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# Credit Consumption and Financial Risk Among Danish Households— A Register-Based Study of the Distribution of Bank and Credit Card Debt

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## Abstract

This article discusses the distribution of widely used consumer loans in Denmark in the light of the “risk position” in which this places Danish households. Denmark has the highest debt-to-income ratio of all OECD countries, yet the high level of consumer debt has received relatively little political attention in Denmark and the social and legal protection of citizens with debt problems is limited. This article presents findings from an empirical study that investigated the distribution of consumer loans in Denmark. Drawing on the notion of “risk position,” the article challenges the idea that only socially marginal groups are at risk of getting into debt problems. The empirical study analysed the sociodemographic distribution of two common types of loan in Denmark (bank loans and credit card debt) based on the administrative register data of a full population of individuals. Register-based data provide much more reliable measures of debt than self-reported surveys, because of non-response problems in surveys. The results show not only high debt levels among hitherto known vulnerable social groups, but also highlight groups of middle- and higher-income wage earners with very high levels of debt. We frame the results in the light of existing policy measures in Denmark and suggest the need for a better balance between deregulation of credit markets and individualization of debt problems on the one hand and the need for political protection of individual loan takers on the other.

**Keywords** Consumer credit · Denmark · Debt risk · Administrative data

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The digitalization, deregulation, and enlargement of credit markets have fuelled credit consumption among individual citizens in most Western countries in recent decades (Andersen et al. 2009; Lauer 2017; Poppe 2008). The general availability of credit combined with the increasing commercialization of social life and intensive marketing of financial products have led to a general normalization of credit. This has resulted in not only increasing debt levels, but also an increasing number of debt defaults among private households at a global level (Deville 2016; Hiilamo 2018; Lazzarato 2012; Peñaloza and Barnhart 2011).

Like many other markets, the Scandinavian countries have experienced a process of financial deregulation where credit has become a constitutive force in national economies (Andersen et al. 2009; Danish Bankers Association 2007; Epstein 2005; Poppe 2008). For private households, this has resulted in high levels of credit consumption, but also higher levels of default debt (Almaas et al. 2015; Andersen et al. 2009; Danish Consumer Council 2015; Danish Ministry of Economic and Business Affairs 2010; Hohnen and Böcker Jakobsen 2015). This has fuelled the development of credit consumption and debt as emerging research fields.

A large part of this Scandinavian research has been concerned with default debt, with the aim of empirically identifying particular sociodemographic groups at risk, especially from risky types of loan and/or lack of financial knowledge (Autio et al. 2009; Carlsson et al. 2015; Majamaa et al. 2019; Poppe 2008; Raijas et al. 2010; Swedish Enforcement Authority 2008). Other Scandinavian research has been concerned with conceptualizing the normalization of credit consumption and its social implications as a part of the financialization of everyday life (Borgeraas et al. 2016; Poppe et al. 2016). These latter studies have taken their theoretical inspiration from international work on credit consumption, which has been concerned with the structural and governmental features of credit-driven economies (Langley 2008; Lazzarato 2012; Marron 2012; Soederberg 2013).

This paper draws on insights from both areas of research. We wanted to increase the amount of empirical data on the sociodemographic distribution of “mainstream” forms of consumer credit among the Danish population, but we also wanted to examine how “over-indebtedness” is linked to broader instabilities and lack of predictability in social life, and draw attention to the generic risks related to high levels of consumer debt in credit-driven societies. For the fact is that high credit levels increase financial insecurity and risk of default not only among the most vulnerable social groups, but also among the large number of middle-class households who use consumer credit. To help clarify the issue, we draw on Borgeraas et al. (2016), who were the first to apply to individual households the notion of “debt risk position,” which is defined as a position of risk of default and is tied to contemporary neoliberal credit societies and policies.

The article has three main sections, which together constitute the overall argument. In the first section, we develop the analytical framework, drawing on relevant literature that connects credit consumption at household level with the risk of default debt. We draw on insights from sociological literature on credit and the deregulation of financial markets as well as on knowledge from relevant studies on default debt. We then develop the perspective that the accumulation of problem debt is a process related to events at the level of an individual life as well as at a structural level. Drawing on the literature, we show how the risk of default debt depends on external forces that are beyond individual control.

In the second section, we analyse the wider sociodemographic implications of consumer debt. This analysis is based on a register-based empirical study of the distribution of bank and

credit card debt across the Danish population. These two forms of consumer debt were chosen, because they are widely used forms of consumer credit in Denmark. Bank loans alone constituted more than 80% of the total amount of consumer credit in 2019 (Statistics Denmark 2019). Credit card debt is widespread among middle-income consumers, and we know from other studies that a relatively large number of default cases are related to credit card debt (Majamaa et al. 2019).

Finally, we discuss the empirical results (and the risk position that large numbers of citizens seem to occupy) in the light of the lack of consumer protection in Denmark compared to the regulatory measures in other Scandinavian countries, and we suggest some ways in which the policies and legal framework could be revised to better protect potential defaulters.

## Analytical Framework

### Financialization, Credit Consumption, and Risk of Default

A growing number of studies on financialization have emerged in the last decade that understand financialization as a deregulation of global and domestic credit markets followed by a normalization of credit use at both national and household levels (Epstein 2005; Lazzarato 2012; van der Zwan 2014). Consumer credit as an integrated part of everyday life is viewed as part of wider economic and political development towards credit-driven economies. This growing academic research field is interdisciplinary and sees financialization as being played out at various levels ranging from the structural components of contemporary capitalist regimes of power accumulation to how access to credit (and debt) influences the everyday life of individuals (van der Zwan 2014).

Part of this literature addresses the economic and political processes that drive mainstream household credit and views the expansion of credit use as a structural feature of financialization (Lazzarato 2012; Soederberg 2013). There is a strong tendency to look at this development from a Foucauldian perspective of governmentality, and several studies focus explicitly on the regulatory role played by credit and view credit and debt as constitutive forces in contemporary neoliberal societies (Adkins 2017; Langley 2008, 2014; Maurer 2014). In this perspective, financial instruments are not just technical and instrumental lending strategies, but are co-constitutive of social relations and subjectivity.

New credit technologies create a monetary environment in which people continuously rent their own future income, and therefore become “permanent debtors” (Maurer 2014; Marron 2014). Lazzarato (2012) characterizes the increasing use of credit by private households as a “life on rent,” with spending patterns where income is spent beforehand and credit is used as a buffer. These studies therefore establish a connection between the development of credit-driven economies at a national political level and the creation of increasing financial risk for individual households.

With regard to the Scandinavian countries, several Norwegian studies adopt a similar perspective (Borgeraas et al. 2016; Poppe 2008). Borgeraas et al. (2016) show how the normalization of equity borrowing as a way of increasing welfare in Norway has put many households at risk. They are now exposed to changes in macro level economic markets as well as unexpected life events, e.g., unemployment, divorce, or sickness, all of which can lead to future financial problems. The authors argue that the normalization of household credit as a driver in the economy in this way renders a very large number of Norwegian citizens

financially vulnerable, since their future welfare depends on the unpredictability of market mechanisms as well as future personal life events (Borgeraas et al. 2016).

“Norway is one of the few European countries being only lightly affected by the current [crisis]. Instead, the country is marked by more than two decades of economic upturn. However, during times when ‘everybody’ is getting rich, people are also moving into *risk positions* that may prove difficult to tackle over time” [italics added] (Borgeraas et al. 2016, p. 87).

In this perspective, the issue of the financial risk of developing default debt is not understood as a problem of particular social groups or individuals taking particularly high-risk loans, but as an inherent part of the political regime of financialization promoting and normalizing credit use at household level. A recent study focusing on “debt careers” among young adults in Denmark (Hohnen 2020) shows how the development of problem debt in young peoples’ lives can be seen as the result of unpredictable life events, rather than irrational consumer choices. And from a different, more practice-oriented perspective, Pellandini-Simanyi and Vargha (2020) show how credit consumption has become “ordinary” and routine—making individuals blind to the risks of default involved in loan-taking—a point that is also made by Martin (2002). In spite of their theoretical variety, the argument in all these studies hinges on an understanding of debt problems among individual households as part of a social process. The content of such processes is specified more concretely by Marron (2012), whose article entitled “Producing over-indebtedness” pinpoints a series of unpredictabilities related to over-indebtedness:

Particular life events like sickness, unemployment, changed family circumstances and marital breakdown can have profound effect on an individual’s income. In turn, this is seen to impact upon their ability to repay current obligations on credit payments as well as sustain payments on utility bills, mortgages and other financial commitments (Marron 2012, p. 412).

This quote, like that from Borgeraas et al. (2016) above, emphasizes how some of the main factors leading to debt problems lie beyond individual control. These unpredictabilities can be related to both individual life events and structural factors, e.g., changing financial cycles, economic crises, and labour market conditions. Other factors related to developments in credit markets can also add to this instability and lack of individual control. One such factor is the continuously increasing complexity of (securitized) credit products (Adkins 2017). Another risk factor is related to prevailing lender tactics in financial markets, e.g., automatically increasing credit limits on cards or reducing minimum payments on credit cards, both made as inducements that tempt consumers to overspend (Marron 2012, p. 414). Together these studies view over-indebtedness as a process related to structural dimensions of economic markets as well as to the existentialist condition of life’s unpredictabilities. These studies therefore invite renewed attention to the development of high levels of credit consumption as well as the policies required to address the financial risks involved in mainstream credit usage.

## Default Debt and Vulnerable Groups

In addition to the literature on the financialization of everyday life and the unpredictability and risk that this imposes on all credit-taking households, there is also a body of literature looking more specifically at default debt and the particular social and demographic groups most at risk of default. We looked at this research with a view to increasing relevant knowledge about the risk groups in the empirical analysis and therefore outline here some of the main research findings on default debt.

A small, but growing number of quantitative and mainly register-based studies have analysed the distribution of household default debt by sociodemographic characteristics (Balmer et al. 2006; Patel et al. 2012; Poddar et al. 2015). They show that low-income and young people often rely on high-interest loans (Kempson and Collard 2005) and that unemployment, sickness, and old age (pensioners) tend to increase the risk of problem debt (Caplovitz 1981; Hiilamo and Kangas 2013). Many of these studies have a specific focus on problem or default debt, and among Scandinavian studies of this kind, there seems to be an overrepresentation of Finnish studies (Autio et al. 2009; Hiilamo 2018; Majamaa et al. 2019; Oksanen et al. 2015).

Most of these studies show the risk of default debt as unevenly distributed across populations. Oksanen et al. (2015) point at young age and low levels of education as factors for the higher prevalence of debt problems and large amounts of outstanding debt. Autio et al. (2009) also present the young as a particular debt risk group. They find that young consumers are easy victims of predatory loan practices and instant loans, and that they risk ending up in a vicious circle of debt as one loan leads to further loan-taking. Majamaa et al. (2019) investigate various forms of consumer credit, including their sociodemographic distribution and their inherent risk of resulting in default debt. Their study is based on an analysis of court judgements for debt and reveals the sections of the population that are most at risk of default debt and the types of loan/debt that create most payment problems. They say that the share of debt-collection cases related to consumer credit has increased significantly in recent years, and that more than half of all debt-collection cases in 2011 were related to consumer credit. Their findings support the view that the young, males, single-person households, and people with little or no education are overrepresented among debtors.

Nevertheless, Majamaa et al. (2019) also show this picture is an over-simplification. Credit card debt, which constitutes a rather substantial part of all debt-collection cases in Finland, is seldom found among the youngest credit takers, and credit card debt-collection cases involve married couples more often than singles. Moreover, those with the highest levels of education are almost twice as likely to have credit card debt as those with merely a basic level of education. These findings show that, although the most expensive credit forms—those that prevail among certain socially vulnerable groups—are most likely to lead to default debt, risk of debt is by no means confined to these credit forms—nor to these specific social groups.

## Danish Research on Debt Levels and Default Debt

Although Denmark has the highest debt-to-income ratio among all OECD countries (OECD 2019)—and therefore also among the Scandinavian countries—there has been little research on credit consumption and debt problems in Denmark. Most studies have been qualitative, focusing on specific subfields, e.g., young consumers or home equity loans (Andersen et al. 2009; Hohnen et al. 2020; Sjørsløv 2012). Quantitative analyses of Danish data have been limited to broader international comparative studies on credit use and problem debt (e.g., Eurobarometer) or overviews in Danish published by public interest organizations (Danish Consumer Council 2015, 2018). Register-based quantitative studies on the distribution of consumer credit among households are generally scarce, and this is particularly so in the case of Denmark. And in relation to the risk of default debt, it is relevant to mention that, although the legal regulation of payday loans has recently been strengthened, the legal system targeting credit consumption and debt has been criticized for a lack of protection of credit takers and

default debtors (Jørgensen 2012). We will return to the role of legislation in the concluding discussion.

Danish academic research on credit consumption and default debt is rather scarce. This is surprising since on average Danish households have debt equal to three times their annual income (OECD 2019). A few qualitative studies (Andersen et al. 2009; Hohnen et al. 2020) point towards a general cultural change in spending patterns in which credit has replaced savings. Hohnen et al. (2020) shows how digital payment infrastructures tend to confuse young people on the difference between having money and owing money. Moreover, a mixed-methods' research project on problem debt among young people carried out by the Danish Consumer Council (2015) showed how debt problems among the young have multiple causes, which makes it difficult to predict particular categories of young people at risk of getting into financial trouble. The findings from this study show that debt risk is closely related to the unpredictability of social life, e.g., changing household status (or divorce), change of job or education, or sudden health problems (Danish Consumer Council 2015, 2018).

## Summary and Analytical Framework

Prevailing studies indicate that certain social and demographic groups are at particular risk of getting into problem debt. These are people with lower education, young people, single parents, and those with unstable and low incomes. These studies focus on the riskiest loan forms and on identifying the most financially vulnerable social groups. However, the growing literature on the normalization of credit use suggests that the risk of debt is inherent in all forms of consumer credit—even credit not generally regarded as risky. Moreover, these loan forms tend to stay below the radar of both the individuals taking them and the politicians responsible for their regulation. The relevant literature on Denmark also suggests a lack of empirical knowledge with regard to mainstream credit and the distribution of these loan forms. The following empirical investigation combines insights from the literature reviewed above. We apply the analytical perspective based on the sociological literature surveyed above, viewing the risk of problem debt in terms of the lack of predictability of contemporary social life and markets. We then investigate the distribution of these risks by analysing the usage of mainstream loan forms across sociodemographic groups.

## Research Aims and Research Questions

This study examines the distribution across the various social and demographic groups of the Danish population of two types of consumer debt: bank loan debt and credit card debt. The analysis is based on the administrative register data of a full population. Our aim is to provide a rigorous description of relevant socio-demographic variations (specified below) that can fill the current knowledge gap on debt distribution in the Danish welfare society. The study is based on access to Danish register data with very detailed information on, for example, socioeconomic variation. These data cannot provide information about problem debt across all social segments, but they can provide a starting point for understanding the social and regional distribution of mainstream credit forms in Denmark by answering the following questions:

- (1) *Which socio-economic and demographic groups are more likely to have credit card debt and bank loan debt in Denmark?*



- (2) *How does the amount of credit card debt and bank loan debt vary across socio-economic and demographic groups?*

We conclude the article by discussing our findings in the light of the financial risks that they pose, particularly when related to the formal credit assessment and weak legal protection of credit consumers in Denmark.

## Data and Methods<sup>1</sup>

### Data

This study is based on data from Statistics Denmark's administrative registers, which consist of several databases. This study is primarily based on the Danish tax registers, which contain information on personal debt, income, assets, and type of income. We also used information from a population database on age, gender, household type, and children in household and from a database on the population of cities, towns, and villages. For data analysis, we used the Stata statistical software package.

Statistics Denmark's databases cover a full population, and we selected individuals who were between 19 and 64 years of age at the beginning of 2016 and were not living with their parents ( $n = 3\,304\,166$ ). We decided to omit adults living with parents because we wanted to capture people with autonomous economy. The number of observations was lower in the econometric models due to missing data on several variables and the removal of extreme outliers, but a certain drop in observations must be expected when several databases are combined for a large sample.

Register data gives a unique opportunity to study personal debt. They cover a full population and, unlike surveys and questionnaires, non-response from more vulnerable groups is not a problem, so we are able to compare all the indebted individuals with the rest of the Danish population. The level of detail is also very high, because the information is used for taxation and reported directly from the registers of the financial institutions that collect it on their customers. Moreover, the combination of register databases with anonymized identification codes meant we were able to compare information on debt with a range of other information on individuals and households.

However, there are also disadvantages related to the use of register data. For example, it was difficult to establish the process of data collection (or registration) for the variables available to researchers. Moreover, the data contains outliers that might be erroneous registrations or simply extreme cases. We therefore decided to omit the highest 1% of observations on the two dependent variables.<sup>2</sup> Furthermore, the various information used was not collected at the exact same time. Although all information was set to be as registered on 1 January 2016, taxation register information was based on the full year of 2015 (income, debt, and assets), whereas population databases are continually updated.

<sup>1</sup> Stata is used as statistical software.

<sup>2</sup> We tested a model without removing outliers and it gave a similar result with slightly different estimates.



## Measures

We used two indicators of personal debt, which reflect different types of personal consumer indebtedness. These were credit card debt and bank loan debt. Both indicate the total debt for that type and are based on the taxation year 2015. Debt on credit cards is administrated by private companies, and this information is used by financial institutions and for taxation purposes. Bank loan debt reflects private loans from a bank. These loans do not have a specific purpose and are therefore characterized as consumer loans. Bank loan debt does not include mortgages, but does include other loans from the bank, such as overdrawing an account.

We included a number of explanatory variables in the models. To measure differences in economic resources, we used annual disposable income and economic assets, which were both recorded in quintile groups. Disposable income covers earnings after tax and paid interest. Economic assets reflect all assets, including property value, car value, bank deposit, bonds, and stocks. We also included the highest attained education and type of income. Inspired by Oksanen et al. (2015), we grouped education into three categories by total length in years: basic school (9–10 years), upper school level (11–14 years), and university level (more than 14 years). For type of income, we used the employed as the reference group, and the other groups were the unemployed (people receiving unemployment benefits or who had been unemployed for at least half of 2015), early retirement (people on early retirement benefits), pensioners (people on post-employment benefits and retirement benefits), and students (people enrolled in education or job training). As sociodemographic characteristics, we chose gender, age (categorized in five groups), household type, and number of children in the household. In addition to couple and single, the household type variable also included a category for those living in a household with more than one family registered, i.e., extended families. Finally, we wanted to investigate the association with town population size because this might reflect differences in consumption behaviour and the possibility of obtaining loans. This variable had “less than 5,000 inhabitants” as the reference group, followed by “5,000 to 50 000 inhabitants” and “50 000 or more,” and the last category was “metropolitan area,” which refers to the greater Copenhagen area.

## Statistical Methods

This study was aimed at investigating differences in personal consumer debt across both socio-economic and demographic characteristics. However, the two sets of dependent variables had an excessive number of zeros and were overdispersed (i.e., variance much larger than mean). We therefore modelled the social differences in personal debt using zero-inflated negative binomial (ZINB) regression, which takes account of the overdispersion and sample selection problems (Wooldridge 2010). ZINB regression models debt in two steps: (1) an “inflated” or logit model that estimates the probability and (2) a “count” or negative binomial regression model that estimates the expected change in the amount of debt for a one-unit increase in the explanatory variable, with the other variables held constant. To ease interpretation of the logit model, we reversed the estimates of the logit model so that we could present the probability of having debt (Friedline and Kepple 2017). This means that the first analytical step was the logit model that estimated the probability of having the type of debt, represented using logit coefficients, and the second analytical step was the count model that estimated differences in the amount of debt, represented using regression coefficients.

## Results

In this study, we wanted to investigate the distribution of credit card debt and bank loan debt in Denmark because we assumed them to be widespread. The analysis of the population of 2016 ( $n = 2\,845\,462$  in Table 1) supports this and shows that 54.6% had bank loan debt while 37.7% had credit card debt. Moreover, when we look at the amount of debt (for those having the specific kind of debt), the median of bank loan debt is EUR 18 456, while the median of credit card debt is EUR 6,560.

Table 2 presents the results of the zero-inflated negative binomial (ZINB) regression, which consists of two models. The *inflated* model estimates the likelihood of having debt and being therefore part of the *count* model (because we reversed the estimates). The *count* model estimates differences in the amount of debt across groups when controlling for other factors. In this way, the *count* model holds the other variables constant at their means and takes into account how likely the group is of having each type of debt.

### Credit Card Debt

Model 1 shows that women were slightly more likely to have credit card debt than men were. However, among those who had credit card debt, men tended to have higher amounts of debt. Compared to the oldest group (50–64 years), the younger groups (19–25 and 25–29) were less likely to have credit card debt and tended to have lower amounts of debt, whereas the middle age groups (30–39 and 40–49) were the most likely to have debt and higher amounts of debt. The youngest group aged 19–25 was less likely to have credit card debt than the other age groups and also had significantly lower amounts of debt.

The logit model in Model 1 clearly indicates an association between income and credit card debt, where the lower income groups were less likely to have credit card debt, and quintile group IV were more likely, than the reference quintile group III. The lowest quintile group were especially less likely to have credit card debt. However, the count model provided a rather unclear pattern where those with the highest income had the highest amount of debt, but even those with the lowest income (quintile groups I and II) also had significantly higher amounts of debt than the reference group (quintile group III).

The results for economic assets were much clearer. The logit and count models both show that the estimates of the likelihood of having credit card debt and the tendency to have higher amounts of debt were much stronger for the lower economic asset groups and significantly weaker for higher economic asset groups.

There were also significant associations between credit card debt and the socio-economic measures of education level and type of income. Firstly, those with only basic schooling were more likely to have credit card debt, but they had lower amounts of credit card debt than the higher education group (university), whereas those with upper school education had significantly lower amounts of credit card debt. Secondly, the employed were more likely to have credit card debt as well as to have higher amounts of debt, especially compared to the pensioners and students. The descriptive comparison (Table 1) shows that the unemployed and early retirement groups were those with the highest median amount of debt, but in the zero-inflated negative binomial model, the pattern is different. Although the descriptive table was based on median instead of mean, this suggests that, when we take into account the fact that the employed were more likely to have credit card debt and we control for

**Table 1** Number, percentage, and median amount of credit card and bank debt based on Danish administrative data ( $N = 2\,845\,462$ )

	Population		Credit card debt		Bank debt	
	Number	Percentage	Debt, yes (%)	Debt amount, Md (€)	Debt, yes (%)	Debt amount, Md (€)
Gender						
Women	1 463 419	51.4%	38.3%	6,025	52.1%	17 195
Male	1 382 043	48.6%	37.2%	7,143	57.3%	19 679
Age						
19–24	257 341	9.0%	23.9%	3,084	32.6%	8,207
25–29	298 542	10.5%	37.0%	6,244	52.0%	14 618
30–39	579 620	20.4%	44.3%	7,884	62.5%	19 320
40–49	707 306	24.9%	40.7%	6,744	62.2%	20 007
50–64	1 002 653	35.2%	35.6%	6,156	51.2%	19 360
Disposable income quintiles						
Lowest	528 214	18.6%	30.5%	6,306	40.4%	13 235
I	554 142	19.5%	40.8%	6,891	51.8%	14 847
II	574 931	20.2%	42.3%	6,826	58.7%	18 129
III	596 463	21.0%	41.7%	6,488	60.2%	20 143
Highest	591 712	20.8%	32.9%	6,144	60.6%	23 167
Economic asset quintiles						
Lowest	525 376	18.5%	48.0%	7,679	57.0%	12 085
I	559 935	19.7%	42.9%	7,888	50.4%	17 620
II	582 440	20.5%	34.4%	5,788	51.6%	17 465
III	596 938	21.0%	37.2%	5,683	61.4%	19 975
Highest	580 773	20.4%	27.4%	4,974	52.6%	24 908
Highest attained education						
Basic school	582 285	20.5%	42.2%	6,878	51.6%	14 756
Upper school	1 246 072	43.8%	36.3%	6,002	56.2%	18 404
University level	1 017 105	35.7%	36.9%	7,025	54.5%	20 555
Occupation						
Employed	1 995 184	70.1%	39.5%	6,606	60.1%	20 117
Unemployed	262 771	9.2%	45.4%	7,591	52.3%	13 391
Early retirement	195 120	6.9%	38.8%	7,342	43.2%	12 571
Pensioners	93 069	3.3%	24.3%	3,675	33.9%	17 642
Enrolled in education/job training, etc.	299 318	10.5%	22.7%	4,298	34.4%	11 179
Household type						
Couple	1 715 039	60.3%	37.6%	6,239	58.9%	19 241
Single	688 578	24.2%	39.6%	7,102	49.0%	17 292
More than one family	441 845	15.5%	35.3%	6,939	47.1%	16 556
Children in household						
0	1 748 415	61.5%	34.9%	6,422	48.6%	17 593
1	451 191	15.9%	43.1%	6,882	63.0%	19 024
2	469 359	16.5%	41.4%	6,533	65.6%	19 711
3	143 007	5.0%	42.2%	6,813	65.5%	20 416
4	23 739	0.8%	45.1%	7,308	61.4%	19 963
5 or more	9751	0.3%	40.9%	7,310	48.8%	15 414

**Table 1** (continued)

	Population		Credit card debt		Bank debt	
	Number	Percentage	Debt, yes (%)	Debt amount, Md (€)	Debt, yes (%)	Debt amount, Md (€)
Town population						
Less than 5000	905 383	31.8%	42.3%	6,260	60.6%	19 713
5000 to 50 000	751 578	26.4%	38.6%	6,526	55.9%	17 958
50 000 or more	501 021	17.6%	33.7%	6,680	49.1%	15 847
Metropolitan area	687 480	24.2%	33.7%	7,011	49.4%	18 935
All	2 845 462	100.0%	37.7%	6,560	54.6%	18 456

Note: Population statistics are based on the sample in the credit card debt model. Median amount of debt is calculated for those with the specific type of debt

other factors such as income and economic assets, the employed group had the highest amounts of credit card debt.

Next, we examined the association between household type and credit card debt. Single-person households were slightly more likely to have credit card debt, and households consisting of more than one family were slightly less likely, than couples were. Moreover, people living in households without children were less likely to have credit card debt than people living in households with children, except for households with five or more children, where the estimate has only low-level significance. The count model shows that couples had lower amounts of credit card debt than singles and extended families. Moreover, the presence of children seemed to have some correlation with the amount of credit card debt, so that households with no children tended to have less debt than households with children, though the estimates for the groups with two children and five children were not significant.

Finally, those living in small towns (less than 5,000 inhabitants) were more likely to have credit card debt than those living in towns with more inhabitants. In the count model, however, there was only a minor indication that people living in the metropolitan area had lower amounts of debt than those living in small towns.

### Bank Loan Debt

Model 2 presents the results of the ZINB regression on bank loan debt in the form of the logit model estimating the likelihood of having bank loan debt and the count model estimating the amount of bank loan debt.

The logit model shows that men were much more likely to have bank loan debt, and to have higher amounts of debt, than women. This result is also supported by an overrepresentation of men in the descriptive statistics in Table 1.

The logit model shows that the youngest groups, especially 19 to 24-year-olds, were less likely to have bank loan debt, whereas the middle quintiles (30–39 and 40–49) were more likely to have bank loan debt than the oldest group (50–64). With regard to amount of debt, the youngest groups, especially 19 to 24-year-olds, again tended to have less debt.

There was a clear association between income and the likelihood of having bank loan debt. The lowest income groups were less likely to have bank loan debt, and the higher-income groups were more likely to have bank loan debt. However, the association between income and the amount of bank loan debt was less clear. Only quintile group II was significantly lower

**Table 2** Zero-inflated negative binomial regression on amount of credit card and bank debt. Regression coefficients with standard errors in parentheses

	Model I		Model II	
	Credit card debt		Bank debt	
	Logit (inflated) model	Count model	Logit (inflated) model	Count model
Gender				
Female	Ref.	Ref.	Ref.	Ref.
Male	-.009*** (.003)	.232*** (.003)	.196*** (.003)	.098*** (.002)
Age				
19–24	-.615*** (.006)	-.779*** (.007)	-.606*** (.006)	-.664*** (.006)
25–29	-.170*** (.005)	-.102*** (.005)	-.019*** (.005)	-.214*** (.004)
30–39	.110*** (.004)	.177*** (.004)	.189*** (.004)	-.005 (.004)
40–49	.018*** (.004)	.053*** (.004)	.161*** (.004)	.010*** (.003)
50–64	Ref.	Ref.	Ref.	Ref.
Disposable income quintile groups				
Lowest	-.455*** (.006)	.012** (.006)	-.421*** (.006)	-.003 (.005)
II	-.128*** (.004)	.023*** (.005)	-.094*** (.004)	-.025*** (.004)
III	Ref.	Ref.	Ref.	Ref.
IV	.124*** (.004)	-.006 (.004)	.038*** (.004)	-.002 (.003)
Highest	-.008* (.005)	.034*** (.005)	.178*** (.005)	.005 (.004)
Economic asset quintiles				
Lowest	1.115*** (.005)	.401*** (.005)	.880*** (.005)	-.218*** (.004)
II	.640*** (.004)	.361*** (.005)	.285*** (.004)	.057*** (.004)
III	Ref.	Ref.	Ref.	Ref.
IV	-.039*** (.004)	-.071*** (.005)	.155*** (.004)	.114*** (.004)
Highest	-.433*** (.005)	-.234*** (.005)	-.198*** (.004)	.291*** (.004)
Highest attained education				
Basic school	Ref.	Ref.	Ref.	Ref.
Upper school	-.124*** (.004)	-.062*** (.004)	.115*** (.004)	.121*** (.003)
University level	-.055*** (.004)	.114*** (.004)	-.088*** (.004)	.142*** (.004)
Occupation				
Employed	Ref.	Ref.	Ref.	Ref.
Unemployed	-.070*** (.005)	-.054*** (.006)	-.350*** (.005)	-.195*** (.005)
Early retirement	-.312*** (.006)	-.057*** (.006)	-.623*** (.006)	-.316*** (.006)
Pensioners	-.543*** (.009)	-.578*** (.010)	-.796*** (.008)	-.133*** (.009)
Enrolled in education/job training, etc.	-.618*** (.006)	-.438*** (.007)	-.570*** (.006)	-.280*** (.006)
Household type				
Couple	Ref.	Ref.	Ref.	Ref.
Single	.031*** (.003)	.031*** (.004)	-.240*** (.003)	.022*** (.003)
More than one family	-.026*** (.004)	.078*** (.004)	-.244*** (.004)	-.023*** (.004)
Children in household				
0	Ref.	Ref.	Ref.	Ref.
1	.221*** (.004)	.058*** (.004)	.323*** (.004)	.017*** (.003)
2	.162*** (.004)	-.003 (.004)	.332*** (.004)	-.007* (.004)
3	.160*** (.006)	.026*** (.007)	.307*** (.006)	.017*** (.005)
4	.156*** (.014)	.070*** (.014)	.123*** (.014)	.033*** (.012)
5 or more	-.042* (.022)	.007 (.023)	-.180*** (.021)	-.097*** (.021)
Town population				
Less than 5,000	Ref.	Ref.	Ref.	Ref.
5,000 to 50 000	-.200*** (.003)	.004 (.004)	-.179*** (.003)	-.099*** (.003)
50 000 or more	-.357*** (.004)	-.004 (.004)	-.305*** (.004)	-.200*** (.004)
Metropolitan area	-.438*** (.004)	-.008*** (.004)	-.384*** (.004)	.018*** (.003)
Constant	-.290*** (.005)	8.479*** (.006)	.239*** (.005)	9.729*** (.005)
Ln $\alpha$	.758*** (.001)		.703*** (.001)	
Number of observations	2 845 462		2 836 961	

Note: Data from 2016 Danish administrative registers. Inflated model:  $\Pr(\text{amount of debt} > 0)$ . \*\*\* $p < .01$ , \*\* $p < .05$ , \* $p < .1$

than the reference group, and the estimate is relatively weak. On the other hand, the descriptive statistics in Table 1 clearly show that the amount of bank loan debt increased with income, though this pattern disappears when controlling for other factors in the ZINB model.

With regard to economic assets, the highest quintile group was less likely to have bank loan debt, whereas the lowest quintile group was much more likely to have bank loan debt. In the count model, the lowest quintile group had significantly lower amounts of bank loan debt, and quintile groups II, IV, and V had significantly higher amounts of bank loan debt, than quintile group III. Thus, there seemed to be some (positive) association between economic assets and bank loan debt. As with income, the lowest economic asset group were interestingly much more likely to have bank loan debt, but unlike income, this group tended to have the lowest amount of bank loan debt.

Turning to level of education and type of income, those with upper school education were more likely to have bank loan debt, and those with university education less likely, than those with only basic schooling. The employed were much more likely to have bank loan debt than pensioners especially, but also in comparison to those on early retirement, students, and the unemployed. The count model indicates that higher amounts of bank loan debt were associated with employment and higher levels of education.

The logit model clearly indicates that couples and people with children were more likely to have bank loan debt (except for households with five children or more). In contrast, the count model shows higher amounts of debt for singles, and lower amounts for extended families, than for couples, but the estimates were not strong.

Finally, those living in small towns (less than 5,000 inhabitants) were more likely to have bank loan debt, especially compared to those in large towns (more than 50 000 inhabitants) and the metropolitan area. Moreover, those living in the metropolitan area had the highest amounts of bank loan debt, followed by those living in the smallest towns (less than 5,000 inhabitants). In the descriptive statistics, however, those living in the small towns had higher amounts of bank loan debt than those in the metropolitan area.

## Summary

The investigation of the distribution of credit card debt and bank loan debt across population groups showed that 54.6% of the population had bank loan debt and 37.7% had credit card debt. Our empirical study shows that these types of consumer loans *are widespread among the various groups of mainstream and middle-income consumers.*

The analysis shows that the lowest income group and the youngest group (aged 19 to 24) are the least likely to have these two forms of debt. This finding is not very surprising, since many in the youngest age group would have difficulty getting a credit card at all, and the young do not have easy access to bank loans either, because many have small or unstable incomes. With regard to the type of income, which we studied by comparing all other groups with the employed as reference, we found that the employed were both more likely to have either of these forms of debt—and had higher amounts of debt too. In part, this probably reflects the fact that stable income gives easier access to these two credit forms. On the other hand, it also suggests that large numbers of middle-income citizens have large consumer debts. The lower income groups were less likely to have these forms of debt. This might suggest a lack of access to these loan forms, but it could also indicate the presence of other less straightforward kinds of borrowing. The amount of debt did not vary much across income

groups. Although the analysis showed significant differences, the patterns were not very clear, and the estimates were relatively weak. However, the descriptive comparison showed an equal distribution of credit card debt and a clear correlation between income and the amount of bank loan debt.

When we look at assets, the picture is reversed. Lower asset groups were much more likely to have debt and, for credit card debt, they also appeared to have relatively higher amounts of debt. For bank loan debt, however, it was the higher asset groups who had the highest amounts of debt. The study also showed that singles had higher amounts of debt than other household types, and that men seemed both more likely to have debt and to have large amounts of debt, when controlled for other factors.

Finally, the study revealed some interesting regional differences. Those living in small towns (less than 5,000 inhabitants) were more likely to have debt than those living in larger towns. There is no obvious explanation for this difference.

To sum up, the distribution of bank loan debt and credit card debt paints a picture of large amounts of bank loan debt and credit card debt across the population. The study of bank loan debt pinpoints the middle-aged and older, those in employment, and couples with children as likely to have large amounts of bank loan debt. These groups are seemingly resourceful and belong to middle-income or higher-income groups. However, they are also vulnerable to changes in socioeconomic circumstances, e.g., sickness or unemployment. The picture is rather similar with regard to credit card debt, although credit card debt is more clearly associated with economic assets. Both bank loans and credit card loans belong to a category of consumer loans that are highly sanctioned and difficult to access for social groups who do not have stable incomes and (for bank loans) high assets. It is therefore surprising that low asset groups were more likely to have these loan forms and, for credit card debt, also more likely than other groups, and had loaned relatively high amounts.

## Discussion: Debt Risk and the Need for Consumer Protection

In this section, we look into the significance of our main findings on the socioeconomic and demographic variations in debt and discuss what they imply in terms of financial risk and the need for consumer protection. Bank loans and credit card loans are usually not in focus politically and academically, and neither are their middle-income group of credit users. However, as mentioned in the first part of the paper, a growing body of literature cautions about the consequences of mainstreaming credit in everyday life. Some of these studies, for example Pellandini-Simanyi and Vargha (2020), point to the growing ordinariness of having debt, which seems to move the issue of debt risk below the radar. Other studies highlight the fact that indebtedness should be viewed as a process and that high levels of debt make families vulnerable to the unpredictability involved in the development of over-indebtedness (Borgeraas et al. 2016; Hohnen 2020; Marron 2012; Poppe 2008). Such unpredictability is linked to structural issues, e.g., financial instabilities and fluctuations in the labour market, as well as to individual life events, like sickness, change in marital status, or unemployment, which may create sudden financial changes and drops in household income. Viewed in this light, the high level of “ordinary” debt in a large part of the Danish population can be seen as a potential financial risk both at an individual and at a societal level.

The empirical study highlights some specific issues related to bank loans and credit card debt in the Danish context. When we look at the distribution of these types of debt among



specific groups, we notice that sociodemographic groups known to be at risk of getting into debt problems *also* have bank loan debt and credit card debt. These are households with few economic assets, single-person households, and people with low levels of formal education and low income. Credit cards and bank loans are supposed to be more restricted for these groups, so it is surprising that the difference between the amounts of debt among these groups and those with greater means is relatively small, and our study does not provide us with the reasons for this.

In order to be able to understand why those in employment, with higher income and more education are just as likely, indeed more likely, to take out bank loans and credit card loans, we need to look elsewhere. A Danish study from 2010 also found that individuals with higher-income levels have a relatively higher amount of consumer debt than individuals with lower income (Danish Ministry of Economic and Business Affairs 2010). Here, this tendency was explained by the different life style and life circumstances of these groups, which also made it possible for them to take loans of such size. This earlier study shows how higher-income groups obtain bank loans in order to purchase larger and more expensive consumer items, e.g., cars. In contrast, the bank loans obtained by those with lower incomes are used for the purchase of much smaller consumer items. At this point, it should be noted that research on middle-class credit consumers and research comparing credit consumption patterns between social groups are very limited.

Furthermore, the Danish formal credit assessment system may also influence financial risks. Although both bank loans and (to a lesser extent) credit card borrowing usually rest on a rather thorough credit assessment, to some extent the Danish legal context makes assessments difficult. The Danish credit assessment model is “negative” and, in contrast to for example the USA, Denmark does not operate with a formal credit scoring system. As a result, the public Danish credit registers list defaulters only, and credit providers do not have access to credit assessments or credit scoring of non-defaulters. All financial companies have to comply with Danish credit legislation and GDPR. As a consequence, banks cannot share information about customers with other financial institutions, so they do not have access to information about a customer’s total debt portfolio. Even if banks and credit card companies carry out credit assessment, this assessment therefore rests on partial information.<sup>3</sup> The focus on negative credit registers and the limited access to credit assessment registers make credit evaluation more difficult, particularly when dealing with apparently financially solid social groups, such as households with high amounts of loans and a high level of assets.

While the Danish credit assessment system may make credit assessment less precise, it has also been criticized for a lack of regulation of credit markets. Law professor, Tanja Jørgensen has published a number of articles on this issue (Jørgensen 2012, 2014, 2015). Generally, Jørgensen finds that the Danish legal system focuses on helping creditors rather than debtors. Although, we have recently seen a tighter regulation of the most expensive consumer loans (Danish Ministry of Industry, Business and Financial Affairs 2020), policy measures to protect those who get into default remain limited. When viewed in the light of the previously mentioned unpredictability of default shown by Marron (2012) and by Hohnen et al. (2020), this lack of consumer protection appears particularly problematic. Compared with other European countries, e.g., the UK and Norway, where legislation ensures the pausing of

<sup>3</sup> This relatively tight regulation of data sharing, however, also protects consumers’ personal data and limits the usage of non-credit data in a recently automated scoring process or what Hurley and Adebayo (2017) have called “credit scoring by association.”

instalment and interest payments in periods where debtors experience unemployment or illness, the Danish debt settlement system offers little assistance to debtors. Understanding consumer debt in terms of the unpredictability and social risk related to our contemporary credit-based society, rather than an individual choice, demands a more holistic view of debt problems and default. Politically, this understanding of debt problems should lead to a better balance between deregulated credit markets and a general individualization of debt problems on the one hand and the need for the political protection of individual loan takers on the other.

## Conclusion

This study contributes new knowledge by investigating the distribution of mainstream credit across the Danish population. To some extent, the empirical analysis confirms existing knowledge of the distribution of debt risk, e.g., that single-person households and low-income groups are particularly financially vulnerable. This can be seen by looking at the distribution of bank loan debt and credit card debt among the various income groups. Although the lowest income groups were the least likely to have these forms of debt, our findings also show that those who do have these forms of debt have relatively high amounts of debt compared to other income groups. The empirical analysis also provides new information on the distribution of mainstream consumer debt in Denmark. Our study of bank loan debt and credit card debt shows that the middle-aged and middle- and higher-income groups are those most likely to have these forms of debt and to have the highest debts. Although these groups have financial means and are in employment, the high debt levels might pose a possible future financial risk at a more societal structural level as well as at household level.

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