

**FINANCE
DENMARK**

Most Danish households' finances are resilient to long-term unemployment during the corona crisis

As a result of the corona crisis, private companies are currently experiencing large revenue losses. Had it not been for the government wage compensation schemes, business assistance schemes and loan facilities from the Danish banks etc., private companies would have had to lay off far more staff than what we see today, with even greater consequences for Danish society and for the affected families. Fortunately, the private finances of most Danish families can withstand relatively long periods of unemployment. Those are the findings of a new register-based analysis of Danish households by Finance Denmark.

In the analysis we investigate how many Danish families may face liquidity problems – meaning that they become unable to pay their bills without external financial assistance – if they become unemployed as a result of the corona crisis. Using detailed register data covering the full Danish population, we calculate families' monthly income after tax in case of unemployment. We then subtract their fixed expenses and minimum living expenses¹, calculated and estimated based on their financial conditions, housing conditions, family size etc. Taking into account their private liquidity buffers from bank accounts and personal investments², we are able to predict whether families are at risk of liquidity problems in the case of unemployment of a certain spell (see further details in box 1 below).

In the analysis we focus on Danish families with one or two adults employed in private industries at risk of layoffs as a result of the corona crisis.³ We find that almost 700.000 Danish families, equivalent to 43 percent of employed families, have at least one adult working in such industries, and most of them are two-parent families, where only one parent is employed in a private industry at risk of layoffs. The analysis is based on a scenario where Danish unemployment increase by 70,000 – consistent with the most pessimistic scenario presented by the Economic

Memo

May 4, 2020

Doc: FIDA-1941317218-689509-v1

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¹ Our estimations follow a mixture of guidelines from the Danish FSA and Statistics Denmark's assumptions. The expenses are based on family size and composition.

² Personal investments include listed stocks, bonds and mutual funds.

³ Here we assume that industries at risk of layoffs include manufacturing, wholesale and retail trade (excluding food and household goods), hotels and restaurants, culture, entertainment and sports, passenger transport, construction, and many companies providing services to individuals and businesses.

Council as of April 6th – and we assume that the unemployment spells hit randomly but spread across industries and educational level in accordance with the actual increase in unemployment as seen since the start of the crisis.⁴

Our results show that the vast majority of families potentially affected by unemployment because of the corona crisis can withstand financially for a year or longer. If Danish unemployment increase by 70,000 as a result of the crisis, approx. 4,600 families – corresponding to just under 7 per cent of all Danish families affected by unemployment in the scenario – may experience liquidity problems after three months of unemployment, see **figure 1**. After six months of unemployment, the number has almost doubled, and after 12 months of unemployment we find that nearly 11,700 families may risk liquidity problems – corresponding to 17 per cent of all families affected by unemployment as a result of the crisis or equivalently 0,7 percent of all employed Danish families.

After more than one year of unemployment, the number of families at risk of liquidity problems tends to increase at a decreasing rate. Thus, even for longer periods of unemployment, relatively few families risk liquidity problems if they are affected by unemployment as a result of the corona crisis.

We only consider the effect of unemployment on the households' finances and our numbers are subject to a certain degree of uncertainty. In practice, families may have higher minimum spending needs than what we assume, unexpected expenses or special consumption propensities.⁵ However, many families may also have the opportunity to restructure existing debt or borrow from the bank, family or friends, should they face liquidity constraints. It should also be noted that we do not include families who (based on our estimates) face liquidity constraints prior to the corona crisis.

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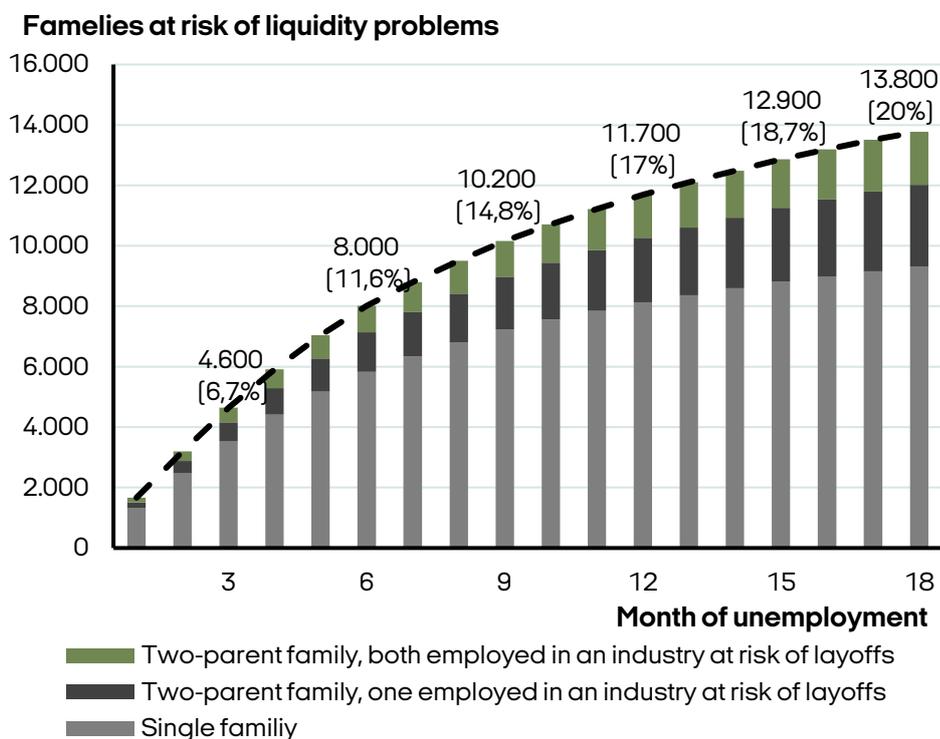
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⁴ Specifically, we carry out a so-called bootstrap analysis with 50 iterations. Each iteration shows the result of 70,000 people being hit randomly based on actual observed unemployment distributions by unemployment. Our final results correspond to the average results of the 50 iterations.

⁵ We use information on all public unemployment insurances (a-kasse), which is by far the most common type of unemployment insurances in Denmark. Some people also have private unemployment insurance, which we are not able to take into account.



Figure 1 Families at risk of liquidity problems after 1-18 month of unemployment



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Note: In the figure we consider a situation where unemployment rises by 70,000. The figure shows the number of families who, after 1-18 months of unemployment, are at risk of liquidity problems. The percentages indicate families at risk of liquidity problems as a percentage of all families affected by unemployment.

Source: Register data from Statistics Denmark, 2018 figures.

The relatively high resilience of Danish families' private finances is due to at least four factors:

1. The government wage compensation and business assistance schemes:

The most recent figures from the Danish Business Authority show that approx. 186,000 Danes are currently covered by wage compensation. Had it not been for this support scheme, many of these people could have been laid off, meaning that the unemployment instead could have increased by 230,000. In that case, our calculations show that, instead of 11,700 families at risk of liquidity problems after 12 months of unemployment, the number could have been just over 40,000 – i.e. approx. three and a half times as many.

2. Many families are able to maintain a reasonable income in the case of unemployment:

According to our register-data, almost 70 per cent of all Danes employed in private industries at risk of lay-offs have an unemployment insurance (including self-employed persons). More so, most



families affected by unemployment are two-parent families, where only one parent is employed in a private industry at risk of layoffs.

3. **Most families had robust private finances going into the crisis** and we find that almost eight out of ten families hit by unemployment can handle more than two years of unemployment, see figure 2. For most families – around two out of three – this is because their monthly disposable income after all costs-of-living remains positive even in the case of unemployment.
4. **Many families have large personal savings:** In a previous analysis by Finance Denmark, we found that almost half of all adult Danes have personal savings equivalent to three months of income after tax. In the event of unemployment, the personal savings will serve as liquidity buffers, increasing the length of unemployment which families can withstand.

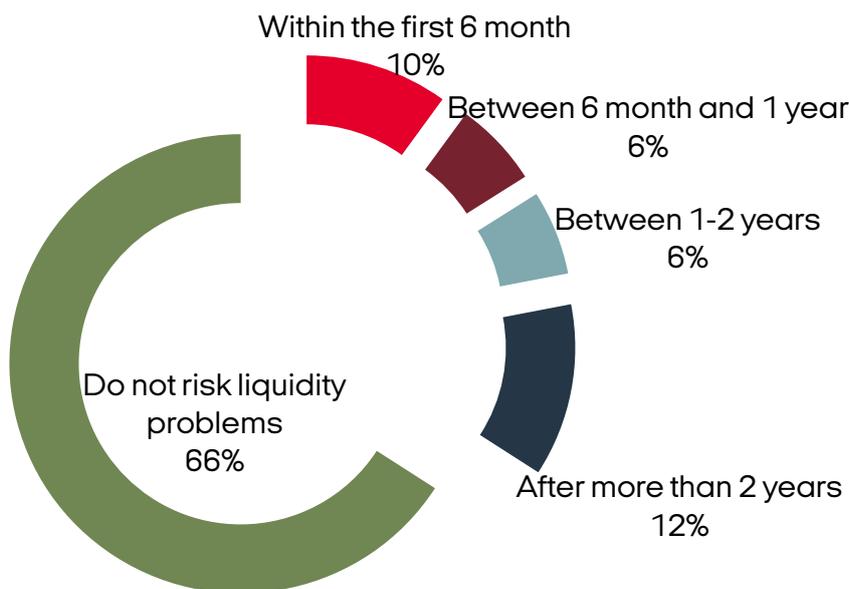
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Figure 2 Families at risk of liquidity problems in the case of unemployment



Note: The figure shows the number of families at risk of liquidity problems in case of unemployment of a certain spell, given as a percentage of all families affected by unemployment. In the figure we consider a situation where unemployment rises by 70,000.

Source: Register data from Statistics Denmark, 2018 figures.



Box 1. Data and calculations

The analysis is based on a scenario where Danish unemployment increase by 70,000 – consistent with the most pessimistic scenario presented by the Economic Council as of April 6th – and we assume that the unemployment spells hit randomly but spread across industries and educational level in accordance with the actual increase in unemployment as seen since the start of the crisis.⁶

In this case many families will not be affected by unemployment, in some families one adult will be affected and in a few families two adults will be affected.⁷ For all families affected by unemployment, we calculate the family's **disposable income after all cost of living** less their estimated **income loss in the case of unemployment**. Finally, we calculate how many months of unemployment the family's personal finances can withstand before they have depleted their entire **private financial wealth** and thus are at risk of liquidity problems.

Disposable income after all cost of living is given by the difference between their total income after deductible pension payments, tax and interest payments, less the family's other fixed expenses and expected living expenses. In accordance with the guidelines of the Danish FSA, the expenses include:⁸

- Repayments on mortgage loans and other loans.
- Joint expenses in housing cooperative and owner-occupied apartment, as well as house maintenance.
- Cost of rent for tenants.
- Cost for childcare (institutions).
- Electricity, water and heating costs.
- Transportation costs.
- Insurances.
- Phone, internet and TV.
- Minimum cost of living for the family including food, clothes, amusement etc.

Adults' income loss in the case of unemployment is given by the difference between their monthly business income (excl. pension contributions) after tax and

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⁶ Specifically, we carry out a so-called bootstrap analysis with 50 iterations. Each iteration shows the result of 70,000 people being hit randomly based on actual observed unemployment distributions by unemployment. Our final results correspond to the average results of the 50 iterations.

⁷ We find that nearly 69.000 families will be affected by unemployment, and a bit more than 1.000 families will have two adults affected by unemployment.

⁸ For each family these cost components are estimated based on register-data regarding the family composition, the age of all children in the family, data on individual mortgages and other loans, the size/age/type of dwelling, rent, reported tax deductible insurance cost etc. On top of all fixed expenses, we assume a minimum cost of living equivalent to 4.000 DKK for the first adult, 2.000 DKK for the second adult (when considering two-parent families) and 1.300 DKK child (when considering families with children). Further details regarding each cost component are found in the Danish paper by Finance Denmark: "Danske familier står godt rustet mod ledighed under corona-krisen".



their possible unemployment contribution after tax. We also correct for expected change in income tax rate when the income in the family drops, as well as a drop in transport expenses when people no longer go to work. The potential unemployment contribution is given by:

- Expected unemployment benefits for adults who have a public unemployment insurance (a-kasse).⁹
- Expected minimum social benefits from the government for adults who do not have an unemployment insurance (a-kasse). Here we follow the general rules regarding minimum social benefits rates and adjusted for various factors such as age, family composition, wealth, spouse's income etc.

The private financial wealth includes bank savings, private investments in equities, bonds and investment funds (excluding all pension savings). Families are only at risk of liquidity problems once they have depleted their entire private financial wealth. We also assume that adults on average are laid off with a one-month notice,¹⁰ and during this period families will act rationally and save as much as they can. Thus, families' private financial wealth is supplemented by the equivalent of their disposable income after all cost of living over a period of one months.

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⁹ In Denmark, the rate of unemployment benefits ("Dagpenge") for people with an unemployment insurance (a-kasse) is quite simple. It may never exceed 90 per cent of the persons previous salary and can never be higher than the maximum rate of around 19.000 DKK before tax (as of January 1, 2020).

¹⁰ In Denmark, it is quite uncommon that people can be laid off with immediate effect. Most have at least one-month notice and many have 3-6 month notice – according to the Salaried Employees Act.

