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Social Determinants of Debt Problems in a Nordic Welfare State: a Finnish Register-Based Study

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Abstract Many developed Western countries have seen rapid rises in personal debt and consumer credit during recent decades. Debt problems have become a widely recognized and common concern. This study analysed debt problems among the Finnish adult population from 2005 to 2013. Previous research on indebtedness and financial problems has relied on surveys, and studies using precise, register-based information about the most excluded social groups are needed. The primary data were based on a nationally representative random sample of 91931 Finnish residents aged 19 to 65. The data contained information from several administrative registers, including information about debt enforcement. Low socioeconomic status, male gender, age, marital status, number of children, and prior criminal convictions were associated with debt problems. Income was not associated with the amount of outstanding private receivables, indicating that debt problems do not only boil down to social stratification and poverty. The younger age group had a higher prevalence of debt problems and higher amounts of both private and public receivables. Low levels of education predicted both higher prevalence of debt problems and higher amounts of outstanding receivables. The results underline the importance of understanding the social mechanisms of financial behaviour.

Keywords Over-indebtedness · Debt enforcement · Financial problems · SES · Social exclusion · Consumption · Consumer credit

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Many developed Western societies have seen rapid rises in consumer debt during recent decades (Autio et al. 2009; Patel et al. 2012; Russell et al. 2013). The increasing levels of debt have made people more vulnerable to unexpected life events, including health problems, unemployment, and divorce (Balmer et al. 2006; Hintikka et al. 1998; McCloud and Dwyer 2011; Richardson et al. 2013; Sweet et al. 2013). In addition, macro-societal economic changes, such as European economic crises, can impact people who are already burdened by debt (see Eurofound 2013). Given these developments, there is a need for fresh studies on the determinants and forms of debt problems.

In this study, debt is framed as a claim against income; it includes loans, fees, and payments that have to be paid off some time in the future. In previous studies, consumer default and a high debt-to-income ratio have been used as indicators of over-indebtedness (Brown and Taylor 2008; Russell et al. 2013). Most societies also have an official legal mechanism or institutions to collect money or property equivalent to the overdue debt (Djankov et al. 2006; Niemi-Kiesilainen 1999). This study uses information concerning debt enforcement as an indicator of debt problems. Such data have hardly ever been used in empirical studies on debt, and the research therefore provides a new perspective on the study of financial hardship.

Previous studies on debt problems have been based on both cross sectional (Balmer et al. 2006; Brown and Taylor 2008; Keese 2012; Patel et al. 2012; Russell et al. 2013) and longitudinal surveys (Bridges and Disney 2010; Brown et al. 2005; Caputo 2012; Dwyer et al. 2013; Sweet et al. 2013; Webley and Nyhus 2001). Non-response could be considered a major problem when studying financial hardships (Webley and Nyhus 2001; Zhu 2011), and very few studies have been based on data other than self-reported information. Some studies have used data gathered from selected financial institutions (Agarwal et al. 2011; Gross and Souletes 2002), and court filing data have been used when studying personal bankruptcy in the USA (Zhu 2011). All of this underlines the relevance of register-based, nationally representative data. We aim to fill this research gap by examining the determinants of debt problems in a nationally representative, random sample of 91931 Finnish residents. The data contain information from several administrative registers, including information about debt enforcement.

The Two Faces of the Debt Problem: A Consequence of Social Exclusion or Lifestyle Patterns?

Financial debt involves risks that are not the same for all social groups. The most vulnerable groups include the youngest, low-income households, single parents, and people with low levels of education (Balmer et al. 2006; Brown and Taylor 2008; Patel et al. 2012; Russell et al. 2013). Those with limited access to bank loans, such as the poor and young people without steady incomes, pay more for their credit loans, in the form of high expenses (Caplowitz 1963; Bolton and Rosenthal 2005). Hence, these groups also have a higher risk of ending up in chronic debt and may eventually fail to manage their payments (Patel et al. 2012). The risk of economic marginalization is high among low-educated workers (Gesthuizen et al. 2011), who have low incomes and are more likely to have debt problems (Caputo 2012; Russell et al. 2013). Even within the European context, poverty may be considered a structural and stable condition, even though a large proportion of the population never experience it (Moisio 2004). In addition, macro-level changes in the global economy can have a significant impact on

people's financial situations, and economic downturns can cause sudden losses of property for large groups of individuals within a short period of time. This happened during the 2007–2009 subprime mortgage crisis in the USA (Demyanyk and Van Hemert 2011). More recently, the European debt crisis has hit Greece, Spain, Italy, Portugal, and Ireland heavily (Stracca 2015).

While macro-societal economic changes and social exclusion are likely to be important determinants of debt problems, based on prior research, they only provide a partial explanation. Lifestyle preferences and individual traits such as self-control can affect the financial decisions that people make in current consumer societies. This is to say that poverty and debt problems are not the same thing. People with high incomes may also make poor economic decisions or generally fail to manage their finances. This is particularly true, since people also become indebted via opportunities afforded by current consumer societies. Self-control factors have also become more important, as consumer credit has facilitated impulsive decision-making and made sound financial decisions more difficult (Autio et al. 2009; Raijas et al. 2010).

Webley and Nyhus (2001) suggest two routes towards indebtedness. First, people may end up in debt via a "dispositional route" due to a lack of self-control and excessive risk-taking. Second, people may run into financial problems via a "life-cycle route." The dispositional route, according to Webley and Nyhus, considers personality and other dispositional factors. Previous studies have, for example, associated both impulsivity and risky health behaviour with high-risk credit behaviour (Adams and Moore 2007; Lo and Harvey 2011; Nelson et al. 2008; Ottaviani and Vandone 2011). It is important to understand the potential social background factors influencing impulsivity. A recent study by Mittal and Griskevicius (2014) showed that an uncertain and poor childhood environment was associated with lower self-control and higher economic impulsivity.

The life-cycle route focuses on the time-varying circumstances of an individual over his or her lifetime. During certain phases of life and life situations, economic decisions make more social than economic sense. For example, if people face a sudden drop in their income, they may still try to maintain a certain level of expenditures to preserve their reputation (Webley and Nyhus 2001). Financial hardship could also develop over a longer run, but intensify after a major life event, such as one's first criminal conviction (Oksanen et al. 2015). Divorce is another example of change over one's life course that may eventually lead into financial problems (Aassve et al. 2007).

Both gender and age are combined with "dispositional" and "life-cycle" routes. Women tend to be more risk averse than men in their financial decisions (Jianakoplos and Bernasek 1998). Financial risks taken by men do not always pay off, and unsurprisingly, males have more debt problems than females (Balmer et al. 2006; Patel et al. 2012). In addition to voluntary risk-taking, previous studies have shown, for example, that young males commit a considerable proportion of crimes within society (Aaltonen et al. 2011). Debt and financial problems have a strong association with crime, and people who are experiencing financial strain might be more likely to engage in crime. So far, however, there is a lack of longitudinal studies examining the association between debt and crime (Hoeve et al. 2014).

Younger cohorts reportedly have more debt problems than older ones (Balmer et al. 2006; Betti et al. 2007; Brown and Taylor 2008; Caputo 2012). In economics, the life-cycle hypothesis (LCH) of saving has been used to understand behaviour in relation to the accumulation of debt. The theory was originally developed by Franco Modigliani and his

colleagues (e.g., Ando and Modigliani 1963; Modigliani 1986). Young people have low income and savings, and consequently borrow more, but save more during middle age and finally spend more during retirement (Ando and Modigliani 1963; Baek and Hong 2004; Bryant and Zick 2006).

According to Montgomerie (2013), the LCH has been called into question during the recent growth of economic insecurity, as we have started to see increasing indebtedness among both junior and senior citizens. The LCH was based on assumptions of stable economic growth and working careers, combined with low levels of unemployment. In the USA, consumer debt and mortgages taken out by young adults increased during the 2000s, but their future investments in education and housing are not necessarily as certain to pay off as they were in the cases of earlier generations (Montgomerie 2013). Jiang and Dunn (2013) demonstrated that younger cohorts in America borrow more money on their credit cards and repay at lower rates than older cohorts.

Life transitions may have become problematic for younger generations. Young adults have to borrow money to complete their studies and get onto the property ladder, but higher rates of debt will make them more vulnerable. The roles played by unexpected life changes, such as unemployment, sickness, or divorce, can be pivotal (Aassve et al. 2007; Andreß et al. 2006). Single parents, in particular, experience more financial problems (Balmer et al. 2006; Patel et al. 2012; Russell et al. 2013). Other factors, such as the number of children, may put pressure on the household budget (Brown and Taylor 2008; Crook 2001; Keese 2012). As stated above, debt problems are not solely a problem of social exclusion. Hence, it is important to study how these demographic factors determine possible debt problems among both low- and high-income groups.

Debt Problems in a Welfare State: The Case of Finland

Finland (a Northern European country with a population of 5.4 million) has generally been regarded as having a strong welfare tradition that includes free education and healthcare, extensive income distribution, and active employment policies (Esping-Andersen 1999). Despite welfare cuts, the Finnish system can still be characterized as treating its citizens relatively equally, especially in light of international comparisons. For example, income differences are smaller in Finland than in Europe, on average (Gini index 25.8 in 2010) (Statistics Finland 2013).

For these reasons, Finland provides a theoretically interesting setting for a study on the social determinants of debt problems. At least in principle, one might expect that socioeconomic factors would play a lesser role in Finland, given that basic levels of welfare and financial support are provided for everyone. Such institutional factors should reduce the direct impact of absolute poverty on debt. We would then expect economic behaviour, individual characteristics, and lifestyle choices to have more importance. If this is the case, then economic difficulties would be—at least to some extent—a matter of excessive consumption or a consequence of short-sighted economic decisions. However, social inequalities persist even within the Nordic context (Moisio 2004), and many of the social problems are accumulated by those who have low levels of education (Aaltonen et al. 2011; Herttua et al. 2008; Martikainen et al. 2007).

The indebtedness of households in relation to their incomes has risen in most developed countries during the 2000s (OECD 2013). In Finland, the household indebtedness ratio rose

moderately from 95 to 118% from 2005 to 2013 (Statistics Finland 2014). Finland was also hit by an economic recession after 2008, but overall, the 2000s could be described as a relatively stable period, especially when compared to the economic recession of the early 1990s, when people suffered from severe debt problems due to the rapid rise in interest rates and the drop in the housing markets (Honkapohja and Koskela 1999). Compared with the 1990s, the 2000s stand out as a decade characterized by rising consumer debt and credit (Autio et al. 2009; Raijas et al. 2010; Rantala and Tarkkala 2009).

According to Statistics Finland (2012), the number of households having difficulties making ends meet did not increase between 2003 and 2011. Rather, the number of households facing difficulties has diminished slightly. In 2011, minor difficulties were faced by 15.8% of households, and 2.8% faced major problems. Figure 1 shows the number of people with payment defaults and enforced debt. Payment defaults have been on the increase recently, and 360000 Finns had defaulted on payments at the end of 2013 (ca. 8% of the adult population) (Asiakastieto 2014). The number of people subject to enforcement measures did not rise in the 2000s. At the end of 2013, 219384 people had payments enforced (National Administrative Office for Enforcement 2014).

Debt enforcement is an indicator of serious financial problems in Finland (Rantala and Tarkkala 2009). Creditors can take legal measures if debtors do not attend to their debt repayments on time. After a court decision imposing a liable payment, creditors can request measures from the Finnish enforcement authority. Private judicial claims include a wide variety of overdue bills (e.g., consumer credit, phone and electricity bills, rent and condominium payments). It is common for companies to hand these cases to debt collection agencies, which first attempt to collect the money and then apply for the enforcement decision. Credit card bills comprise a major share of the enforced cases (Raijas et al. 2010). Public debts to the state (e.g., penalty fees, taxes, and insurance premiums) are collected by enforcement without a separate court judgement.

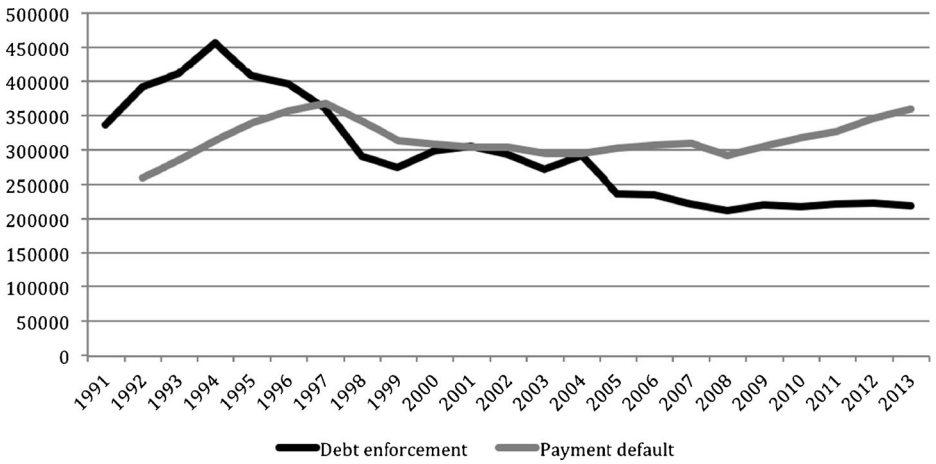

Fig. 1 Financial problems in Finland in 1991–2013. The number of people in debt enforcement and the number of people in default at the end of each year. Note: Debt enforcement figures (1991–2013) are based on the information provided by the National Administrative Office for Enforcement (2013; 2014). Payment default information (1992–2013) was provided by Asiakastieto Oy (see Asiakastieto 2014; Erola 2000, p. 5; Rantala and Tarkkala 2009, p. 33)

As a general rule, one third of the debtor's income will be garnished. It is also possible to garnish tax refunds, business income, and property. If the debtors do not have sufficient assets or income, they are regarded as temporarily lacking means. However, the creditors may refile the enforcement requests. Enforced debts to the state are valid for 5 years. Civil and commercial cases normally remain enforceable for 15 years, versus 20 years for criminal cases (see Ministry of Justice 2014; Enforcement Code 24§). Consumer debt adjustment is possible in rare cases, if the debtor is permanently insolvent for good reason, such as illness or business bankruptcy, and has not been involved in economic crimes or suspicious economic activity (see Niemi-Kiesilainen 1999).

Research Questions and Key Hypotheses

This article examines debt problems among the Finnish adult population in 2005–2013. As register-based datasets have not been extensively used in the study of debt problems, we aim to provide a rigorous description of socioeconomic and sociodemographic variation in its prevalence and distribution, given that we have access to data that cover all segments of the population extremely well. We have not measured the change in debt problems during this time period because these trends have remained rather stable in Finland, despite the European economic crisis. The article benefits from unique access to Finnish register data on debt enforcement and aims to answer the following two research questions:

1. How do socioeconomic and demographic factors predict debt problems witnessed during 2005–2013?
2. How does the amount of outstanding public and private receivables of 2013 vary among different socioeconomic and demographic groups?

Our starting hypothesis is that lower socioeconomic status (SES) will predict debt problems. As the context for this study is a relatively open and equal Nordic welfare state, the competing hypothesis claims that SES does not have an impact on debt problems. Based on the life-cycle hypothesis, we expect that young adults have more debt problems because they are likely to have higher amounts of debt, relative to their income (Betti et al. 2007). This hypothesis could also be contested due to the uncertain macroeconomic times (Montgomerie 2013). Hence, the rivalling hypothesis is that age is not significantly correlated with debt problems because older cohorts might also experience financial troubles.

We also expect lifestyle factors and sociodemographic factors to play a role in debt problems. First, we expect that financial problems are associated with lifestyle preferences and individual traits such as self-control (Moffitt et al. 2011). Crime could be considered as a proxy for lifestyle-associated problems. Based on earlier research, we expect a strong association between crime and debt problems (Hoeve et al. 2014).

Debt problems have been associated with gender, marital status, and household composition in previous studies (Balmer et al. 2006; Patel et al. 2012; Russell et al. 2013). We hypothesize that males have more debt problems. In addition, having a divorced, single or widowed status will increase the likelihood of financial problems. The number of children will also significantly increase the risk of facing debt problems, even when adjusting for income. This assumption is based on studies of household economics (Bryant and Zick 2006).

Two contesting hypotheses are set for the second research question due to gaps in the research. It is hypothesized that a high SES will increase one's amount of unpaid debt because a higher socioeconomic status is likely to impact the likelihood of acquiring large debts. Household debt has been noted to correlate positively with income (Sweet et al. 2013; Crook 2001). In other words, people with high salaries are able to obtain larger loans from banks and other credit institutions. As instant credit and other options are also available for lower SES groups, and as these services become expensive for consumers (Raijas et al. 2010), the rivalling hypothesis states that a low SES predicts higher debt. We also expect that age, gender, marital status, number of children, and previous criminal convictions will be associated with the amount of debt.

Data and Methods

Data Sources

The primary data are based on the Risk Factors of Crime in Finland (RFCF) dataset, which provides a unique starting point for studying the association between SES and legal problems due to the detailed and reliable information it provides. The nationally representative, stratified random sample of 150010 Finnish residents (100010 males and 50000 females) was originally collected in 2008 from the Finnish Population Register Centre, representing the Finnish population at the end of 2003. The data combine information from the registers of Statistics Finland (education), the Finnish Population Register (marital status, number of children), the Finnish Tax Administration (income), and registers maintained by the National Research Institute of Legal Policy (criminal convictions).

Information concerning debt enforcement was collected at the end of 2013 from the nationwide Uljas database of the Finnish legal register centre. This database was brought into use in 2004 and includes information on the quantity and type of unpaid debt. By law, Finnish officials have to keep detailed information on debt enforcement cases for at least 10 years from the first initiation of debt enforcement and basic information for up to 30 years (Enforcement Code 29§). This study used information about debt enforcement periods initiated in 2005–2013 and the euro amounts of outstanding private and public debt receivables of 2013. We also used information concerning debt enforcement periods that were initiated before 2005.

The analysis is limited to individuals who were 19 to 65 years of age in 2004 (born 1939–1985) (n=98989). Age 19 was regarded as the optimal starting point because Finnish upper secondary school education is generally completed by the age of 18 or 19. Those born abroad were excluded from the data (n=3971) because school-leaving certificates gained abroad before immigration are not necessarily registered. We also excluded people who died during the 2005–2013 follow-up (n=3179). The final data included 91931 individuals.

Measures

Two dependent variables were used in the study. First, the binary debt problems variable was based on the information concerning debt enforcement periods. Individuals who had their debt enforced during the 2005–2013 period were regarded as having debt problems. Even one period of debt enforcement can be seen as a reliable measurement of debt problems, since creditors have typically employed different measures to collect the unpaid money before this

legal procedure. The second dependent variable concerned the amount of outstanding receivables of 2013 (i.e., the new cases opened in 2013). We report the results concerning both private and public receivables separately, because they represent two different sources of debt problems.

Income and education were used as measures of socioeconomic status. The data also included information about unemployment history and occupation, but both of these variables included large residual groups (no occupation or no unemployment) that are relatively heterogeneous in composition; these variables are inevitably correlated with income and education, causing problems with multicollinearity. The income variable comprised annual earned taxable income in 2004, including, for example, salary and income from assets, student grants, unemployment benefits, and pension payments. This variable has been recoded into quintiles.

The education variable measures the highest attained education level. Education has been compulsory in Finland since 1921. Before 1958, at least 6 years of schooling were compulsory, rising to 8 years after 1958 and becoming compulsory until the age of 15 (typically lower secondary schooling) after reforms in the 1970s. This is equivalent to level 2 in the International Standard Classification of Education (ISCED-97) (Kilpi 2008). The lowest category includes those having either compulsory or lower secondary schooling (from 6 to 9 years of schooling). The secondary category includes those obtaining general upper secondary or vocational upper secondary certificates, or specialist occupational qualifications (ISCED-97 levels 3 and 4). The BA/MA category includes degrees earned in universities or universities of applied sciences (level 5) or a higher degree (e.g., PhD, level 6).

In addition to age and gender, we analysed the effects of other sociodemographic factors, including the number of children and marital status. These variables were kept separate because we wanted to control for the number of children. We have also included a dummy variable to measure criminal convictions for property crime in 1999–2004. This could be regarded as a proxy measure of self-control and lifestyle-associated problems (Moffitt et al. 2011).

Statistical Methods

Our analysis techniques included descriptive statistics as well as logistic and Poisson regression models. Descriptive techniques were applied to provide an overview of the data and key variables. Logistic regression analysis was used to model the association between the background variables and the binary debt problem outcome. The effects of the independent variables are presented as odds ratios and their 95% confidence intervals. The predictive margins indicate the adjusted (with the other variables in the model set at their means) average probability of having debt problems. We also report on the statistical significance of the models and key measures of fit (constant, log likelihood, McFadden's pseudo R^2, and Nagelkerke pseudo R^2).

The second part of the analysis—the amount of unpaid enforced private and public debt in 2013—was examined using Poisson regression models. There are several alternatives to modelling skewed continuous outcomes with large numbers of zero/missing observations, including linear regression with log-transformed outcomes, different varieties of Tobit models, and two-part hurdle models (Cameron and Trivedi 2010). While Poisson models are typically used for count outcomes, it has been argued that these models are a better alternative to these other varieties for outcomes such as debt (Santos Silva and Tenreyro 2006; Nichols 2010).

This was the case in the current application, where the Poisson model easily outperformed the Tobit models,[1] probably the most common model of choice for "corner solution" outcomes (Wooldridge 2010). The results of the Poisson models are presented as regression coefficients and standard errors, but to ease interpretation, predictive margins on a euro scale are also given. These estimates show the mean level of private/public debt for each variable when all of the other model variables are set at their means.

In all of the analyses, the data were weighted to match the age and gender structure of the Finnish population, as some groups were oversampled in the data. The analyses were carried out with Stata 12.

Results

Debt Problems 2005–2013

Of the entire sample (n=91931), 20.3% had debts or fines enforced during 2005–2013. About one third of them (32.3%) had an enforced debt at the study's 31.12.2004 baseline. Hence, financial difficulties may extend over longer periods of time. Table 1 shows the descriptive statistics of the measures used in the articles. The total number of observations is shown for each category. The prevalence of debt problems in 2005–2013 was calculated from the weighted data. All of the examined variables were associated with debt problems. Males and younger age groups had higher prevalence of debt problems. For example, more than a quarter of those aged 19–24 (28.1%) (born 1980–1984) experienced debt problems during 2005–2013.

People with only primary education had significantly more debt problems than people with an upper secondary education or a degree. In addition, the number of children increased the likelihood of debt problems, but the association was not entirely linear, since those with two children had fewer debt problems than others. Singles and divorced individuals had more debt problems than married individuals or the widowed. We can also see that those with criminal convictions for property crime in 1999–2004 were significantly more likely to have debt problems in 2005–2013, compared with those without such a conviction.

The results of the logistic regression analyses are shown in Table 2. Model 0 shows gender- and age-adjusted estimates for each measure, which generally correspond to the bivariate findings in Table 1. The clear difference in unadjusted numbers pertains to number of children, as its association with debt problems becomes stronger after controlling for gender and age. The fully adjusted odds ratios are presented in the next column. The pseudo-coefficients of determination show that the model is able to explain the total variance reasonably well (McFadden's adjusted pseudo R^2=.135; Nagelkerke's pseudo R^2=.198).

Males had more debt problems, as did the younger age groups. The adjusted predictions show that those aged 25 to 29 (born 1975–1979) had a 27% likelihood of having debt problems when the other variables in the model are set at their means. In general, those under 40 in 2004 (born 1965–1985) faced significantly more debt problems than the older age groups during our follow-up. Furthermore, low education (OR=3.2) predicted debt problems. The

[1] A two-step Heckman estimator, or type 2 Tobit model, produced largely (in terms of coefficient signs and significances) similar results as the Poisson model, but the predicted level of debt was closer to the true average in the Poisson model.

Table 1 Descriptive statistics, number of people having debt problems in 2005–2013 by independent variables (*N* and percentage unweighted data; debt problem rates from age- and gender-weighted data)

	Number	Percentage	Debt problems 2005–2013 Yes (%)	Debt problems 2013[a] debt Yes (%)	Unpaid private debt 2013[a] Md (€)	Unpaid public debt 2013[a] Md (€)	Total unpaid debt 2013[a] Md (€)
Gender							
Female	61513	33.1	15.1	6.8	1964	324	1301
Male	30400	66.9	25.5	12.1	2215	591	1602
Age 2004							
19–24	15642	17.0	28.1	13.5	2345	573	2069
25–29	10841	11.8	25.1	12.4	2610	626	2101
30–39	18965	20.6	24.9	13.1	2309	507	1663
40–49	22109	24.1	21.5	10.2	1775	438	1273
50–64	24356	26.5	12.1	4.3	1675	299	864
Education							
Primary	20076	21.8	29.0	8.7	2079	498	1910
Secondary	57332	62.4	19.9	8.2	2096	461	1332
BA/MA	14505	15.8	9.4	2.8	3652	360	699
Income quintile							
Lowest	20182	22.0	33.7	17.8	1905	515	1855
II	16861	18.3	22.4	10.6	2111	441	1363
III	16784	18.3	16.8	7.4	2238	368	1147
IV	18109	19.7	14.6	6.2	2983	444	1307
Highest	19977	21.7	14.0	5.3	3939	701	1368
Children							
0	38615	42.0	21.4	7.9	2252	436	1556
1	14095	15.3	21.0	8.9	2062	496	1534
2	23273	25.3	16.2	6.0	2311	516	1528
3	11233	12.2	21.0	8.3	1869	489	1276
4	3272	3.6	27.7	10.8	1828	483	1598
5 or more	1425	1.6	34.0	11.0	1755	469	1489
Marital status							
Single	41268	44.9	25.4	9.3	2173	496	1663
Married	40379	43,9	14.0	5.3	2278	485	1413
Widowed	912	1.0	14.6	2.1	1974	441	1200
Divorced	9354	10.2	30.2	12.9	1849	390	1228
Criminal conviction (property crime)							
No	89476	97.35	19.1	7.1	2017	444	1352
Yes	2437	2.65	78.5	54.5	2672	868	2926
All	91931	100	20.3	9.4	2118	471	1502

Note: [a] Unpaid receivables of the cases opened during the year 2013. The medians were calculated for the group who had debt

difference between the two highest income quintiles was not statistically significant, but the lowest income quintile had considerably (OR=2.5) more debt problems. Thus, both education

Table 2 Determinants of debt problems during 2005-2013 (logistic regression analysis)

	Model 0[a]		Final model		Adjusted prediction
			Adjusted effect		
	OR	95% CI	OR	95% CI	
Gender					
Female	ref.	ref.	ref.	ref.	0.12
Male	1.93***	1.86–2.00	2.21***	2.13–2.30	0.23
Age 2004					
19–24	2.82***	2.67–2.98	2.76***	2.57–2.98	0.21
25–29	2.41***	2.27–2.56	3.82***	3.55–4.11	0.27
30–39	2.40***	2.28–2.52	3.54***	3.35–3.75	0.25
40–49	1.98***	1.89–2.08	2.45***	2.32–2.59	0.19
50–64	ref.	ref.	ref.	ref.	0.09
Education					
Primary	5.26***	4.92–5.63	3.20***	2.98–3.44	0.25
Secondary	2.48***	2.33–2.64	1.90***	1.78–2.03	0.16
BA/MA	ref.	ref.	ref.	ref.	0.09
Income quintile					
Lowest	4.01***	3.78–4.25	2.54***	2.38–2.71	0.27
II	2.49***	2.35–2.64	1.68***	1.57–1.79	0.20
III	1.59***	1.50–1.69	1.15***	1.08–1.23	0.14
IV	1.19***	1.12–1.27	0.95 ns	0.89–1.01	0.12
Highest	ref.	ref.	ref.	ref.	0.13
Children					
0	ref.	ref.	ref.	ref.	0.11
1	1.52***	1.44–1.61	1.89***	1.77–2.00	0.19
2	1.23***	1.17–1.29	1.83***	1.72–1.95	0.18
3	1.75***	1.65–1.86	2.66***	2.47–2.86	0.25
4	2.62***	2.41–2.86	3.73***	3.39–4.12	0.31
5 or more	3.53***	3.14–3.97	4.83***	4.24–5.49	0.37
Marital status					
Single	1.45***	1.39–1.52	1.79***	1.69–1.89	0.20
Married	ref.	ref.	ref.	ref.	0.12
Widowed	1.89***	1.62–2.20	1.83***	1.56–2.15	0.20
Divorced	3.10***	2.94–3-26	2.76***	2.61–2.91	0.28
Criminal conviction (property crime)					
No	ref.	ref.	ref.	ref.	0.16
Yes	12.40***	11.03–13.94	5.03***	4.55–5.57	0.59
Constant			.010***	0.09–0.11	
Log likelihood			−38246.9		
McFadden's adjusted pseudo R^2			0.135		
Nagelkerke pseudo R^2			0.198		
N			91913		

ns=not significant

*$p\leq05$, **$p\leq01$, *** $p\leq001$

[a] Model 0 adjusted for gender and age

and income had independent associations with debt problems. The number of children significantly increased the risk of severe financial problems. In particular, those with three or more children had clearly higher odds ratios, compared with those who did not have any children. The effects of marital status and property crime convictions were significant, the

Table 3 Determinants of euro amount of enforced private and public debt during 2013 (Poisson regression analysis)

	Private debt B (SE)	Adjusted prediction (€)	Public debt B (SE)	Adjusted prediction (€)
Gender				
Female	ref.	144	ref.	69
Male	0.93 (0.12)***	365	0.31 (0.09)***	255
Age 2004				
19–24	1.09 (0.25)***	303	1.48 (0.16)***	210
25–29	1.48 (0.22)***	444	1.86 (0.16)***	309
30–39	1.43 (0.21)***	424	1.80 (0.14)***	291
40–49	0.99 (0.26)***	273	1.14 (0.14)***	151
50–64	ref.	101	ref.	48
Education				
Primary	1.03 (0.53)*	396	1.20 (0.20)***	210
Secondary	0.41 (0.52) ns	213	0.76 (0.18)***	136
BA/MA	ref.	141	ref.	63
Income quintile				
Lowest	0.30 ns	318	0.56 (0.16)***	237
II	−0.03 ns	230	0.08 (0.08)	147
III	−0.34 ns	168	−0.27 (0.15)**	104
IV	−0.09 ns	217	−0.49 (0.13)***	83
Highest	ref.	237	ref.	136
Children				
0	ref.	147	ref.	67
1	0.47***	236	0.75***	143
2	0.52***	248	1.02***	187
3	0.96***	386	1.31***	249
4	1.82***	910	1.43***	280
5 or more	0.82***	333	1.68***	360
Marital status				
Single	0.17	241	0.24 (0.12)*	144
Married	ref.	203	ref.	113
Widowed	0.04	211	0.19 (0.40) ns	136
Divorced	0.47**	324	0.53 (0.11)***	191
Criminal conviction (property crime)				
No	ref.	192	ref.	130
Yes	1.69***	799	0.99 (0.10)***	351
Constant	3.10 (0.50)***			

ns=not significant

*$p \leq 05$, **$p \leq 01$, ***$p \leq 001$

latter being especially strong (OR=5.0). In effect, the bivariate findings essentially remained similar in the full model, implying that the variables in question have at least partly independent associations with debt problems.

Amount of Unpaid Debt in 2013

In total, 9.4% of the sample had new public and private debt enforcement cases opened during 2013 (Table 1). Among these people, the median unpaid receivables of 2013 were ca. 1500 €. The median level of unpaid private debt in 2013 was higher than that of public debt (2118 € vs. 471 €). When median debt was only analysed within the group that has debt, the differences among genders and different age groups were relatively small. Younger age groups have higher amounts of both private and public debt enforced. People with a degree had more enforced private debt than those with only primary or secondary education, but we have to keep in mind that few with higher education had private debt (2.8%). Income is not associated with the amount of enforced debt. We can also see differences according to marital status and criminal offending. Thus, once we look at the part of the sample with debt, the associations between some of the background variables and levels of private/public debt become weaker. However, such estimates are affected by selection into debt, and we also need to account for the observations with zeros in the final model.

Table 3 presents the Poisson regression analysis of amount of private and public receivables of new cases opened in 2013. Unlike the estimates presented in Table 1, these models also include the individuals who had zero debt in enforcement, bringing the whole sample back into the analysis. For the most part, the results resemble those obtained from the logistic regression analysis. Males and younger age groups are more likely to have both private and public debt. Low education was associated with higher amounts of both private and public enforced debt. Number of children was associated with increased amounts of both public and private debt. Marital status only yielded significant results in comparison with those who were married and those who were divorced. Those with property crime convictions had more debt.

The most interesting differences, in contrast to the logistic regression models analysing a binary indicator of debt problems, have to do with the role of income. In the model for private debt, income quintile was not significantly associated with amount of debt after adjusting for the other covariates. For public debt, the lowest quintile had the highest amount, but quintiles 3 and 4 had lower amounts of public debt than the quintile with the highest income. The finding that the adjusted predictions for private debt tended to be higher than those for public debt reflect the fact that the average amounts of private debt were higher in the data.

Discussion and Conclusion

The aim of this study was to analyse debt problems among the Finnish adult population in 2005–2013 using the information gleaned from administrative registers, including information about debt enforcement. Our analyses focussed on both the prevalence of debt problems and the amount of debt among different socioeconomic and demographic groups. One of the starting hypotheses of this study was that debt problems should be seen as a socially stratified phenomenon (Dwyer et al. 2012; Patel et al. 2012; Russell et al. 2013). In particular, education and income in current societies provide access to social integration, and it was hypothesized that low SES would predict debt problems. According to the economic life-cycle hypothesis

(Modigliani 1986), we also expected young people to have more debt. In addition, we examined the role of criminal convictions in debt problems. We treated this as a proxy for factors associated with lifestyle and self-control, which have been found to be important in previous studies concerning financial hardship (see Webley and Nyhus 2001).

The analysis showed that low SES indeed predicts debt problems. Our rivalling hypothesis that SES would play a marginal role in a Nordic welfare state was duly refuted. Hence, people with fewer financial resources and lower levels of education were at much greater risk of debt enforcement, despite a welfare system that provides protection against absolute poverty. On the other hand, the analysis on amount of debt showed that low income only predicted higher levels of public debt, whereas income was unrelated to amount of private debt, after controlling for other variables in the model. This is unsurprising, perhaps, since higher income groups have higher debt perceptions (Keese 2012), higher demand for debt (Crook 2001), and better access to the whole financial system (Russell et al. 2013). Hence, debt problems do not only boil down to questions of social stratification and poverty. At the same time, the low SES groups face the highest risk of debt problems, even in a Nordic context.

The younger age groups had a higher prevalence of debt problems and higher amounts of both private and public debt, which confirms our hypothesis based on LCH. The results are consistent with studies concerning young adults and financial problems (Betti et al. 2007; Jiang and Dunn 2013; Montgomerie 2013). The current societal situation in many European countries puts more financial pressure on young adults who incur debt for education, housing, and consumption. At the same time, job markets are relatively fragile. All of this underlines the financial risks involved in the current societal situation. We were also able to show that certain factors associated with lifestyle and self-control played a role. Women are known to be risk averse when it comes to financial decision-making (Jianakoplos and Bernasek 1998), and it was not surprising that women experienced fewer debt problems.

We also found that those with prior convictions for property crimes had considerably more debt problems. While criminal background is a crude proxy for self-control and lifestyle factors, these findings show that such factors need to be taken into account when studying debt problems, especially as the association between criminal background and debt problems remained strong, after controlling for socioeconomic factors. These results are in line with Moffitt et al. (2011), who found that a childhood measure of self-control was a robust predictor of adulthood financial problems, after controlling for family SES and IQ.

Our findings underline the role of education as a key factor in understanding social problems. Education can potentially have multiple effects on debt problems. Previous studies have shown that low-educated workers are at risk of economic marginalization because their low level of education limits their financial skills and they also have lower cognitive abilities (Gesthuizen et al. 2011). Low levels of education, especially among the younger generations, might also be associated with lifestyle and self-control factors. Since Finnish schooling is free for all and supported by state benefits, we could expect that school paths might be determined by skills and motivation. However, even in the Nordic context, the relationship between social background and education attainment is considerable (Jæger and Holm 2007), although its impact in Finland has decreased over three generations (Kivinen et al. 2007). From this perspective, it is unsurprising, perhaps, that we can see the accumulation of various social problems in the low-education group. Our findings are consistent with other register-based studies showing that low education is associated with a wide variety of social problems, including crime (Aaltonen et al. 2011), alcohol-related mortality (Herttua et al. 2008), and mortality in general (Martikainen et al. 2007).

One of the most interesting findings concerned the number of children, whose role has been discussed in both the economic literature and studies on consumer behaviour. In studies concerning debt problems, the prototypical debtor is a young, single parent (Webley and Nyhus 2001). However, our results show that we need to look beyond the most obvious debtor types. Even when income and marital status are adjusted for, the number of children increases the risk of debt problems considerably. Family consumption has increased since the 1990s in Finland, and families with children have the highest debt-to-income ratios in the country (Raijas et al. 2010). Therefore, it is not surprising that every new child increases the risk of financial decline.

Objective, register-based data formed the backbone of this research. The data in Finnish registers are collected systematically and provided a solid basis for our study. Register data are useful, since survey research suffers from low response rates by people undergoing debt problems. In addition, the strength of our research is based on the definition of a debt problem, since register data on enforcement provide an objective and clear-cut measure for such problems.

Studies over the past decades have shown that debt-based consumption becomes expensive for low-SES groups (Caplowitz 1963; Bolton and Rosenthal 2005). Our results are in line with these notions. The prevalence of people experiencing severe payment and debt problems was found to be relatively high during the follow-up period of 2005–2013. The current situation poses considerable risks, particularly for the younger age groups. In times of economic uncertainty, it is more difficult to assess the potential impacts of financial decisions. Undergoing debt enforcement for unpaid bills and fees might make their lives difficult in the years to come. We believe that our findings underline the need to understand the social aspects pertaining to severe financial problems.

Our findings provide implications for consumer policy. As private debt—including unpaid consumer credit bills—is the root of debt problems in Finnish society, preventive policies would be needed to help the most vulnerable groups in society. A legislative reform has been in force since June 2013 to limit the supply of instant loans via an interest rate cap (see The Finnish Consumer Protection Act, Chapter 7). The impacts of the reform among young adults should be investigated. Other possibilities would involve, for example, implementing positive credit reporting systems that would help creditors measure how well consumers manage their finances and how much debt they have. Currently, such information cannot be used without permission by the debtor. The Finnish system is primarily based on negative credit reporting based on the debt enforcement information. Compared to this, a positive credit reporting system would place more responsibility towards the creditors and could have preventive impacts.

Our results also point towards considering social policies that enhance the social integration of young people. Generally, we should be the most worried about young people who have dropped out from education and training systems (Eurofound 2012; Scott et al. 2013). In addition to these policy concerns, there is a need for practical solutions, as the recent study by Poddar et al. (2014) noted that educational financial literacy programmes have not been always successful. Their experiment showed that reminding consumers about the total amount of debt they have on every receipt led to a decrease in overall spending. Also, computer tools and mobile applications that help people to control their daily consumption could be useful (e.g., Dimejar, https://www.dimejar.com/), but they have not been tested so far in research.

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