



Seðlabanki Íslands

Households' position in the financial crisis in Iceland Analysis based on a nationwide household-level database

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I. Introduction

“In such a fashion, one fine day, were the foundations upon which the crofter had built his life swept aside; those almighty giants of commerce who stood with one foot in Iceland and the other on the continent itself – one fine day saw them wiped away like so much spit.”

Laxness, H. (1934-35), *Independent People*, p. 389.

Our data



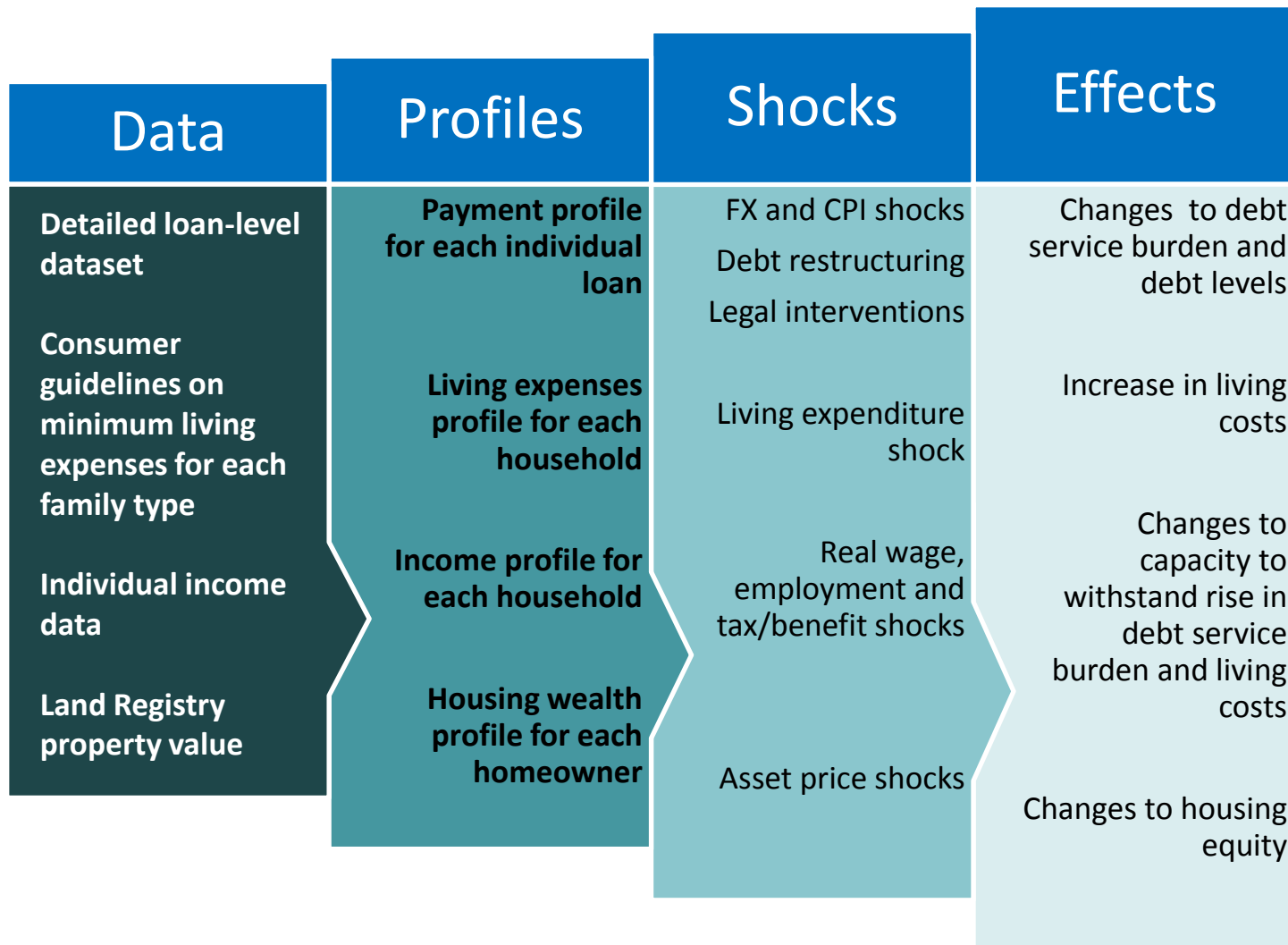
- We utilise an unprecedented nationwide household-level database designed and compiled by a small working group within the Central Bank of Iceland based on a special permission from the Data Protection Authority
- The database contains detailed information on each individual loan and household for a whole country's population of indebted households at a time when they experienced an unexpected adverse shock in the form of a banking system collapse and currency crisis of exceptional magnitude

The main strength of our approach ...



- We use our detailed dataset to construct payment profiles for each loan, income and living expense profiles for each household, as well as housing wealth profile for each homeowner
- Hence, we get a powerful analytical tool that allows us to analyse the effects of the large shock encountered by households over our four-year period, as well as the effects of policy measures and legal interventions
 - From peak to trough, the exchange rate depreciation measured 60 per cent, the rise in the consumer price index 37½ per cent, the decline in real wages 13½ per cent, the increase in unemployment 8½ percentage points, and the fall in real house prices 34 per cent

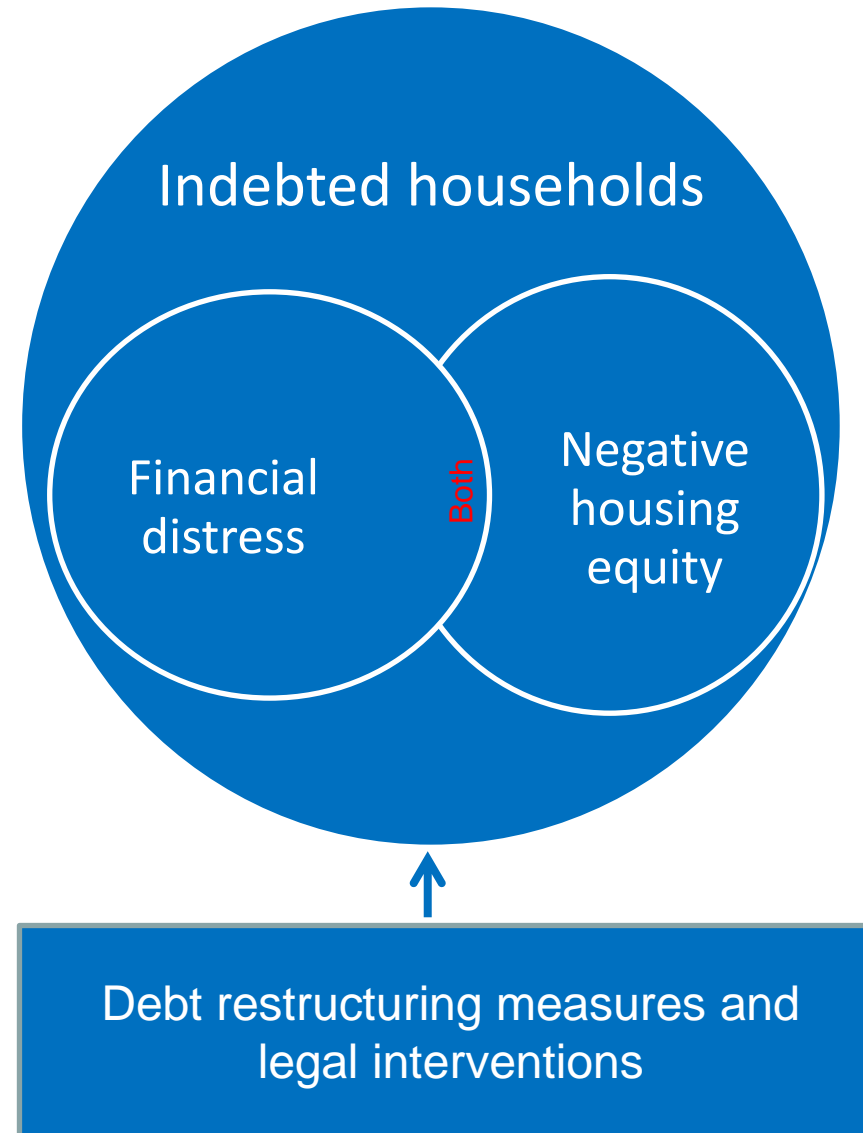
... of constructing profiles is to allow us to capture crisis dynamics ...



... and analyse our issues of interest



1. Extent and evolution of financial distress
2. Extent and evolution of negative housing equity
3. Size of the highly vulnerable group being both in distress and negative housing equity and how it has evolved
4. Characteristics of vulnerable households
5. Effects of debt restructuring measures and recalculation of FX loans



II. Financial distress

“He returned to his senses, now that the boom years were over, to find himself stuck in the bog which, with infinite labour, he had managed to avoid in the hard years; the free man of the famine years had become the interest-slave of the boom years.”

Laxness, H. (1934-35), *Independent People*, p. 505-506.

Definition of financial distress



- Our preferred measure to assess the share of indebted households in financial distress is based on calculating each household's financial margin for each month over the four-year period (2007-2010)
- Households are defined to be in **financial distress** if they have a negative financial margin such that their disposable income is insufficient to cover both debt service payments and necessary minimum living expenses

Financial distress - defaults



- It is important to note that financial distress does not necessarily lead to defaults
- Households in distress can defer defaulting by liquidating some assets, negotiate debt restructuring, or increase their labour participation or hours worked
- Household's equity position is important for their possibilities to escape defaulting when in distress, for instance by selling assets or negotiating debt restructuring
- Hence, it is also important to assess the share of households in the most vulnerable position of being both in distress and in negative housing equity

Results on financial distress

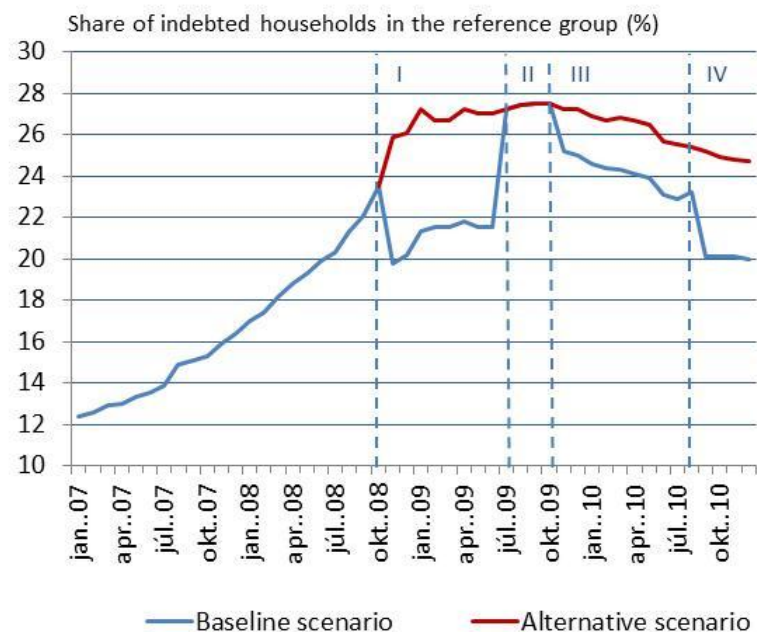


Whole reference group

- Share of indebted households in distress nearly doubled in the run-up to the banking collapse as the currency depreciated and inflation increased
- The share in distress peaked at 27½ per cent in the autumn of 2009 but decreased thereafter due to debt restructuring measures, wage increases and recalculation of illegal FX loans
- Roughly 20 per cent of indebted households are in distress at year-end 2010 compared to 25 per cent in the absence of measures

Figure 4.1a

Share of indebted households in distress in the baseline and alternative scenario¹



1. Share of households in the reference group with negative margin taking the 60 per cent buffer on the minimum living expenses into account. I: Freezing of many foreign-denominated loans begins, II: freezing ends and payment smoothing of foreign-denominated mortgages begins, III: payment smoothing of indexed ISK mortgages begins, IV: recalculation of foreign-denominated loans takes place.
Source: Central Bank of Iceland Household Sector Database.

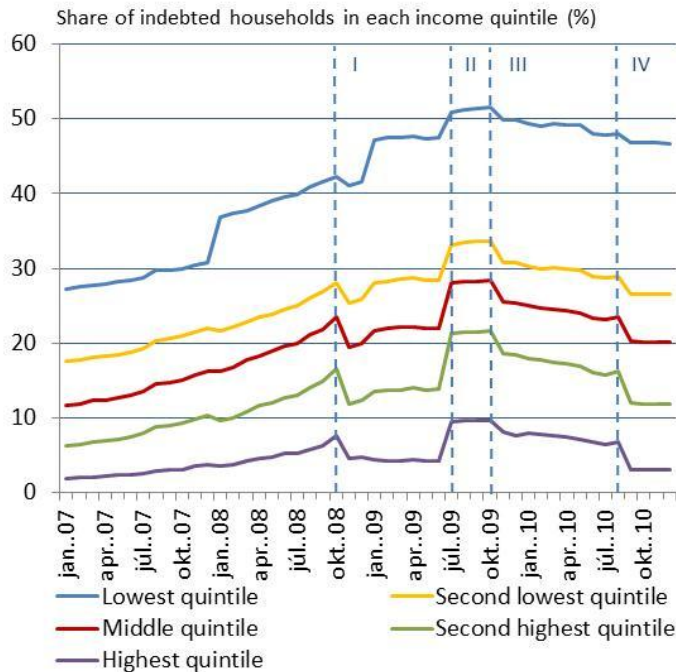
Results on financial distress

By income and currency-denomination of debt



Figure 4.1c

Share of indebted households in distress by income quintiles in the baseline scenario

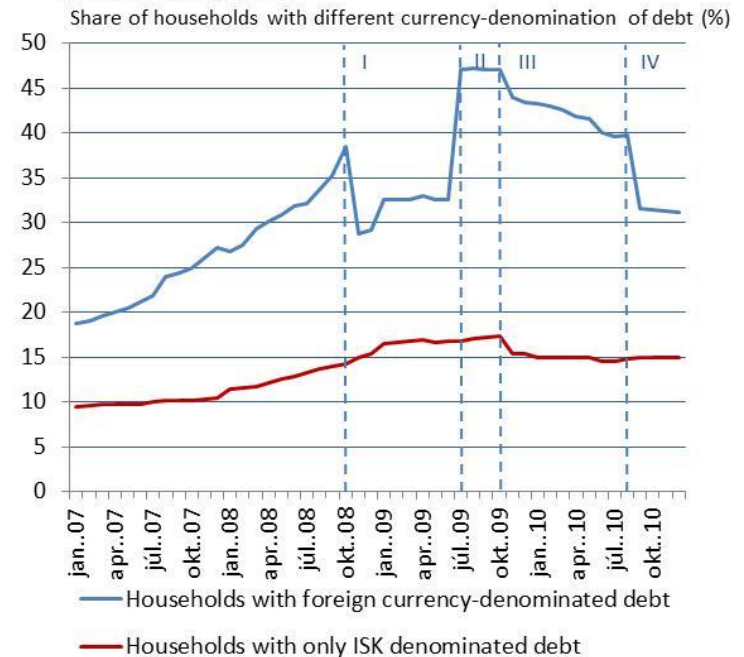


1. I: Freezing of many foreign-denominated loans begins, II: freezing ends and payment smoothing of foreign-denominated mortgages begins, III: payment smoothing of indexed ISK mortgages begins, IV: recalculation of foreign-denominated loans takes place.

Source: Central Bank of Iceland Household Sector Database.

Figure 4.1d

Share of indebted households in distress by currency-denomination of debt in the baseline scenario



1. I: Freezing of many foreign-denominated loans begins, II: freezing ends and payment smoothing of foreign-denominated mortgages begins, III: payment smoothing of indexed ISK mortgages begins, IV: recalculation of foreign-denominated loans takes place.

Source: Central Bank of Iceland Household Sector Database.

Financial distress is negatively related to income, most households in distress are low income households. Distress is more widespread among FX borrowers than ISK borrowers

Results on financial distress

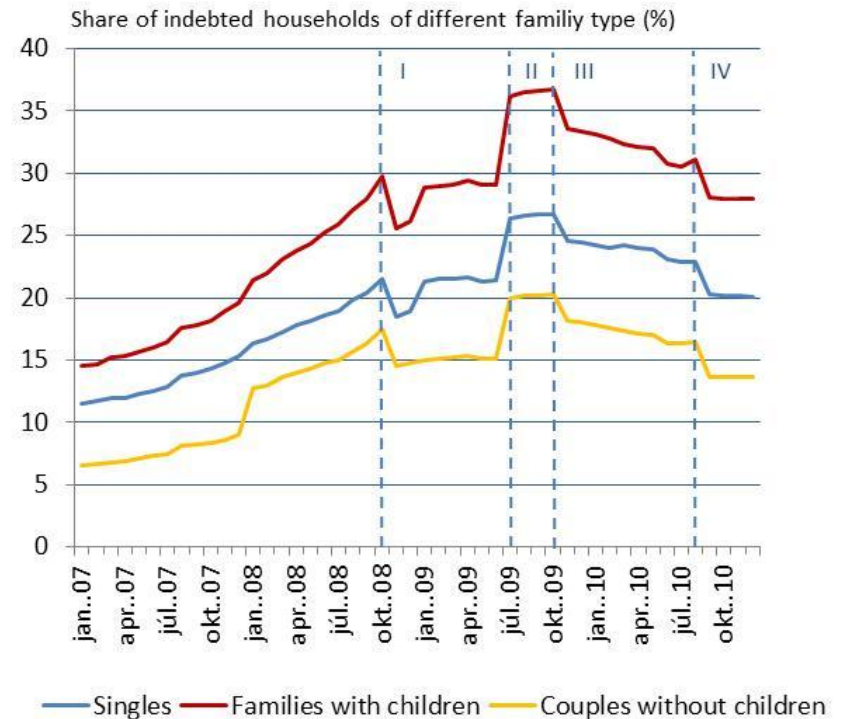
By family type

- Financial distress is far more widespread among families with children than childless households
- 28 per cent of families with children in distress at end of period, corresponding to parents of one out of every fifth child being in distress



Figure 4.2a

Share of indebted households in distress by family type in the baseline scenario



1. I: Freezing of many foreign-denominated loans begins, II: freezing ends and payment smoothing of foreign-denominated mortgages begins, III: payment smoothing of indexed ISK mortgages begins, IV: recalculation of foreign-denominated loans takes place.

Source: Central Bank of Iceland Household Sector Database.



III. Housing equity

“Those people who owed more than they could ever pay were straightaway declared bankrupt, and might thank their lucky stars for being let off so lightly, but all those who had anything in them at all were allowed to hang on in their halter of debt, with their toes barely touching the ground, in the hope that they might be able to scrape at least the interest together with their broken and bleeding nails – a misfortune even greater, perhaps, than that of being bankrupted and kicked out empty-handed.”

Laxness, H. (1934-35), *Independent People*, p. 506.

Housing equity



- We assess each indebted homeowner's housing equity by relating the value of his/her property according to the constructed housing wealth profiles to the outstanding balance on the mortgage according to the constructed payment profiles
- We are especially interested in assessing the share of indebted homeowners in negative housing equity
- Icelandic households are relatively more likely to end up in negative housing equity than households in many other countries due to characteristics of Icelandic mortgage contracts, especially the extensive indexation to the consumer price index and exchange rate developments making the debt position vulnerable to exchange rate and inflation shocks

Results on negative housing equity

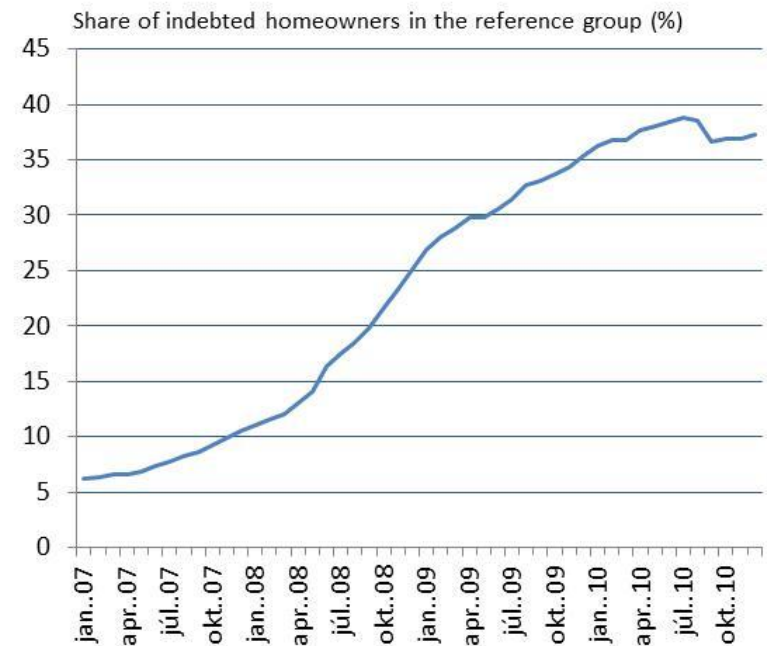


All homeowners in reference group

- The incidences of negative housing equity increased considerably in the run-up to and aftermath of the crisis as house prices declined and mortgage debt levels rose due to the exchange rate depreciation and the associated rise in inflation
- 37½ per cent of indebted homeowners are in negative housing equity at the end of the period

Figure 4.9a

Share of indebted homeowners in negative housing equity in the baseline scenario¹



1. Share of homeowners in the reference group in negative housing equity, i.e. with outstanding balance on their mortgages according to constructed payment profiles for the baseline scenario exceeding the value of their dwellings according to constructed housing wealth. The baseline scenario allows for recalculation of foreign-currency denominated mortgages in August 2010.

Source: Central Bank of Iceland Household Sector Database.

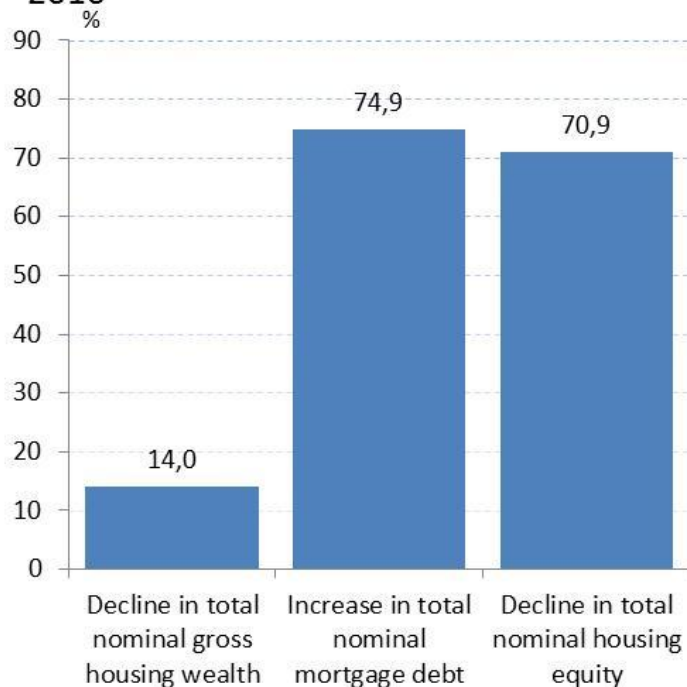
Results on negative housing equity

International comparison and driving factors



Figure 5.2b

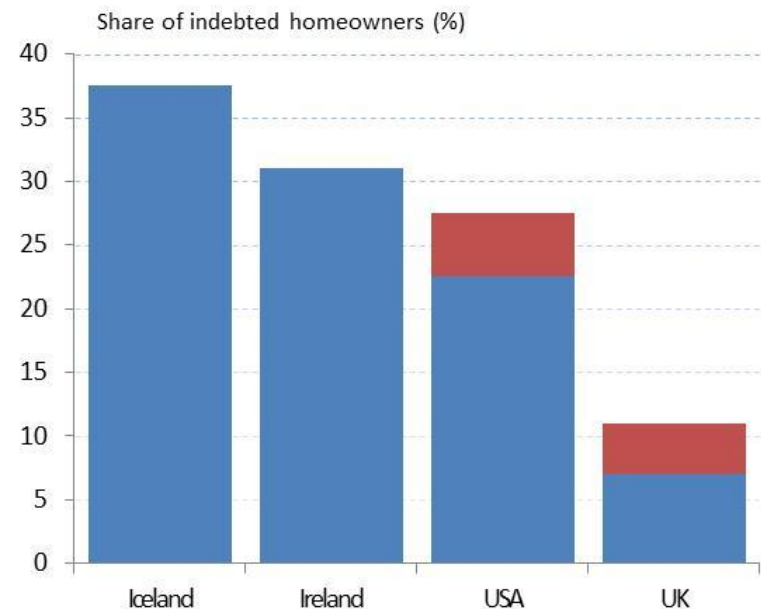
Changes to housing wealth, mortgage debt, and housing equity between peak and trough in January 2007-December 2010¹



1. The figure shows the changes in total housing wealth, mortgage debt, and housing equity of all homeowners in the reference group between its maximum and minimum level over the four-year period.
 Source: Central Bank of Iceland Household Sector Database.

Figure 4.15c

International comparison of incidence of negative housing equity¹



1. The values for Iceland and Ireland are for December 2010, the values for USA are for early 2011 and early 2009 for the UK. Values for USA and UK represents the interval of various estimates.

Sources: Kennedy and Calder (2011), CoreLogic (2011), Gittelsohn (2011), Hellebrandt and Kawar (2009), Central Bank of Iceland Household Sector Database.

IV. Homeowners both in financial distress and negative housing equity

„True, it has been quite usual in the old days for people to owe the merchant money and to be refused credit when the debt had grown too big. It had likewise been nothing uncommon for people thus denied sustenance to die of starvation, but such a fate, surely, was infinitely preferable to being ensnared by the banks, like people are nowadays, for at least they had lived like independent men, at least they had died of hunger like free people.“

Laxness, H. (1934-35), *Independent People*, p. 504-505.

Distress and negative housing equity

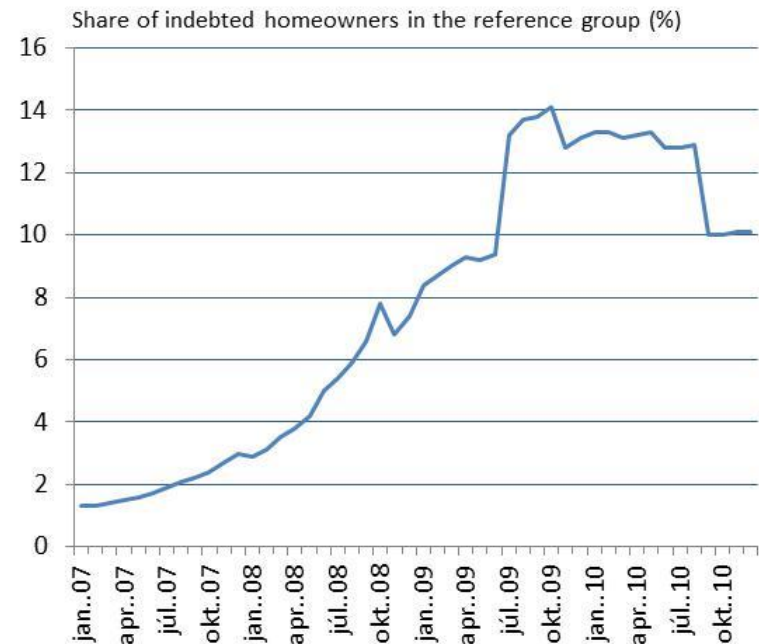


All homeowners in reference group

- Similar to other measures of financial vulnerabilities, the share of homeowners that were both in financial distress and negative housing equity rose sharply over the four-year period
- One out of ten indebted homeowner is both in distress and negative housing equity at the end of the period

Figure 4.13a

Share of indebted homeowners being both in financial distress and negative housing equity¹



1. Share of homeowners with both a negative financial margin (when the 60 per cent buffer is taken into account) and in negative housing equity, i.e. with outstanding balance on their mortgages according to constructed payment profiles for the baseline scenario exceeding the value of their dwellings according to constructed housing wealth. The baseline scenario allows for explicit debt restructuring measures and recalculation of foreign-currency denominated mortgages.

Source: Central Bank of Iceland Household Sector Database.

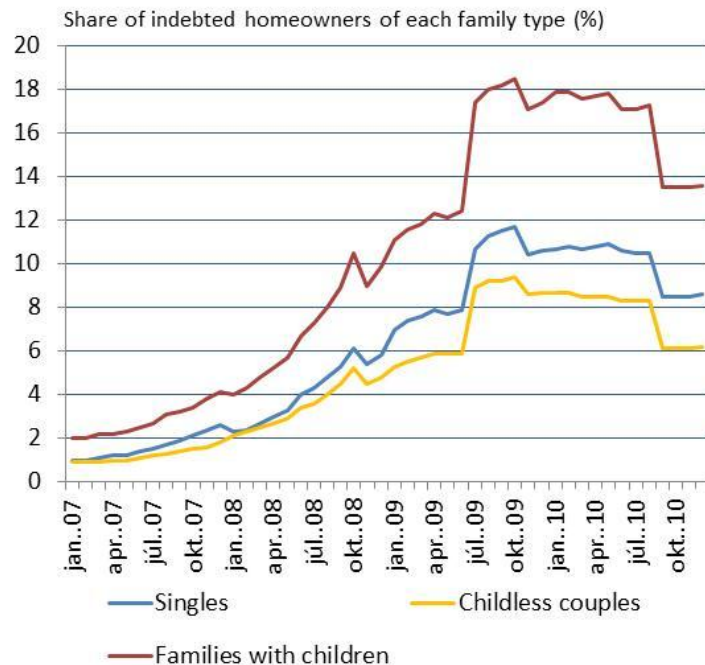
Distress and negative housing equity

By family type and currency-denomination of debt



Figure 4.15a

Share of indebted homeowners being both in financial distress and negative housing equity by family type¹

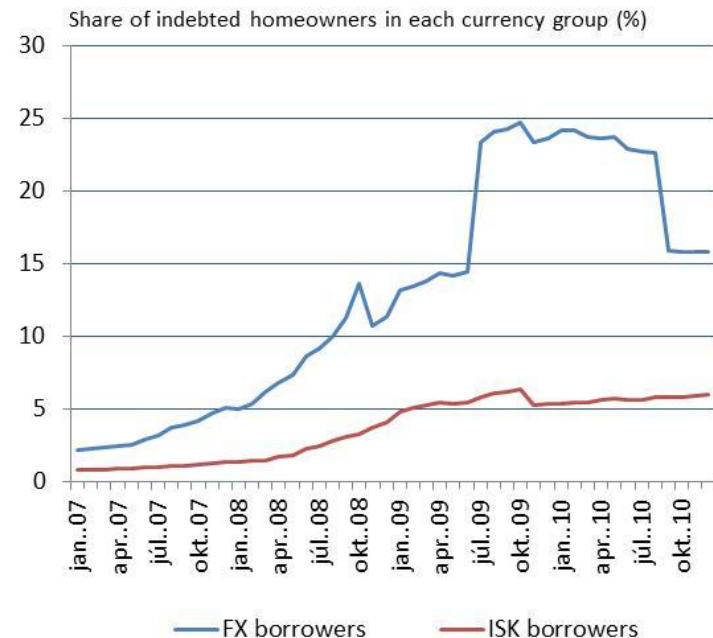


1. Share of homeowners of each family type with both a negative financial margin and in negative housing equity in the baseline. The baseline scenario allows for explicit debt restructuring measures and recalculation of foreign-currency denominated mortgages.

Source: Central Bank of Iceland Household Sector Database.

Figure 4.14c

Share of indebted homeowners being both in financial distress and negative housing equity by debt currency-denomination¹



1. Share of indebted homeowners in each currency group with both a negative financial margin and in negative housing equity in the baseline. The baseline scenario allows for explicit debt restructuring measures and recalculation of foreign-currency denominated mortgages.

Source: Central Bank of Iceland Household Sector Database.

Families with children are most likely to experience simultaneous payment and debt problems. FX borrowers are far more likely to be in this highly vulnerable position than ISK borrowers

Distress and negative housing equity

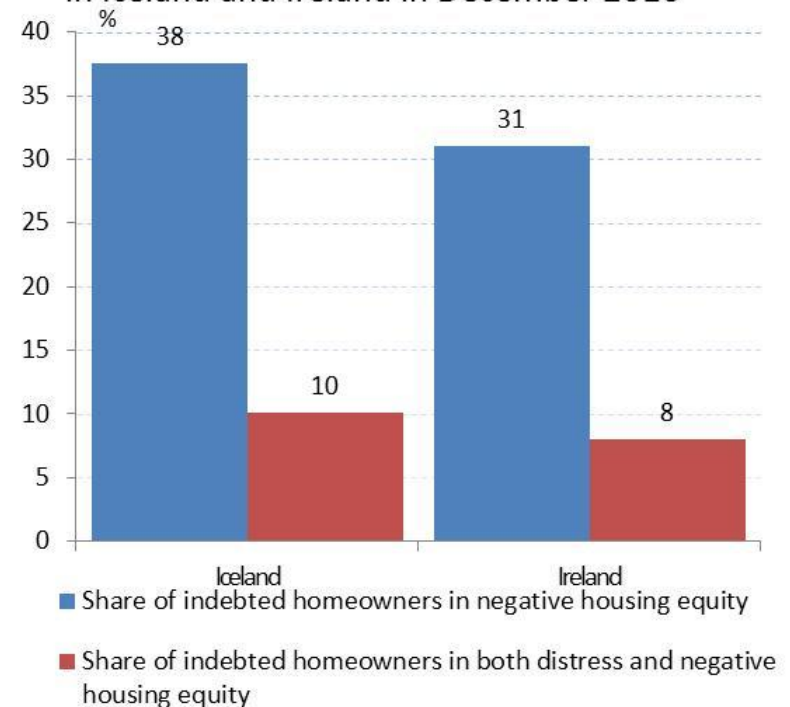


Iceland vs. Ireland

- The extent of coinciding financial distress and negative housing equity was similar in Iceland and Ireland at year-end 2010, although households' financial position was still deteriorating in Ireland while it was improving in Iceland

Figure 4.15b

Comparison of payment and debt problems in Iceland and Ireland in December 2010¹



1. For Iceland: homeowners are in payment and debt problems if they are simultaneously in financial distress and negative housing equity. For Ireland: households are in payment and debt problems if they are simultaneously in negative housing equity and in some arrears.

Sources: Kennedy and Calder (2011), McGuinness (2011), Central Bank of Iceland Household Sector Database.

V. Characteristics of vulnerable households

“Yes, the bottom fell out of everything, the autumn that Bjartur’s house was one year old [...] But this loss he took with the same unflinching fortitude as he had previously shown in the face of famine, spectres and merchants, complaining to no one. The walls of his prison of debt were no doubt growing the thicker, the lower his produce sank in price, but he was determined to keep on running his head against those walls as long as there was a drop of blood or a particle of brain left in it.”

Laxness, H. (1934-35), *Independent People*, p. 505.

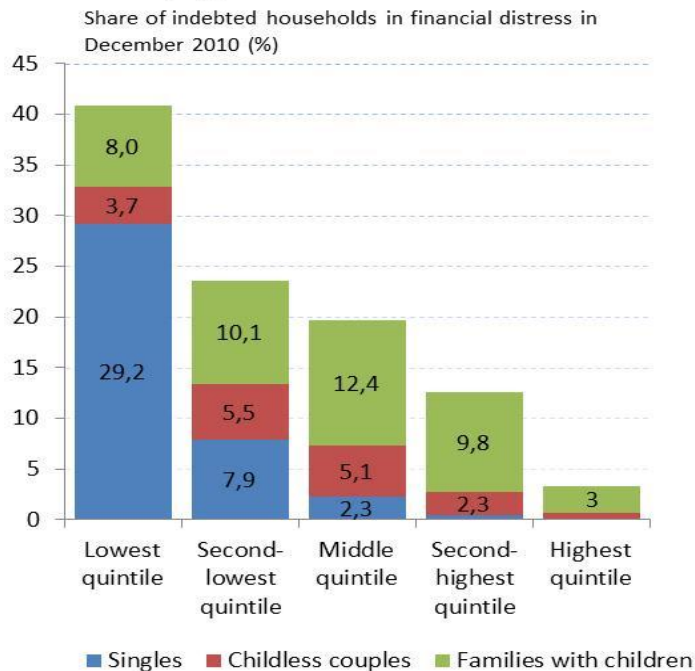
Characteristics of vulnerable households

Family type and income



Figure 5.3a

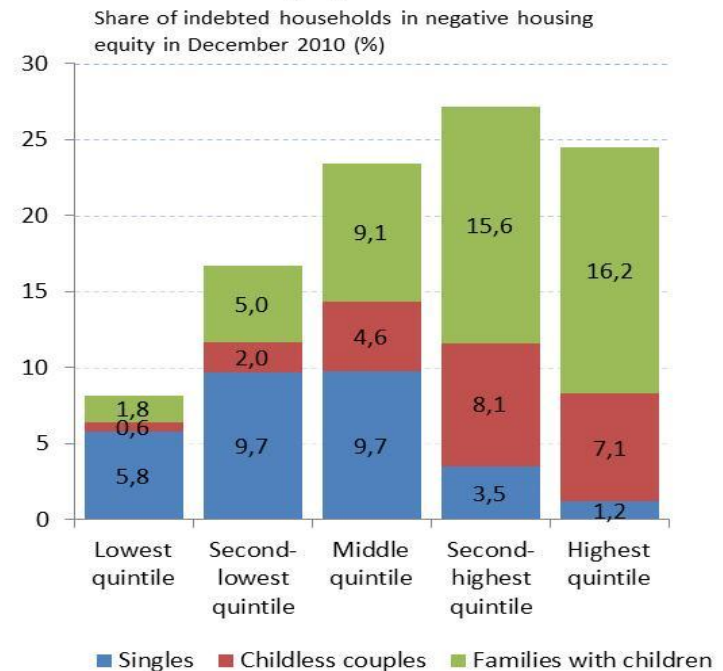
Composition of households in financial distress in December 2010 by income and family type¹



Source: Central Bank of Iceland Household Sector Database.

Figure 5.3b

Composition of homeowners in negative housing equity in December 2010 by income and family type¹



Source: Central Bank of Iceland Household Sector Database.

Roughly a third of households in distress are middle-income families with children, while 37 per cent are low-income singles. Almost half of households in negative housing equity are high-income nuclear families while one-in-six are low-income singles

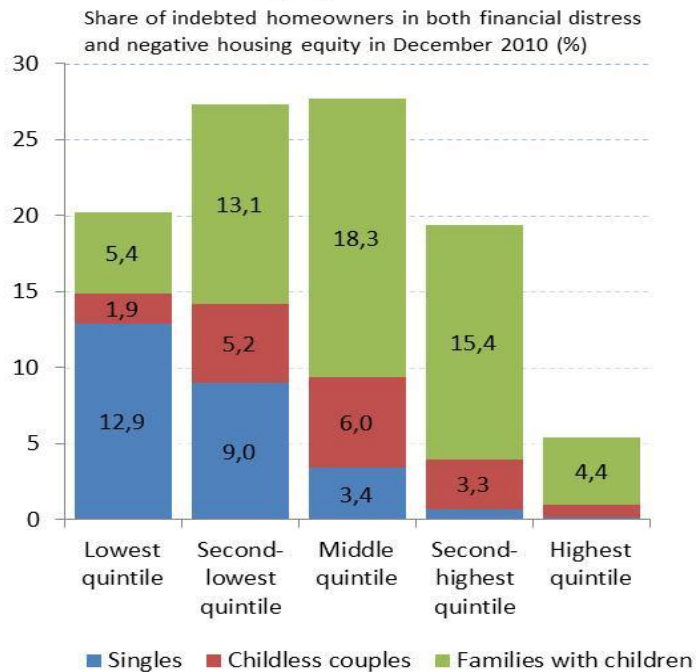
Characteristics of vulnerable households



Family type and income .. as well as currency-denomination of debt

Figure 5.3c

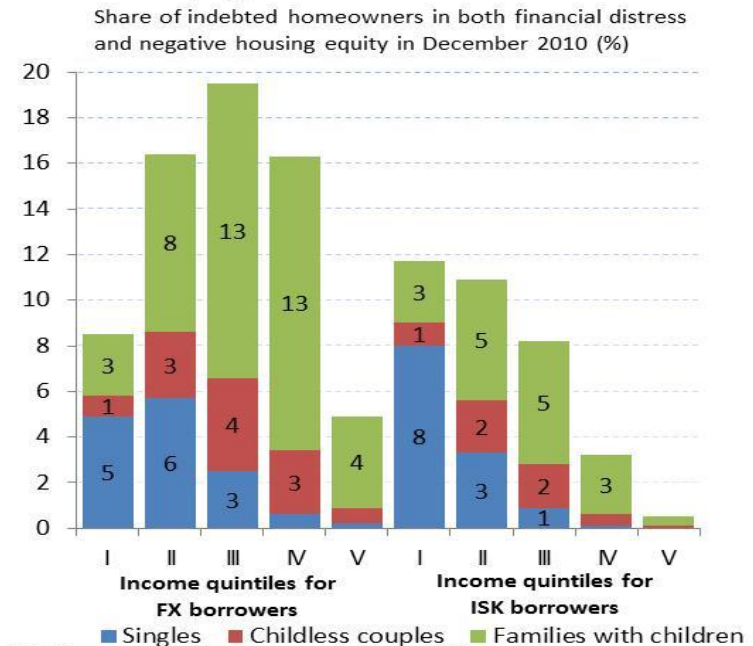
Composition of homeowners in financial distress and negative housing equity by income and family type¹



Source: Central Bank of Iceland Household Sector Database.

Figure 5.3d

Composition of homeowners in financial distress and negative housing equity by currency-denomination of debt, income and family type¹



1. I-V represents the income quintiles within each borrower group, from the lowest (I) to the highest (V).

Source: Central Bank of Iceland Household Sector Database.

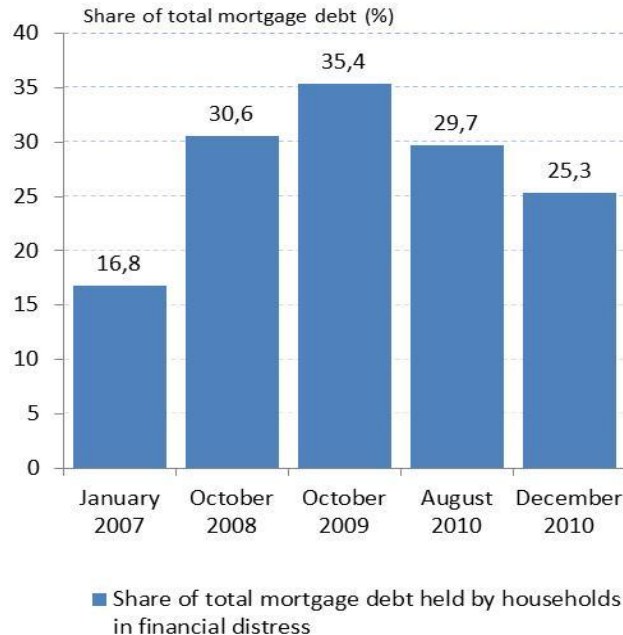
Just shy of 47 per cent of households in simultaneous payment and debt problems are middle-income families with children, of which 2/3 are FX borrowers. Roughly 22 per cent of households in this highly vulnerable position are low-income singles, split evenly between being FX and ISK borrowers

Characteristics of vulnerable households

Debt at risk



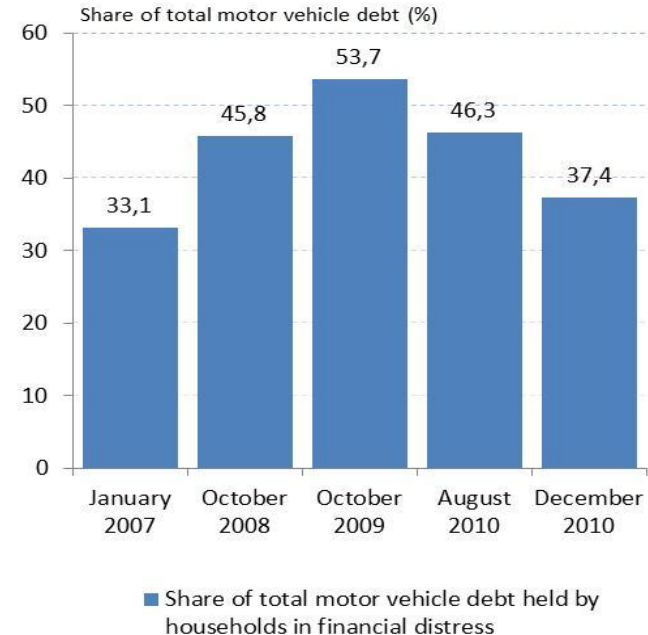
Figure 5.4a
Mortgage debt-at-risk ¹



1. Debt-at-risk is defined as debt held by households in financial distress.

Source: Central Bank of Iceland Household Sector Database.

Figure 5.4b
Motor vehicle debt-at-risk ¹



1. Debt-at-risk is defined as debt held by households in financial distress.

Source: Central Bank of Iceland Household Sector Database.

Households in distress seem to have an unusually large share of total motor vehicle debt which indicates that their motor vehicle purchases seem to have played an important role in bringing them into distress. Total debt-at-risk was 26 per cent at year-end 2010.

V. Effects and costs of debt restructuring measures

“ ‘Things have got into a hell of a mess here’, growled the new manager angrily, and the deeper he probed into the books the angrier he became, people’s debt had been allowed to run far too high, things were in an awful state, precautionary measures of a most drastic nature would have to be taken immediately.”

Laxness, H. (1934-35), *Independent People*, p. 506.

Policy and legal interventions



- Our baseline scenario includes some of the main forbearance and debt restructuring measures introduced over this four-year period
 - Important changes to the income tax system and benefit schemes are also included in our disposable income profiles
- Additional measures were introduced at the end of our period of analysis:
 - Adjustment of mortgage debt to 110 per cent of the underlying property value
 - Special interest rate rebate
- Now, we want to consider these measures and their possible effects
- We can not assess the effects of de-centralised debt restructuring measures

Further measures

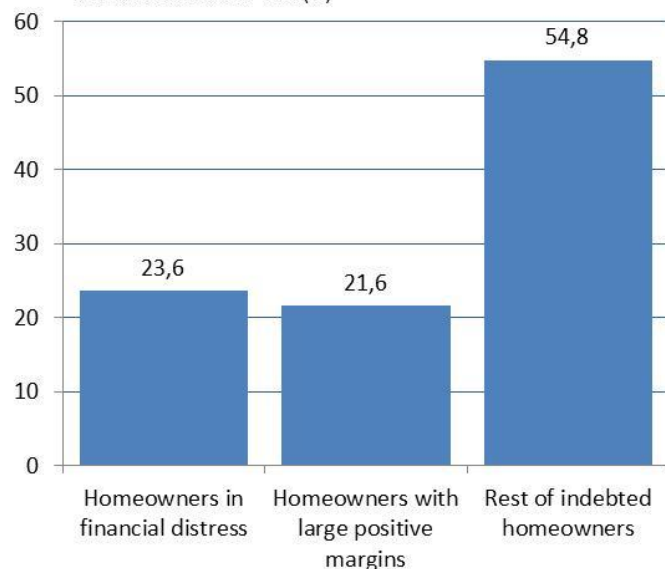
Adjustment of mortgage debt to 110 per cent of property value



Figure 4.14a

Distribution of write-offs due to the 110% solution across homeowners in distress, those with large margins, and the rest

Share of total write-offs (%)



1. Maximum nominal amounts in write-offs are taken into account but not further restrictions, for instance, related to other assets and borrowed collateral. Homeowners with large positive margins are those with more than 200 t.kr. leftover after debt payments and minimum living expenses (with the 60 per cent added buffer).

Source: Central Bank of Iceland Household Sector Database.

Figure

Share of households in distress in the baseline scenario and after the adjustment of mortgage debt to 110 per cent¹

Share of indebted households in the reference group (%)



1. Share of households in the reference group with negative margin taking the 60 per cent buffer on the minimum living expenses into account. The baseline scenario allows for explicit debt restructuring measures and legal interventions. Maximum nominal amounts in write-offs are taken into account but not further restrictions, for instance, related to other assets and borrowed collateral. Debt service burden is estimated to decline proportionally to the decline in the debt level due to the write-offs.

Source: Central Bank of Iceland Household Sector Database.

Households in distress receive only 23½ per cent of the write-offs due to the 110 per cent measure, leading the share in distress to decline by only 0,6 percentage points. Does this represent an efficient use of the limited resources available for debt restructuring?

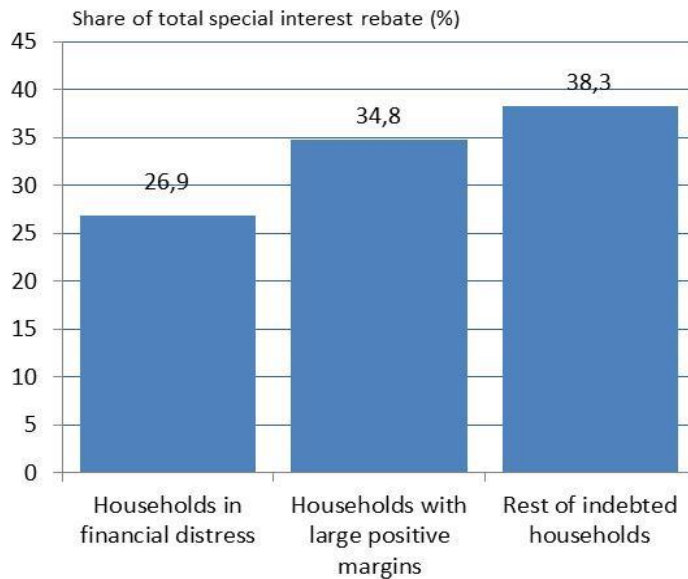
Further measures

Special interest rebate



Figure 4.14b

Distribution of the special interest rebate across households in distress, those with large positive margins, and the rest¹

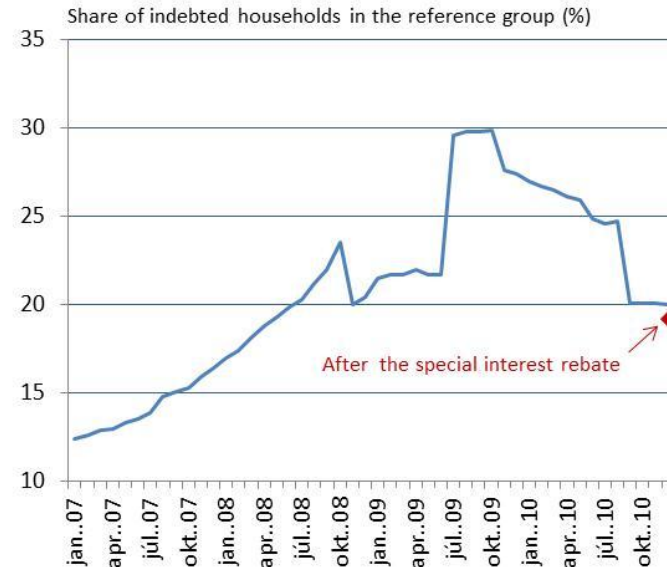


1. The special interest rebate is calculated for each household according to their debt and equity position based on their payment and housing wealth profiles in December 2010. Households with large positive margins are those with more than 200 t.kr. leftover after debt payments and minimum living expenses (taking the added buffer into account).

Source: Central Bank of Iceland Household Sector Database.

Figure

Share of indebted households in distress in the baseline scenario and after the introduction of the special interest rebate¹



1. Share of households in the reference group with negative margin taking the 60 per cent buffer on the minimum living expenses into account. The baseline scenario allows for explicit debt restructuring measures and legal interventions. The special interest rebate is calculated for each household and 808 households escape from distress due to the rebate, lowering the share in distress to 19.2 per cent.

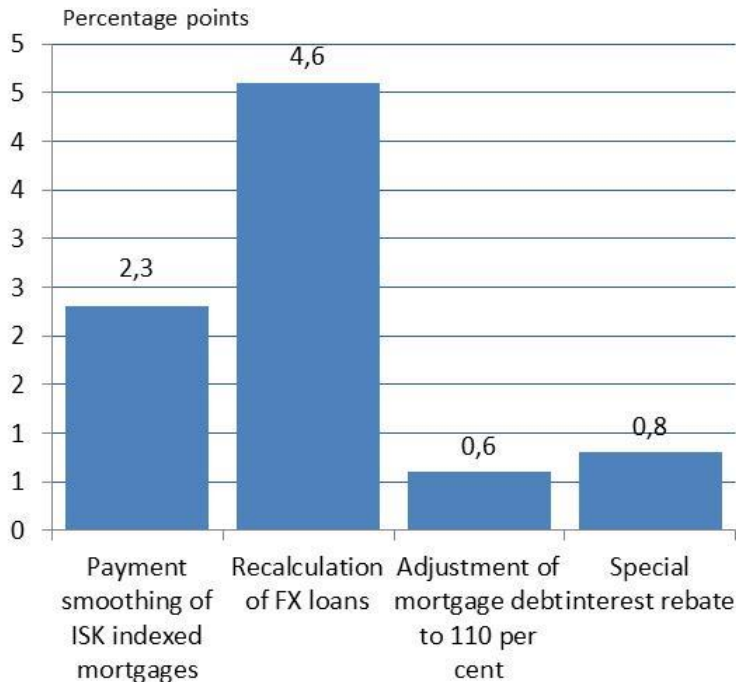
Source: Central Bank of Iceland Household Sector Database.

Households in distress receive only 27 per cent of the special interest rebate, leading the share in distress to decline by only 0,8 percentage points. Should policy makers distribute limited tax revenue irrespective of whether they are in distress or not and regardless of income?

Cost and effectiveness of measures in terms of decreasing distress



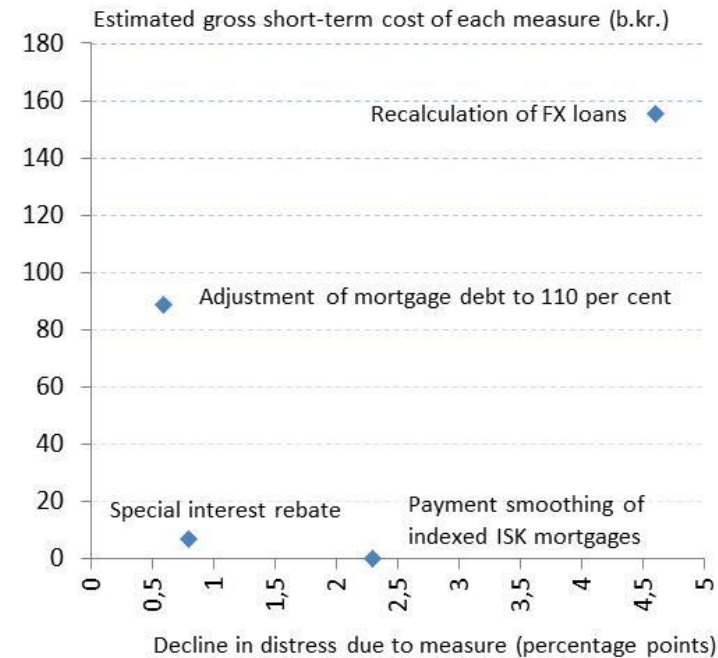
Figure
Comparison of the decline in financial distress due to policy and legal interventions¹



1. The figure shows the decline in the share of households in financial distress immediately after each measure is introduced.

Source: Central Bank of Iceland Household Sector Database.

Figure
Comparison of the cost of measures and their effectiveness against distress¹



1. There is no immediate cost associated with payment smoothing on indexed ISK mortgages but some write-offs could take place as the maturity of each loan undergoing payment smoothing is only extended by three years at most. The extent of those write-offs will depend on wage, price and unemployment developments over the remaining maturity of each loan. The cost associated with the special interest rebate is for each year over the two-year period it should be in place.

Source: Central Bank of Iceland Household Sector Database.

VI. Concluding remarks

“[Bjartur] went down to the Savings Bank to see if he could come to some arrangement about his debt, but the only person to be found on the premises was a limp, consumptive-looking wretch who languidly turned the leaves of a ledger and informed him that he had no powers to make any reductions. [...] Bjartur went home and thought the matter over. Perhaps he didn't even bother to think the matter over; it's all the same whether one thinks or doesn't think, they are thieves, every one of them.”

Laxness, H. (1934-35), *Independent People*, p. 519.

Contribution of the paper



To the domestic audience

1. Provide an assessment in one of the most debated and sensitive issues within the country
2. Provide guidance for design of domestic debt restructuring measures and other policy initiatives
 - The government has announced that it is looking at changing the child benefit system to channel resources to the middle-income families with children that we find to be in a vulnerable position
3. Stimulate a regular micro data gathering on the financial position of households

Contribution of the paper

To the literature and the international arena

1. Unprecedented data gathering

- Guidance to other countries in their efforts to improve their data accumulation on households which the crisis has clearly demonstrated was insufficient

2. Unique analysis due to the construction of profiles

- To our knowledge this has never been done before, and definitely not on this scale
- Key role in our analysis and provides an analytical tool to assess the effects of shocks and policy measures in a way that no other analysis has been in a position to do. This tool could be used for forecasting.
- This is especially important now given the experience with the debt restructuring measures which have been introduced in various countries