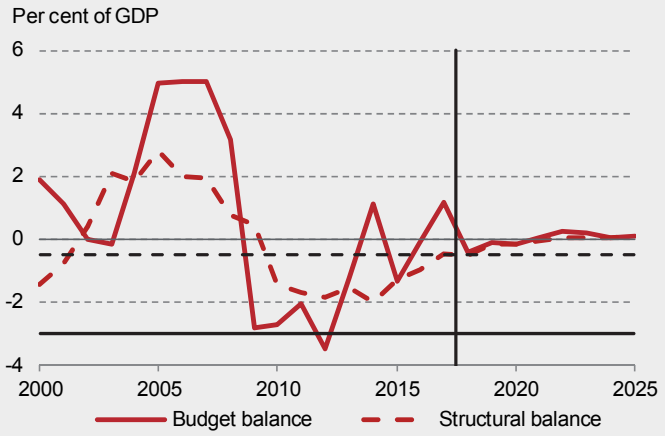
the shortage of labour could increase and could cause the Danish economy to overheat, which could lead to a “hard landing”. On the other hand, there is also a risk that growth will be significantly lower than projected, due, for example, to an escalation of the trade conflict between the United States and China.

Public Finances

It is the assessment of the Chairmanship that the planned fiscal policy for 2019 complies with the fiscal rules. Based on the current outlook for the Danish economy, the budget deficit is expected to be 0.3 per cent of GDP in 2018, and a balanced budget is expected in 2019, cf. figure A.

FIGURE A BUDGET BALANCE, 2000-25

The structural balance improves from a deficit in 2018 to around balance from 2021 onwards



Note: The solid line indicates the deficit limit of 3 per cent of GDP for the general government budget balance and the dashed line indicates the deficit limit of ½ per cent of GDP for the structural balance.
Source: Statistics Denmark, ADAM’s databank and own calculations.

There is a deficit in the structural balance of 0.2 per cent of GDP in 2019. The structural balance is forecast to improve gradually, and from 2022 there is a small surplus. The projected improvement in the structural balance is partly due to the tight restrictions on the growth in public consumption set by the expenditure ceilings. Furthermore, the expected increase in structural employment will also contribute to an improved structural balance over the coming years. Therefore, the medium-term targets for the government's structural balance are expected to be met.

Policy

It is projected that the planned fiscal policy will imply a moderate tightening in 2019, which is appropriate given that the prospect of high growth in demand suggests that economic policy should dampen activity in the economy. However, if the demand grows faster than expected, the risk of a hard landing will increase. A moderate increase in wages and prices relative to the present projection will reduce the need for economic policy measures to reduce labour shortages.

Nevertheless, it is relevant to consider actions that could be implemented at short notice and which would reduce the risk of overheating or moderate the costs of a hard landing. The most obvious way to reduce the risk of overheating is fiscal tightening. A traditional fiscal tightening can be achieved by lowering public spending or by increasing taxes. Raising CO_2 taxes could be a cost-effective way of achieving the long-term climate target while at the same time dampening the activity in the economy in the short term. Another possibility could be to remove or restrict the BoligJobordning (this is a scheme that allows home owners to claim tax deductions for the labour costs associated with certain home improvements), which contributes to increasing labour shortages in the construction industry and has no obvious positive structural effects.

Experience from previous business cycles has shown that the housing market, combined with weak financial regulation, can reinforce macroeconomic imbalances. Thus, suitably tight regulation of the financial sector could help to reduce the risk of overheating of the economy. In addition, tight regulation can help to alleviate the costs associated with a hard landing.

The pressure on the labour market can also be addressed through measures that increase the labour supply. Business-cycle dependent unemployment benefits and easing foreign workers' access to the

Danish labour market are examples of reforms that could strengthen the flexibility of the labour market. Examples of reforms that could permanently increase the workforce include reductions in benefits or increases in the retirement age. Reforms to the unemployment benefit system and changes in the pension system should, however, not be motivated by a cyclical shortage of labour. They should be based on reflections on the need for social insurance, the balance between income distribution and efficiency, etc. Ideally, the timing of such reforms would contribute to easing the pressure on the labour market, but in practice this is difficult. Another challenge is that a larger workforce would only postpone the time when labour shortages trigger price increases and higher wages.

In June all parties in the Danish Parliament entered into an energy agreement with the ambition to make Denmark climate neutral by 2050. The most cost-effective instrument for reducing greenhouse gas emissions is gradually increasing taxes on all greenhouse gases. Therefore, increasing taxes should be introduced on all greenhouse gas emissions towards 2050.

In October the Danish Government presented a proposal for the future climate policy. Among other things, this indicates the path towards fulfilling the agreement with the EU on reducing greenhouse gas emissions from the sectors not covered by the EU emission trading system (ETS) over the period 2021-30 (the 2030 target). Today there is no direct regulation of agricultural greenhouse gas emissions, while there are significant taxes on fuel and cars. The Chairmanship has previously emphasized that there are low-cost emission reductions available in the agricultural sector, while it will be expensive to obtain further reductions from cars. The Government's proposal focuses on transformation of the transport area, which makes fulfilment of the 2030 target more expensive than necessary.

TAXATION AND LABOUR SUPPLY

Revenues from taxation of labour income make up a substantial part of total public revenue. Taxes on labour income also contribute to income redistribution. At the same time labour income taxation reduces the benefit each individual derives from a higher pre-tax labour income. Thus, these taxes reduce the incentive for each employee to increase labour hours, search for a better paid job and to increase productivity through education and higher effort.

In recent years several studies have explored how taxation affects behaviour along multiple dimensions. There are, however, only few Danish studies that examine how taxes on labour income affect the labour supply decision. Moreover, these studies are based on observed behaviour several years ago. The taxation of labour income has undergone several changes in recent decades, and it is not obvious that the previous studies provide a correct assessment of the current labour supply responses to changes in income taxation.

This report presents a new study of the effects of changes in labour income taxation on the choice of working hours. The study is conducted in cooperation with VIVE – The Danish Center for Social Science Research and builds on Statistics Denmark's Labour Force Surveys (LFS) from 1997 to 2015. The study uses, among others, the variation in the tax system arising from several tax reforms to empirically identify the behavioural responses.

The analysis is, among other things, motivated by the recent policy discussion in Denmark regarding which principles should be used to assess the consequences of changes in economic policy.

The study finds an overall elasticity of working hours with respect to the marginal after-tax wage of 0.1. This estimate implies that a tax cut that increases the after-tax wage by 1 per cent could be expected to increase working hours by 0.1 percent. For a person working 37 hours a week, this corresponds to an increase in working hours of 22 minutes if the after-tax wage increases by 10 per cent (corresponding, for instance, to a reduction in the top marginal income tax rate by 5 percentage points). This should be considered as an average effect. Some people would probably not adjust their working hours in reaction to the tax cut, while some may even reduce their working hours.

The study also estimates a higher elasticity for women than for men, cf. table B. If the analysis is conducted for men only, the elasticity is reduced to 0.02 and is no longer statistically different from zero. On the other hand, if the analysis is conducted for women only, the elasticity increases to 0.16 and is statistically different from zero. The difference in the estimated elasticity is, however, not statistically significant.

TABLE B MAIN RESULTS OF THE ANALYSIS

	Elasticity with respect to marginal tax	Confidence interval
Women and men	0.10*	0.01 – 0.18
- women	0.16*	0.03 – 0.29
- men	0.02	-0.10 – 0.13

Note: Elasticity with respect to marginal tax denotes the percentage change in working hours when the marginal tax rate is reduced such that (1 – marginal tax rate) is increased by one per cent. The table shows uncompensated elasticities evaluated at mean working hours. * denotes that the estimate is significant at the 5-per cent level. Confidence interval denotes the limits in confidence intervals at the 5 per cent level.

Source: Own calculations based on register data.

Overall, the results correspond to previous studies for Denmark. The average elasticity of 0.1 is very similar to the estimate in Frederiksen et al. (2008). This and other studies also find a statistically insignificant effect for men and that elasticities are higher for women than for men.

As mentioned above, a higher after-tax wage may reduce the labour supply due to the income effect, as a higher after-tax wage allows individuals to maintain a given income level with fewer working hours. The study does not find a statistically significant income effect, however, and the income elasticity (i.e. the percentage change in hours worked as a result of a one per cent change in the net hourly wage rate) is estimated to be very small. These results also accord with several Danish and foreign studies.

The analysis indicates that there is considerable uncertainty regarding the behavioural responses. Even though the empirical literature indicates that the elasticity of working hours with respect to the marginal tax rate is probably between 0 and 0.3, these seemingly small differences have considerable consequences for assessing the impact on public finances.

Simulations in the report show how the uncertainty regarding the estimated behavioural responses translates into uncertainty regarding

the net effect on public finances. This can for instance be illustrated by considering the consequences of a small increase in the top tax bracket. The simulations show that the rate of self-financing (which measures the percentage of the mechanical revenue loss that is recovered through the behavioural effects) lies between -19 per cent and 89 per cent with 95 per cent probability. Correspondingly the rate of self-financing lies between 17 per cent and 53 per cent with 50 per cent probability.

Thus, it is important to emphasize the degree of uncertainty when presenting impact assessments of tax reforms. This will clarify the degree of uncertainty that underlies the central estimates and illustrate the consequences of deviations from the central estimates. It can thus contribute to political priorities being made on a more informed basis.

The empirical analysis assumes that changes in taxation affect behaviour from one year to the next. Thus, the estimated responses should be considered as short-term responses. Based on the empirical literature, it is probable that the long-term effects will be larger, but there is no real consensus regarding the exact magnitudes.

CHAPTER III: UNSKILLED WORKERS' ATTACHMENT TO THE LABOUR MARKET

Over the last couple of decades the proportion of individuals receiving public income support – over short or prolonged periods – has been decreasing for most working-age population groups. For unskilled natives, however, the incidence of long-term income support recipiency has increased markedly since 2000.

One possible reason for the increase in the proportion of unskilled native Danes on long-term income support may be changes to the public income support system that have made it easier or economically more attractive to receive public income support. However, the eligibility requirements for income support under the various public income support schemes have generally not become more lenient, nor have the income support amounts been raised. In fact, some income support schemes have been abolished, and the requirements for receiving income support under other schemes have been tightened – either such that fewer individuals can receive income support, or such that the length of time an individual can receive income support has been reduced.

Conversely, however, new public income support schemes have also been introduced and eligibility for benefits under some of the existing schemes has been improved for certain groups of individuals. Due, in particular, to the expansion of the flexjob scheme, it cannot be excluded that the changes in the income support system as a whole may have contributed to the increase in the proportion of long-term dependents among the unskilled workers.

Another possible explanation for the increased incidence of long-term income support recipiency among unskilled native workers may be that the employment opportunities for such individuals have deteriorated. Based on a review of the literature on the labour market effects of technological change, economic globalization and immigration, however, it cannot unambiguously be concluded that unskilled natives have experienced a decreased demand for their labour.

Reduced demand for labour in routine tasks has pulled in the direction of reducing the demand for unskilled labour and the greater number of immigrants in the labour market has increased competition for the jobs in which unskilled workers are typically employed. Conversely, a significant decrease in the total number of unskilled workers has pulled in the other direction. Thus, for a given demand for unskilled labour, there has become less competition for the available jobs. In addition, increasing demand for labour in the service sector may have worked in the direction of increasing demand for unskilled labour.

Finally, a third possible reason that the proportion of long-term income support recipients among unskilled natives has increased may be that the composition of the unskilled group has changed. For example, today a larger proportion of the unskilled natives have been hospitalized, or sentenced to imprisonment, and among those who have children, a larger proportion have their children in foster care. The proportion who grew up with parents receiving public income support or parents receiving a custodial sentence and the proportion who were themselves in foster care during their childhood has also increased among unskilled natives.

This indicates that, as more and more people attain education beyond lower secondary school, and the group of unskilled workers has become smaller, unskilled workers have, on average, become less labour market ready. An empirical analysis in the chapter shows that the change in the composition of the group of unskilled workers is likely to have contributed to the fact that a larger proportion of the unskilled natives are on long-term income support today than at the

turn of the millennium. The analysis also shows that there are indications that those with characteristics more common among unskilled workers than skilled workers are less likely to be employed today than previously. Thus, it cannot be ruled out that the employment probability of unskilled workers has also fallen for reasons other than a reduction in their labour market readiness, for example due to poorer employment opportunities.

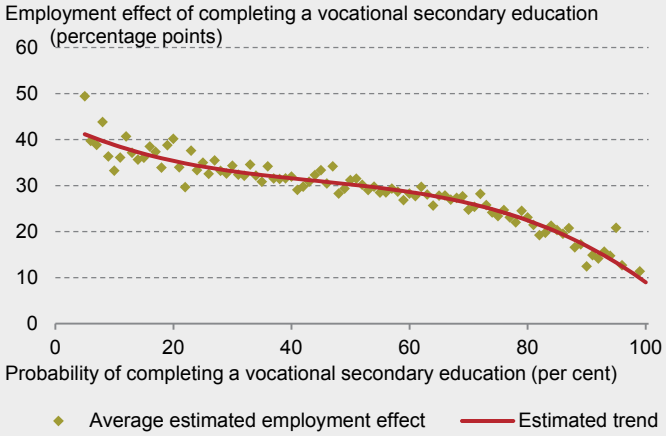
The employment rate of unskilled workers is significantly lower than that of skilled workers. The chapter presents the results of a new analysis that estimates the employment impact of completing a vocational secondary education for young people who have not completed upper secondary education (includes general upper secondary education and vocational secondary education).

For unskilled young people who have a high estimated probability of completing a vocational secondary education, it is estimated that their employment probability increases by about 10 percentage points, on average, if they do in fact complete such an education. However, this estimate may be upward biased, as there may be factors affecting both the employment probability and educational choice that the analysis does not account for.

It is likely that measures that increase the incentives for unskilled young people to obtain a vocational secondary education or increase their chances of obtaining such an education will primarily affect the education decision of those among the unskilled young who are most inclined to participate in further studies. Therefore, the estimated employment effect for unskilled young people with a high probability of completing a vocational secondary education is more policy relevant than the estimated employment effect for the entire group of unskilled young people. The estimated average employment effect of completing a vocational secondary education for the entire group of unskilled young people is higher than that for unskilled young people with a high probability of completing a vocational secondary education, cf. figure B.

FIGURE B EMPLOYMENT EFFECT

Unskilled people with a high probability of completing a vocational secondary education have a lower employment effect of the education than unskilled with a lower probability of completing.



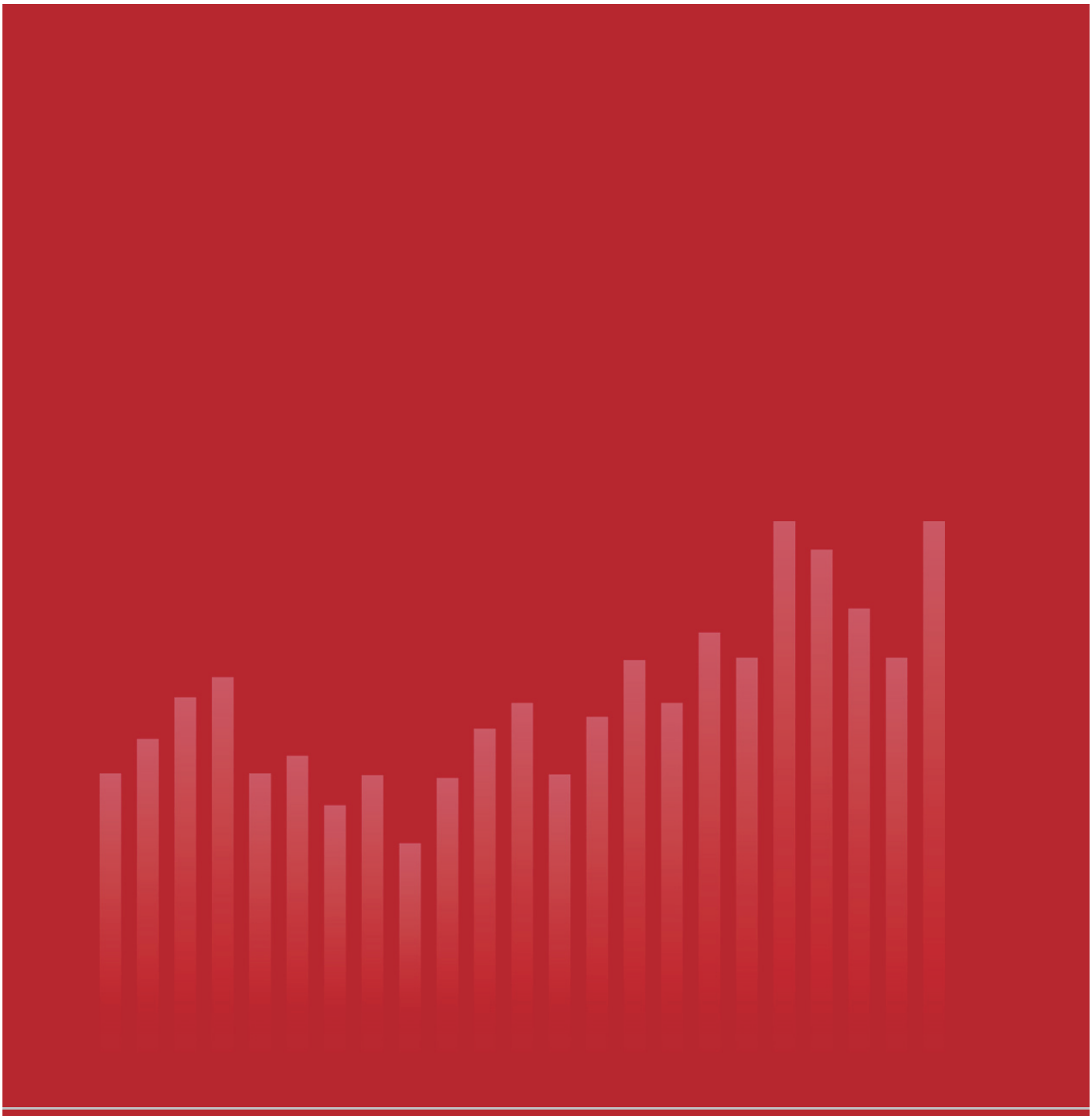
Note: The average estimated employment effects for unskilled people with a calculated probability of completing a vocational secondary education of x per cent is calculated based on unskilled people with a calculated probability of completing P_0 that satisfies $x \leq P_0 \leq x + 1$. Each point in the figure represents between 4 and 106 persons. The trend is estimated using the individually estimated effects.
Source: Own calculations based on register data from Statistics Denmark.

For unskilled young people with a low probability of completing a vocational secondary education, estimates of the employment effect are relatively high. However, a massive effort is probably needed to increase the educational level of this group. In addition, the analysis shows that the expected employment rate of unskilled young people with a low probability of completing a vocational secondary education will be relatively low, whether or not they complete a vocational secondary education.

The analysis shows that the expected employment rate after completing a vocational secondary education is higher among individuals with a high probability of completing such an education than for those with a low completion probability. This implies that when more unskilled

individuals complete an education, employment rates among both the skilled workers and the remaining unskilled workers will be reduced. The reason is that the "newly educated" workers will have a relatively low employment probability compared to other skilled workers, but that they had a relatively high employment probability compared with other unskilled workers while they themselves were still unskilled. The analysis thus supports the view of the Economic Ministries and the Chairmanship of the Danish Economic Councils that the employment impact of an increased level of education is smaller than indicated by existing differences between employment rates of different educational groups.

There has been a significant increase in the proportion of unskilled workers who have started an education beyond lower secondary school. Among the 29-year-old unskilled natives in 2016, 73 per cent had previously been enrolled in vocational secondary education and 78 per cent had previously been enrolled in upper secondary education. This indicates that the policy goal of recent years to get more young people to continue their studies after lower secondary school might have borne fruit. However, there is a significant drop-out rate among students enrolled in vocational secondary education. According to the Ministry of Education, only about half of those who started vocational education in 2017 are expected to complete the courses. Therefore, if there is a policy goal of reducing the proportion of workers who are unskilled, focus should be on measures that increase the retention and completion rates of young people enrolled in vocational secondary education programs. Bridge-building programs, which gradually prepare unskilled young people to participate in education and help them to transition from public income support to education, can be a way to reduce the drop-out rate from vocational secondary education.



Dansk Økonomi, efterår 2018