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### **Abstract**

**Title: Income Inequality in a Bubble Economy – The Case of Iceland 1992-2008,**

by

Stefan Olafsson and Arnaldur Solvi Kristjansson,  
University of Iceland

The paper outlines how the neoliberal experiment which was undertaken in Iceland, from the 1990s up to the financial collapse of 2008, affected the country's income distribution. Increasing freedom for finance and extensive leveraging connected to an investment boom fed a speculation bubble and an expanding stock market, increasing greatly the flow of financial earnings. Financial earnings went disproportionately to the higher income groups, in particular the top 5%.

At the same time government taxation policies were changed, in line with neoliberal prescriptions. Thus taxation on corporate incomes was reduced from 50% to 18% and a new tax on financial earnings was introduced in 1998, with the unusually low rate of 10%. There were also reductions of estate and inheritance tax rates. These measures greatly reduced the tax burden on high income earners and owners of larger assets. In conjunction with these developments the government greatly reduced the personal tax allowance for individual income tax payers, which greatly increased the tax burden of low income earners. Thus the government policies transferred tax burden from the higher end of the income scale to the lower end, adding to the growth of income inequality already emanating from the workings of the market.

Together these developments increased income inequality at an unprecedented rate. This was particularly visible for the top 1% but affected the overall structure of inequality significantly. The paper outlines these developments and disaggregates the changing composition of earnings and changing equalization effects of taxes and transfers in the period.

# **Income Inequality in a Bubble Economy: The Case of Iceland 1992-2008**

by  
Stefán Ólafsson and Arnaldur Sölvi Kristjánsson  
University of Iceland

## **Draft**

Iceland can be described as one of the economic miracles of the post-war period in Europe. The biggest leap forward occurred in the period between 1960 and 1980. By 1980 Iceland had become a regular member of the group of 10-12 most affluent nations within the OECD. The UN's Human Development Index of 1980 and 1985 ranked Iceland in 7th and 8th place respectively (Ólafsson 2008). Various levels of living indicators were by 1990 comparable to those of the Scandinavian nations (Ólafsson 1990).

From the late 1990s this already successful society became the subject of an unusual neoliberal experiment which produced an excessive bubble economy between 2002 and 2008. Neo-liberalism had started to gain ground in politics and economy from the early 1980s, as in many other advanced nations. This involved a growing belief in the benevolence of unfettered markets, privatization, reservations about the role of government in the economy, tax favours to firms and investors and a laissez-faire attitude towards the role of government in finance and the economy in general.

Iceland's entry into the European Economic Area Zone (EEA) in 1995 introduced the four freedoms of the European Union into the Icelandic political economy, with full freedom for the flow of capital across borders being the most novel and consequential aspect. The privatization of the main state banks, which was started in 1998, proved to be a major turning point. When the banks were fully privatized, at the beginning of 2003, the new owners turned them on the spot into aggressive investment banks. They greatly increased their participation in leveraged mergers and acquisitions, first within Iceland but then to a greater extent in the neighbouring countries.

External debt escalated and excessive risk behaviour became predominant in the Icelandic financial and business environment, driven by the quest for accumulation of assets, profits and bonuses (PIC - Parliamentary Investigation Committee into the Collapse of the Banks, 2010). With the easy flow of borrowed foreign capital, at low interest rates, the economy had ample resources for rapid growth, which soon turned into an excessive speculation bubble (cf. Kindleberger and Aliber 2005; Minsky 2008/1986). Already by end of 2004 Iceland had become the world's most heavily indebted economy, measured as gross external debt in % of GDP. Before the collapse of the banks in October 2008 the foreign debt had grown to about eight times the size of the country's GDP, a high-risk situation and totally unsustainable once the growth was slowed down (Buiter and Sibert 2008; Ólafsson 2008; Daniélsson and Zoega 2009; PIC 2010).

IMF and others have claimed that Iceland's financial crisis is the most costly one in history, in relation to GDP (IMF 2009).

In figure 1 we show one indicator of the size of the speculation bubble with comparison of stock market indices in the more advanced European countries. From early 2002 the Icelandic stock market index had increased sevenfold when it reached

its top in the summer of 2007. Then it came down, as a result of the growing credit crunch and an increasing loss of confidence in the Icelandic banks, until it fully collapsed with the three main banks in October 2008. As can be seen from the figure Iceland towers over the other countries in this respect. Norway is the only other country of this group that had a stock market bubble significantly out of the ordinary. Spain doubled its index by 2007 but the other economies did not fully manage to double their indices in the period. Ireland which had a sizable housing bubble, like Spain, did on the other hand experience only a mild stock market bubble, in comparison to Iceland and Norway. Its economic growth was though outstandingly successful. While Iceland had economic growth rates above OECD average from 1995 to 2007 it did not reach Ireland's high level.

A further comparison of stock market indices shows that only the Baltic States (Latvia, Lithuania and Estonia) compete with Iceland in the extent of the speculation bubble within Europe, and looking further afield we also find that Argentina, Mexico and Brasil approach the Icelandic pattern in the period. The speed of external debt accumulation in Iceland during the bubble period is on the other hand probably not matched by any other of these countries. It was indeed an extreme bubble economy. The stock market index has obvious implications for the growth of capital earnings, not least capital gains, and it is thus of relevance for income distribution.

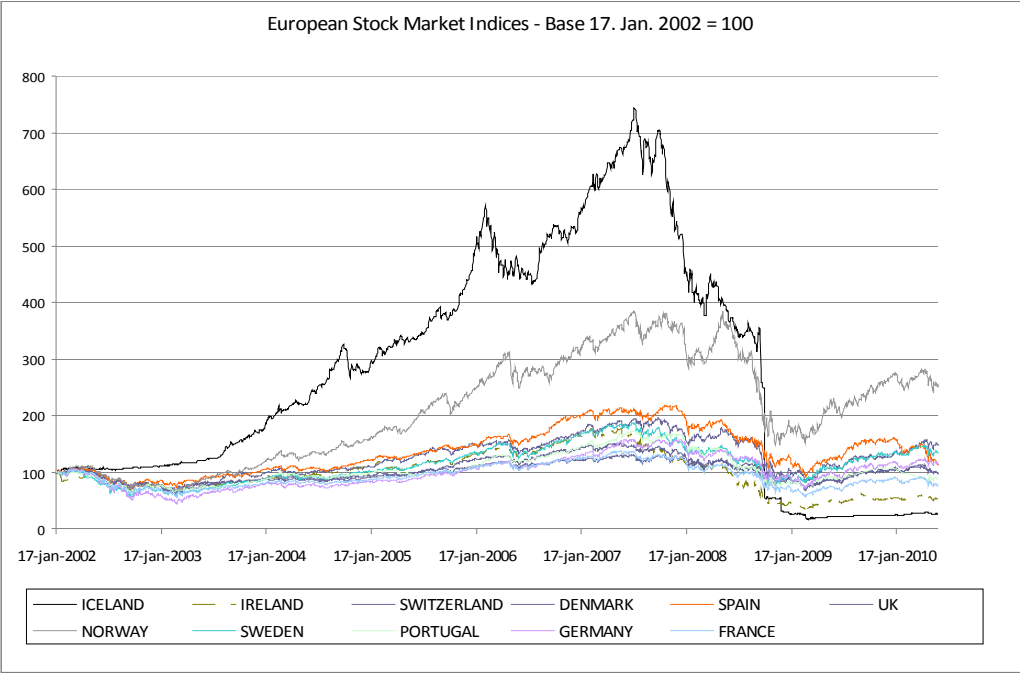


Figure 1: The Icelandic bubble in context. European stock market indices 2002-2010.

It is interesting to note that the countries that succumbed most extensively to the forces of speculation seem also to be the ones suffering most in the depths of the financial crisis that followed. This applies to the Baltic States, Hungary, Ireland and Iceland. In some of these cases neoliberal ideologies were a significant part of the associated policy story, most certainly in the Baltic States and Iceland. Iceland is though doing better than these countries as regards contraction of GDP and unemployment level. The resilience of the Icelandic welfare state and government policy seems to be softening the consequences of the crisis for the public (Ólafsson 2010).

## *1. Income Distribution and the Bubble Economy*

Iceland is thus an interesting case for studying societal correlates of an excessive bubble economy. Income distribution is certainly an important topic for such a study. In this paper we aim to show how the bubble economy environment affected income inequality in Iceland. We primarily use public tax data for the period 1993 to 2008. This data provides comparability from year to year, though it is not fully comparable to income distribution data in other countries (Atkinson and Piketty 2007). Data from the OECD's 2008 report, *Growing Unequal?* covering comparative data for 2005 includes Iceland for the first time and EU-SILC data are also available for Iceland for the 2003 to 2008 period. Icelandic data will soon be assimilated to the LIS database, further extending such comparative possibilities. These data sets will be more important for directly comparing Iceland to other countries.

The EU-SILC data indicates that Iceland still had an income distribution similar to that of the other Nordic nations in 2003 (Statistics Iceland 2007). The Scandinavian nations -particularly Finland, Sweden and Norway- had experienced an increase in income inequality from the mid 1990s and strong indications are from tax data that income inequality in Iceland had increased rapidly from 1995 to 2003. But the Gini coefficient for Iceland, from EU-SILC data, for the years after 2003 went from about 0.24 to 0.30 in 2008 (Statistics Iceland 2010). That is a big increase by any standard. That data does not however include capital gains, which however added significantly to the level of inequality, as we show later in the paper.

The pros of Icelandic tax data are that they cover the whole population (ages 16+) and include all taxable incomes. They also allow for a disaggregation of different income components (for example employment earnings, pension earnings, other public benefits and financial earnings) and they also make possible an assessment of the effects of taxation on the distribution. Analysis by family status (couples' households and singles' households), age groups and various income groups further advance their use. The period for which the data are available at this time is however short, from 1992-2008, but it covers the period of the bubble economy quite well.

The main drawbacks of the data are that in case of singles they include individuals at ages of 16-24, many of whom are still at school and living in their parents households. They are though counted as separate households in the original data, producing a partly artificial degree of inequality amongst single's households (due to very low earnings of many of the youngest individuals). The authors have worked with the Icelandic tax authorities to modify the tax data in order to make it more amenable to conventional income distribution analysis. This most significantly involved an equivalencing of the data (with the modified OECD scale). The analysis in this paper is the first use of this modified data set (see Appendix for further description of the data). In previous works we have used raw data for couples and singles separately (for example in Kristjánsson and Ólafsson 2009).

There is little reason to expect that the black economy in Iceland is significantly larger than in the other Nordic countries so underreporting or deviations should not be any more serious for reliability of the data than what is typical in the other Nordic countries (Olsen et.al. 2004). Underreporting of capital incomes may though be significant due to the international links of Icelandic banks and businesses during the height of the bubble economy, linked to use of foreign tax heavens. For the big majority of the population the data should be quite reasonably reliable and

strongly indicative of developmental trends, since what structural faults there may be these are likely to have remained similar throughout the period.

The study of income developments during the bubble economy period is obviously of great interest from the perspective of Icelandic society, but it is also of significant general interest as a phenomenon of income distribution and economic bubbles. Speculation periods, or overheating, have become a more prominent feature of modern economies since the growing liberalization of global financial markets from the early 1980s (Reinhart and Rogoff 2009; Stiglitz 2010). The new information technology has also increased financial volatility by expanding globalization in this area. An increased understanding of the effects of financial markets, speculation and overheating on income distribution is thus of wider relevance. One particularly interesting aspect of the relationship between a bubble economy and income distribution concerns the role of capital earnings, including capital gains. Most comparative studies, such as the LIS data, OECD data and EU-SILC do not include capital gains (OECD 2008; Atkinson and Piketty 2007). We hope to outline the important role of capital earnings in the Icelandic case, by means of the tax data and to estimate its effects on the distribution as against other factors, such as employment earnings.

The role of government policy is also important, especially how governments do and do not counter income distribution developments emanating from the markets (Kenworthy and Pontusson 2005). How the taxation and welfare systems fare can be of great importance for the inequality outcomes. The Icelandic case proves to have an interesting feature to add to the story in that area.

Lastly the experience of Iceland is also of interest in more direct comparison to other nations, such as the USA, where relatively good data on capital earnings is available. Also comparing Iceland to the other Nordic nations is of great interest as well as a comparison to Ireland (Atkinson, Piketty and Saez 2007 and 2010). Recent data on income distribution developments in Ireland indicate that inequality did not increase significantly during the high-growth period in Ireland (Nolan and Smeeding 2005, Nolan 2007 and Eurostat EU-SILC data 1988-2007). As we show in this paper that is very different from the experience in Iceland.

On the other hand there are also indications that the income distribution in the Nordic countries became more unequal during the ICT bubble of 1995-2000 and in Norway there was an increase in inequality in 2003-5, associated to increasing capital earnings (Atkinson, Piketty and Saez 2010). Survey based data (as from LIS, OECD and EU-SILC) have a drawback as means of assessing the effects of bubbles on the income distribution since capital gains are generally excluded from their income concept. In so far as financial earnings are likely to be the most important additions to the income ladder during financial bubbles, we need a fuller account of all financial earnings to assess the effects of bubbles on income distribution. In the case of Iceland we have the possibility of doing that with the public tax data and thus better assess the overall impact of the financial bubble on the income distribution.

In what follows we will outline the general development of the income distribution in Iceland in the period leading up to the crisis when the bubble burst, which started in the autumn of 2008. We show a rapidly increasing income inequality in this formerly egalitarian society. We also focus on top incomes (the top 10% and top 1% of income earners) and delineate the main features of changes within the income distribution, aiming to account for the role of employment and pension earnings, financial earnings, government benefits and the effects of direct taxes and benefits on the outcome. The roles of financial earnings and taxation prove to have

been the main forces at work in changing the income distribution decisively in the period from 1995 to 2007.

*II. From a Nordic Egalitarianism to Increasing Inequality*

The best indications of longer term developments of income distribution in Iceland seem to tell a story of relatively minor changes in the income distribution in the high growth period of 1960s through the 1980s<sup>1</sup>. During the 1980s and early 1990s the income distribution in Iceland seemed to be on level with that of the other Nordic nations. Iceland was indeed a very egalitarian society (Ólafsson 1999).

In the period of 1988 to 1993 the distribution of disposable income became slightly more equal. This was due to increased equalizing effects of taxation and benefits associated with the new system of taxation established in 1988<sup>2</sup>. Tax data has shown that a major change occurred in the income distribution from 1995 and onwards towards a more unequal distribution (Ólafsson 2006a and 2006b; Baldursson et.al. 2008; Kristjánsson and Ólafsson 2009).

Figure 2 shows the Gini coefficient for disposable incomes among individuals for equalized family income from 1992 to 2008. The figure shows, what other sources have as well shown, that the inequality of incomes increased decisively from 1995, with growing speed after 2002 as the bubble expanded.

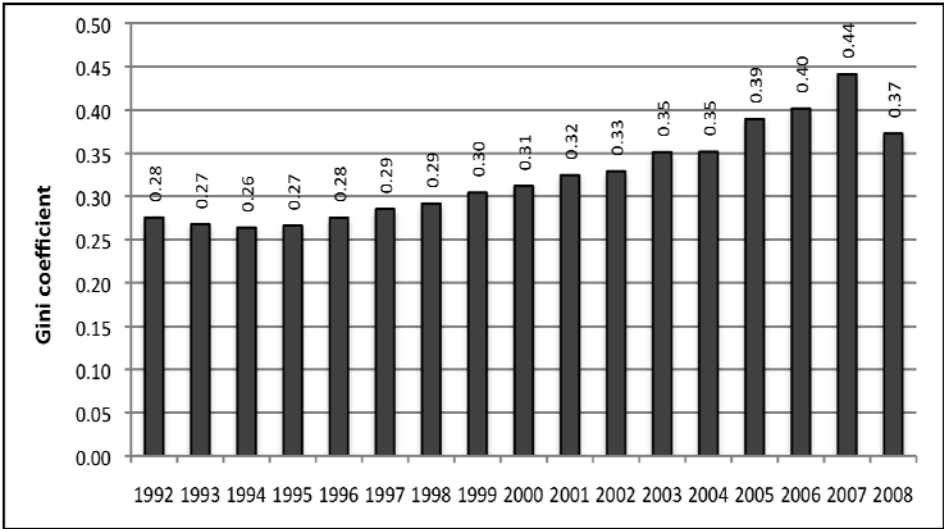


Figure 2: Gini coefficients for equalized disposable earnings 1993-2008. All incomes counted, including capital gains, after direct taxation and benefits.

The inequality in disposable income decreased marginally from 1992-1994. In 1996 the inequality then started to increase, from the egalitarian position of 0.27, and increased roughly by almost one Gini point per year up to 2002. Then the speed increased in 2003 and again increased further at greater velocities from 2005 to 2007 at the height of the bubble.

<sup>1</sup> Figures from Geirsson (1977), Snævarr (1988) and the National Economic Institute (1994-2004) indicate that the Gini coefficient was quite stable in the period from 1960 to 1985. These figures are though not comparable to the more recent data we are using. See also Jónsson et. al. 2001.

<sup>2</sup> The Gini coefficient for market income increased marginally from 1988 to 1994, while disposable income decreased significantly (Jónsson et. al. 2001).

The increase of the Gini index from 1997 to 2007 was 55%, while it increased by 19% in 10 years before the stock market boom (i.e. in 1992-2002). The OECD counts an increase in the Gini coefficient in a period of 10 years at 12% or more as a “strong increase” (Förster and d’Ercole 2005). The growth of income inequality in Iceland in the period after 1995 thus clearly lives up to the description “a very strong increase”, whichever part of the period after 1995 is considered.

Other commonly used inequality measures are shown in Appendix I. Overall, these different measures tell a consistent story. The correlations between them and the Gini coefficient is between 0.98 and 1.00.

*II.1. Shape of the distribution*

A useful method for delineating the shape of the distribution of incomes is by looking at the percentiles of the median. This is done in figure 3. The left side shows the 10th and 25th percentile (lower income groups) and on the right are the 75th, 90th and 95th percentiles as proportions of the median (higher income groups). The figure shows that the lower income groups fell behind the median income while the higher income groups increases relative to the median income.

The P10 proportion of median income went from 58% in 1994 down to 50% in 2004 and after. The P25 decreased relative to median as well but somewhat less than P10. The lower income groups thus lagged behind middle incomes from 1995 to 2001 but remand relatively stable thereafter.

Similarly the higher income groups were raised relative to the median income, more markedly though in the upper groups (P90 and especially in the P95). The P75 did not change its relation to the median at all and remained quite stable from 2000. So the increase of P90 and P95 beyond the median took part both in the periods pre and post 2001, while the lower percentiles only changed significantly before 2001.

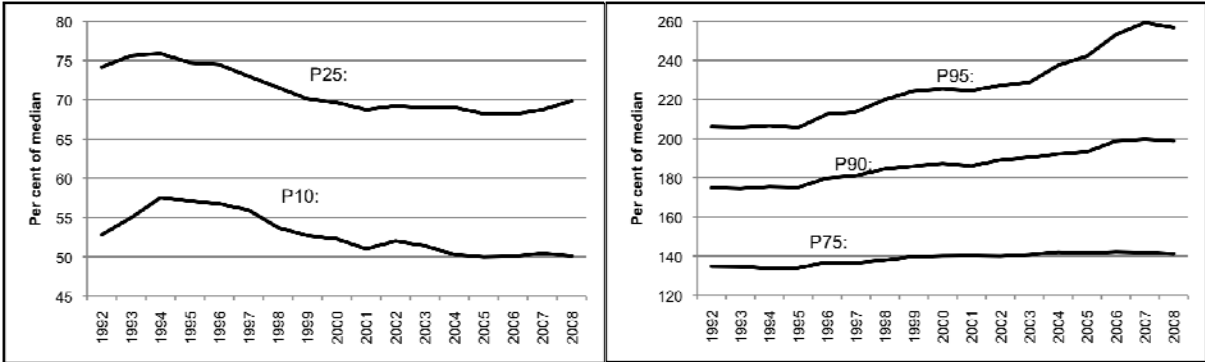


Figure 3: The per cent of ith percentiles of the median equalized disposable income, denoted by Pi. Left side shows low income groups and right side high income groups.

Atkinson, Rainwater and Smeeding (1995) used an interesting method to measure the size of the middle income in a given country. This involved measuring the proportion of the population that has income between 80% to 125% of the median. For the period in question in Iceland the highest value was 41% in 1995 and declined sharply until 2001 when 32% of the population had income between 80% and 125% of median income. So the middle income class contracted significantly in the earlier part of the period. From 2001 to 2008 this proportion was on the other hand quite stable. The same pattern appears when choosing different bands (i.e. other than 80% and 125% of median income).

A more common representation of the shape of income distribution is in terms of shares of total income, using the ingredients for the Lorenz curve. The shares of the lowest 9 deciles are shown in figure 4 (the 10th decile share would blow up the scale too much and it is therefore not shown there).

Figure 4 shows that from 1995 to 2007 the share of the bottom 9 deciles decreased considerably (left diagram), until the turnaround in 2008, while the top decile share obviously increased a lot over the same period. On the whole the pattern of declining share is similar for most of the bottom 9 deciles (decile 1 and 9 deviating most). In a former study we showed that the income share of the top 10% of couples (married or cohabiting) went from 21.8% to 39.4% between 1993 and 2007, while the share for the top 1% of couples went from 4.2% to 19.8% (Kristjánsson and Ólafsson 2009).

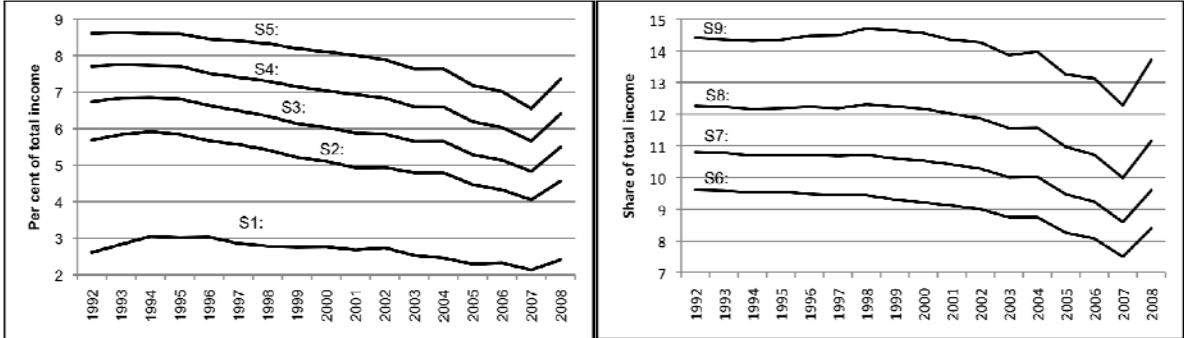


Figure 4: Shares of the *i*th decile of total equivalized disposable income, denoted by *S<sub>i</sub>*. Left side shows low income groups and right side high income groups.

The big increases in the Gini coefficient shown in figure 2 can therefore to a considerable degree be attributed to what was happening at the top of the income ladder, but changes at all levels of the distribution also have a role in the accumulated change, as is better revealed in figure 5.

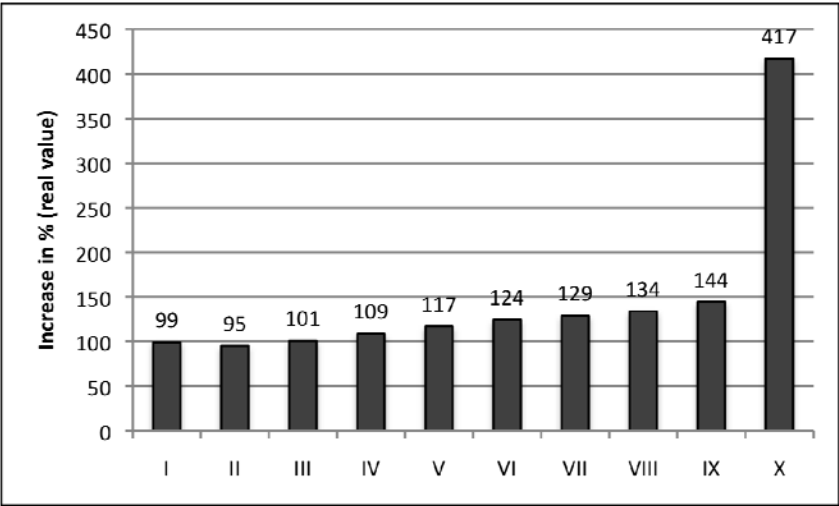


Figure 5: Real increase (%) in equivalized disposable income from 1994 to 2007, by deciles.

Figure 5 shows the real increase of the deciles for equivalized disposable incomes in the period when inequality rose markedly in Iceland, from 1994 to 2007. The figure shows very clearly the special position of the top decile but also how the lower income groups lagged behind (see also Ólafsson 2006a and 2006b). Decile 2 lagged the most behind but apart from that the change is neatly progressive up to decile 9.



### III. Top Incomes

The recent work of Piketty, Atkinson and Saez and their colleagues into the long-term development of top incomes has opened up a new fruitful aspect of income distribution studies, one particularly important for the recent decades of growing inequality and increased bubble economy activities (Reinhart and Rogoff 2009). Here we analyse top income development in Iceland, albeit for a much shorter term, 1992 to 2008, which however covers fully the period of the bubble economy. The data presented are equivalized income from tax administrative data while the top incomes literature seem generally to be based on non-equivalized income per tax unit (individuals in some cases and families or household in others).

Figure 6 shows top income shares of disposable income from 1992 to 2008 for equivalized family income among individuals. In the period before 1998 the top incomes share increased relatively little. The top 1% share went from 4% in 1992 to 6% in 2000. The P95-99 increased from 9 to 10% in the same period while the P90-95 share remained stable before 2000.

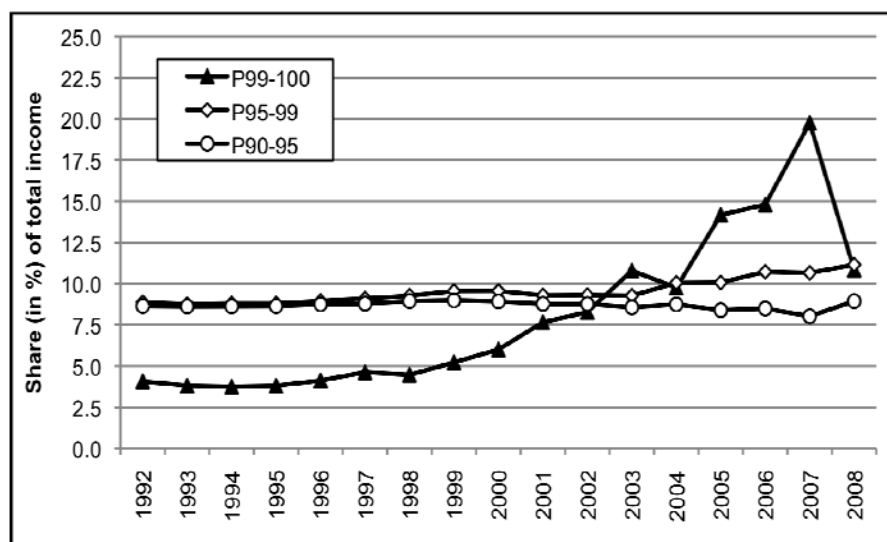


Figure 6: The income shares of P90-95, P95-99 and P99-100, 1992-2008. Equivalized disposable income, where all income is counted.

In the period after 2000 the top incomes share on the other hand increased very rapidly, especially after 2004. The top decile share went from 24% in 2000 to 38% in 2007. The top 1% share went from 6% in 2000 to 20% in 2007. The P90-95 share remained quite stable over the period in question while the P95-99 share increased marginally after 2000. The increasing share of the top decile is thus mainly explained by the rise of the top 1% share.

It is particularly striking to see how fast the top income shares increased from 2003 to 2007, at the height of the bubble economy. In an international comparison such a fast upswing of top income's share is rarely seen, even though an increase of top income shares has been an important feature of income developments since the late 1970s or early 1980s (cf. Atkinson and Piketty 2007 and 2010). In the USA the most dramatic increase of the top 1% share was from 1987 to 2007. The share there increased by 86%, or from 12.7% to 23.5%. In Iceland the top 1% share increased five fold from 1992-2007 and the top 10% share increased by 78% over the same

period. It is thus clear that the increase in the top income groups' share in Iceland was indeed very dramatic by international standards.

Figure 6 gives also an important insight into the effect of the immediate financial collapse in 2008 on the top income shares. The share of the top 1% fell from the height of 20% to 11%, which was still no less than they had been at in 2004. The next 9%, P90-95 plus P95-99, increased their share though marginally, from 19 to 20%. It remains of course to be seen if the income share of the top income groups declined more in 2009, which however seems rather likely.

Tables 1 shows real annual income growth by income groups 1994-2008, divided by sub-periods of economic expansion and contraction. All the periods before 2008 are characterized by an increase of incomes in all groups, the years of 2001-2002 was a recession (small contraction of GDP in 2002) and in the last quarter of 2008 the economy of Iceland dived into a deep depression which culminated in a 6.5% reduction in GDP in 2009. The current prediction is of 2.9% contraction in 2010 but growth is expected to resume in the latter part of 2010 and on by 2.5-3.5% in 2011 (Statistics Iceland – June 2010).

Table 1. Real annual income growth by income groups, 1994-2008.  
 Equivalized disposable income, where all income is counted. Total growth disaggregated.

	1994-2000	2000-2002	2002-2007	2007-2008
<b>Average annual growth (%):</b>				
All	8%	4%	11%	-10%
Top 1%	17%	23%	34%	-51%
P95-99	10%	3%	14%	-6%
P90-95	9%	3%	9%	0%
P50-90	8%	3%	7%	1%
Bottom 50%	6%	3%	6%	2%
Bottom 10%	6%	4%	5%	2%
<b>Growth in period divided by fraction:</b>				
Fraction of total growth captured by top 1%	10%	35%	37%	101%*
Fraction of total growth captured by next 9%	20%	13%	20%	6%*
Fraction of total growth captured by bottom 90%	70%	52%	43%	-6%*

\*Income fell in this period; these figures therefore refer to the share in the decline of incomes.

The table shows that in the periods of 1994-2000 and 2002-2007 real income grew rapidly, more though in the latter period. The difference between these two periods is that in the latter period the growth was mostly captured by the upper income groups. In the period of 2002-2007 the top 1% captured 37% of total equivalized income growth. The next 9% captured 20% of total income growth 2002-2007. The top 10% of income receivers captured well over a half of the massive income growth in 2002-2007. The evolution was different in the period of 1994-2000, since the bottom 90% captured about 70% of the income growth then, as against 43% of the growth in 2002-2007.

In the mini recession after the millennium (2000-2002) income grew by 3-4% for most income groups, while the top 1% group went up by 23%. Therefore the rapid increase in the trend towards more income inequality started clearly in the short recession before the financial bubble gathered momentum. The roots of the trend

towards increased inequality can however be traced back to the end of the recession in 1994 and increased neoliberal policy influences from 1995 onwards.

The fraction of total income growth captured by the top 1% of couples in Iceland in the period from 2002 to 2007 is indeed high, but still lower than the fraction caught by the top 1% of all income receivers in the USA in the period after 1976. The share of the top 1% in USA during the Bush expansion (2002-2007) was 65% as against 37% in Iceland (Piketty and Saez 2007)<sup>3</sup>. While Iceland was taking on increasing signs of income developments reminiscent of the USA from the Reagan period and onwards it did not fully match the level of inequality in the USA (Kristjánsson and Ólafsson 2009).

#### IV. Explaining the Changing Structure of Incomes

In accounting for the trend in income inequality we will examine developments of the various income components in the period, such as labour income, pensions and benefits, financial income and lastly the effects of direct taxation. Since we are covering a rather short period, from the perspective of the long-run of history, demographic changes are not likely to be an important factor and at any rate we are using equivalized incomes, thus taking account of household size. We find market conditions during the height of the bubble to be of large importance for increasing inequality, especially through financial earnings, but government policy also contributed significantly towards increasing the degree of inequality throughout the period, especially in the earlier part.

Figure 7 shows the evolving composition of gross earnings (before tax) from 1990 up to the year of the collapse (2008).

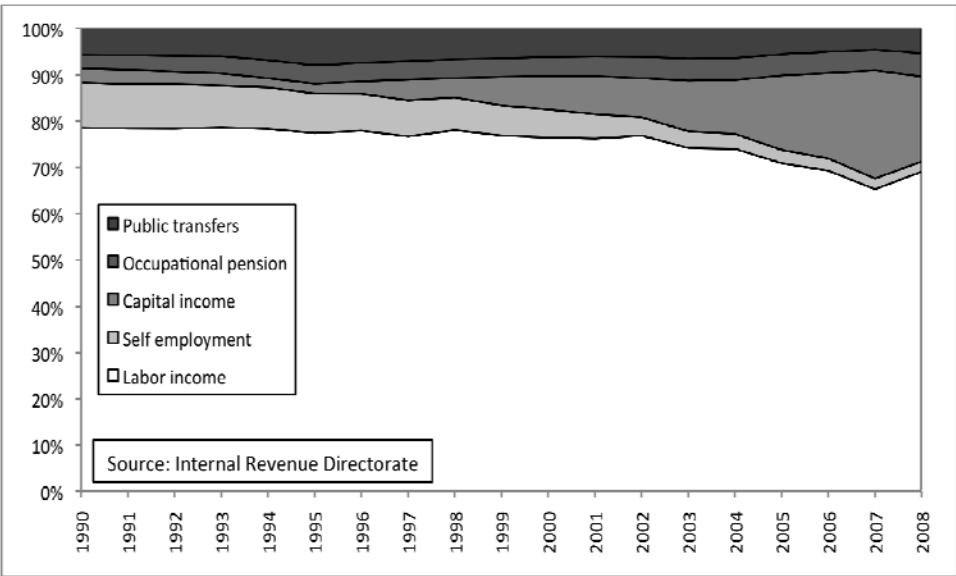


Figure 7: Composition of Gross earnings 1990-2008 (% share).

The bottom part of the figure shows the share of labour income, which was close to 80% at the beginning of the period but decreased as the bubble gains momentum after 2002. Self-employment earnings is the part next above labour income. Its share

<sup>3</sup> These figures are though not fully comparable, just as figures in the new top incomes literature are in general (cf. Atkinson and Piketty 2010).

was gradually declining from the early years of the period and then it contracts more rapidly as financial earnings increase their share (3<sup>rd</sup> part from bottom of the graph). Financial earnings were only a small share of gross earnings up to 1996, consisting mainly of interest earnings and dividends.

In 1997 a new tax on financial earnings was introduced (a flat rate of 10% on all financial earnings of individuals), which involved a big reduction in taxation of financial earnings. Financial earnings thereby became favoured as compared to labour income. It is to be expected that some self-employed individuals and some professionals may have made efforts to convert employment earnings into financial earnings, by setting up private firms in their own name. The growth of such firms from 1998 indicates that this may have been the case to some extent (Olsen et. al. 2003, Ólafsson 2006a and 2007). But apart from that the share prices on the Icelandic Stock Exchange started to increase from that time on, and of course grew exponentially once the bubble started boiling. The figure shows clearly how the share of financial earnings expanded, outsizing all other types of earnings except labour income. This reached its zenith in 2007 and it is interesting to see that despite the financial collapse in 2008 the share of financial earnings was still significant.

The data from tax authorities also indicate (in a further breakdown of components) that there was a big change in the composition of financial earnings in 2008, with capital gains declining greatly but interest earnings growing considerably. Many who sold stock shares before the collapse placed their money into saving accounts and gained more interest earnings instead of the capital gains. Interest rates were very high at that time.

The figure is also a good exposition of the relationship between the growing financial bubble and the role of financial earnings for the income distribution. Financial earnings come disproportionately to the higher income groups, particularly the top 10%, which we examine further below.

First to account for pension earnings, we show the share of occupational pensions (earnings from the labour market occupational pension funds – second from top in the figure) and at the top are public transfers, consisting of social security benefits and child benefits and tax rebates on mortgage interest. The share of the occupational pensions should have been increasing during the period due to increasing maturity of the pension rights in the funds and there is a moderate tendency towards that, as the share of the public transfers contracts. The latter contracted due to reduced real values of child benefits and mortgage interest rebates, but also due to the income-testing mechanism which links social security payments to other incomes, including occupational pension fund earnings (Ólafsson 1999).

In a former study we showed how the share of financial earnings changed with income level. In general the share of financial earnings in gross earnings was below 10% of gross earnings in 2007, more specifically it was in the region of 8-9% for the income groups where pensioners are prominent members, but closer to 7-8% in the bigger middle class of income earners. It is then near the 85<sup>th</sup> percentile that the share of financial earnings in gross earnings passes the 10% mark and by the 90<sup>th</sup> percentile it is above 15%. Then it takes to the sky ending at 86% for the top 1% (Kristjánsson and Ólafsson 2009).

Figure 8 shows how the share of financial earnings in gross earnings developed throughout the period, for the top 1%, top 10% and the bottom 90%. For the top 1% the share of financial earnings was above 60% since 2001 and was in the region of 80-85% for 2005 to 2007 and then in 2008 it came down to about 75%. The

increase of the share of financial earnings for the top 1% began to materialize in 1997 and then in 2000 it was already just under 50% and on a steep climb. So the role of financial earnings in the gross earnings had already begun to expand well before the privatization of the banks was finished and before the onset of the extreme bubble economy (2003-2007). Thus it appears that the new tax on financial earnings was a great catalyst for financial earnings and the growing role of the stockmarket also clearly has a role in this change. All of these factors were a part of the changing environment associated with the increased neoliberal policy emphasis.

Looking more broadly at the share of financial earnings, i.e. for the top decile as a whole, it is interesting that the share for that group was on a steady climb from 1999 onwards until it topped at 54% in 2007. The collapse of 2008 brought it down to about 42%. So it is very clear that financial earnings played a very large role in increasing the income share of the top income groups and thus increasing the degree of income inequality in the society.

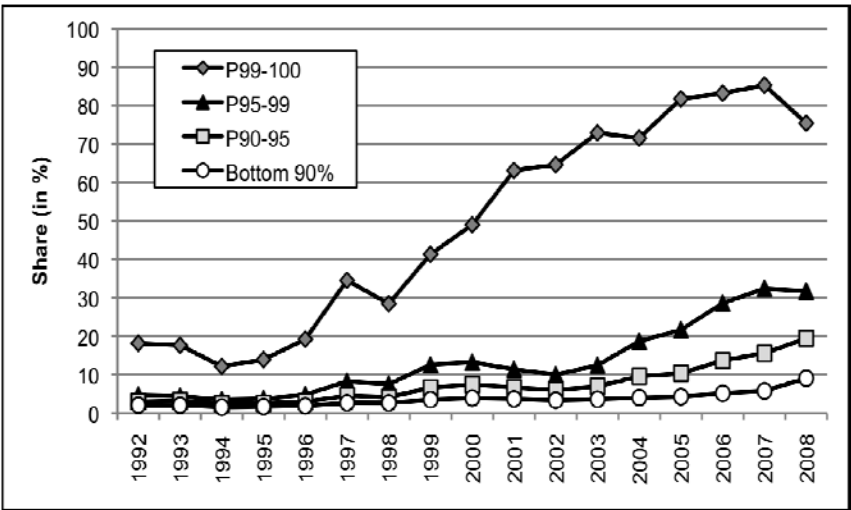


Figure 8: The share of financial earnings in the gross equivalent incomes of the bottom 90%, P90-95, P95-99 and P99-100 (1992-2008).

As figure 8 shows the top 1% is defining for the top 10% outcome, even though the share of financial income in P95-99 is also marked. In the case of P90-99 there was though a significant setback in 2001-2002. While the share of financial income for the bottom 90% is low throughout the period it still increased with the growth of the stock market from 1997 onwards, especially in the last years.

The spectacular increase in top incomes, mainly by the top 1%, is thus an important feature of the rapid increase in income inequality after 2000 and the financial bubble clearly had much to do with that development. Still other factor do also play a role in this.

In order to assess to impact of the top 1% on the overall income distribution the Gini coefficient was calculated with and without the top 1% group. The percentage difference between these figures shows the influence of the top 1% on the overall income inequality. The effect in 1992-9 was 6-8% but went up to 10% in 2000. In the next years this share increased rapidly up to 28% in 2007<sup>4</sup>. It is interesting that in 2008 the Gini coefficient did in fact decrease only by one Gini-point when skipping the top 1%, while it decreased by 7 Gini-points for all income groups.

<sup>4</sup> The share was 13% in 2001 and increased steadily to 22% where it stood in 2005-6. In 2008 the ratio decreased to 17%.

The year 2008 is the year of the collapse of the banking sector (more specifically the banks collapsed in October 2008). Even though the collapse came that late in the year it still had an effect on the income distribution in 2008. An important factor in that respect is that capital earnings had obviously declined during the earlier part of 2008, since the signs of growing trouble were there already. Credit defaults had increased greatly from late 2007, the credit crunch was gradually straining the finances and the stock market index had stopped rising and in fact started its descend in the early months of 2008 (see Figure 1), as did the value of the currency. The Gini for couples in 2008 was thus lowered down to the level it had been at between 2004 and 2005. It may come down further in 2009 and 2010.

#### *IV.1. Decomposition of the Gini coefficient*

In order to estimate further how the distribution of different income components combine to produce the overall inequality it is useful to decompose the Gini index by income source. The decomposition by income source is not quite straightforward, since, in the words of Marcus Jäntti, “there is no best way of decomposing income inequality indices by income source, just as there is no one best income inequality index” (1997: 426). Shorrocks (1982) showed various ways of such decompositions. Here the widely used “natural” Gini decomposition rule will be used (see e.g. Brandolini and Smeeding 2009; Kakwani 1986; Pyatt et al. 1980). The rule decomposes the Gini coefficient for disposable income as:

$$G = \sum_k \alpha_k C_k \quad (1)$$

where  $\alpha_k$  is the proportion of  $k$ th income component of disposable income and  $C_k$  the concentration ratio of the  $k$ th income component. The concentration coefficient measures the distribution of an income component just as the Gini coefficient when income is ranked according to the distribution of disposable income.

Equation (1) expresses the Gini coefficient of disposable income as the weighted average of the concentration ratios of each income component, where the weight is proportional to the ratio of disposable income. The equation provides a quantitative framework to analyze the contribution of each income component to the inequality of disposable income, measured as the Gini coefficient.

Table 2 shows the Gini coefficient for couples decomposed into labor income, capital income, transfer income and income taxation. As typically labor income and capital income contribute positively to the income inequality while transfer income and income taxation have a negative impact on the Gini coefficient, i.e. an equalization effect.

Table 2 shows that the contribution of capital income towards the Gini coefficient increased most markedly, both in absolute and relative terms. The contribution of labor income decreased on the other hand from 1998. This does, however, not mean that the inequality of labor income did not increase, only that its contribution towards the overall inequality decreased as against other factors. In fact the inequality of labor income did increase during the period (see Jónsson et. al. 2001; Ólafsson 2006b).

Table 2. Gini coefficient decomposed for equivalized disposable income, 1992-2008.  
Contribution of main components to size of Gini.

	Labor income	Capital income	Transfer income	Tax system	Gini for disposable income
1992	0.406	0.021	-0.033	-0.118	0.276
1993	0.408	0.020	-0.032	-0.129	0.267
1994	0.417	0.015	-0.036	-0.132	0.264
1995	0.419	0.016	-0.040	-0.130	0.266
1996	0.424	0.022	-0.040	-0.131	0.275
1997	0.416	0.039	-0.038	-0.132	0.285
1998	0.428	0.033	-0.038	-0.132	0.292
1999	0.416	0.055	-0.037	-0.129	0.304
2000	0.411	0.067	-0.035	-0.130	0.312
2001	0.403	0.083	-0.031	-0.130	0.325
2002	0.404	0.086	-0.032	-0.129	0.329
2003	0.388	0.119	-0.029	-0.126	0.351
2004	0.384	0.123	-0.028	-0.127	0.352
2005	0.361	0.175	-0.026	-0.121	0.390
2006	0.341	0.198	-0.022	-0.114	0.402
2007	0.314	0.254	-0.017	-0.110	0.441
2008	0.319	0.169	-0.009	-0.106	0.373

Note: Labour income includes self-employment.

The impact of transfer income as well as income taxation did decrease. In 1993 the contribution of labor and capital income towards the Gini coefficient of disposable income was 177%, while transfer income and progressive income taxation scaled down the inequality level (77%). In 2007 transfer income and income taxation contributed negatively by 32%.

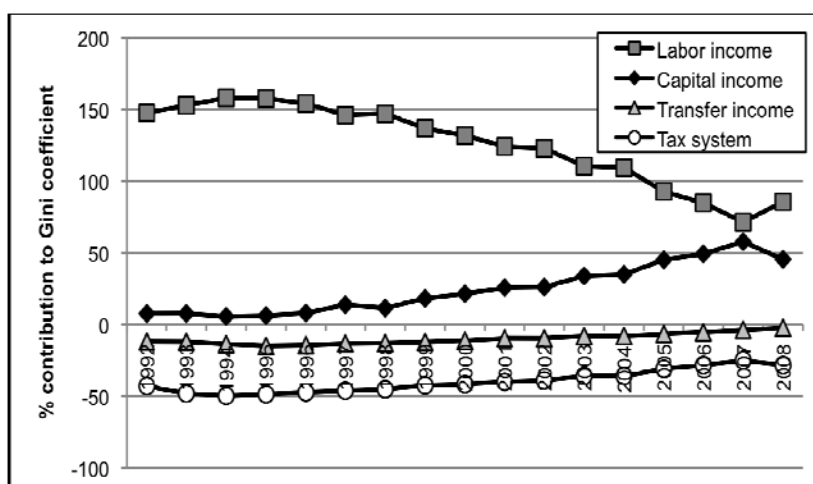


Figure 9: Relative contribution of income components to Gini coefficient of disposable income (computed from table 3).

Figure 9 shows the relative contribution of every income component suggesting that the great increase in inequality has mainly two explanations. Firstly the great increase of capital income which was a consequence of the bubble economy. Secondly the declining importance of inequality reduction by transfer income and progressive taxation. We will consider the redistributive effects of public policy more closely in the next section.

## IV.2. Government policy – Changing Impact of Taxes and Benefits

A part of the policy program of reigning governments from 1995 to 2007 was the aim to lower tax burden of firms and investors greatly and to lower the marginal income tax rate of individuals, as well as estate duty and the property tax. The above mentioned new tax on financial income of 1997 for individuals (at 10%) was a part of this program as well as reducing the value of the tax free part of individual and family earnings. This applied particularly to the personal allowance, child benefits and tax rebates on mortgage interest payments (Ólafsson 2006a and 2007; Baldursson et.al. 2008). The model of flat tax was what was aspired to (Viðskiptaráð 2006; Hall and Rabushka 1995)

The effects of these changes of taxation were to increase the tax burden of low income earners (due to the reduced value of the main tax subtraction items, particularly in 1994-2004). The lowering of the marginal tax rate relieved the tax burden of the higher groups on the other hand. Still the introduction of the new tax on financial earnings reduced the effective tax burden of the higher income groups much more, since financial earnings form a larger part of the gross earnings of higher groups, a part which was also growing very rapidly as we have already shown. This effect gained in importance as financial earnings increased with the growing bubble economy. Figure 10 shows how the effective tax burden changed between 1996, 2004 and 2008, in each decile of the income distribution. The top 1% group is also shown on the far right of the figure.

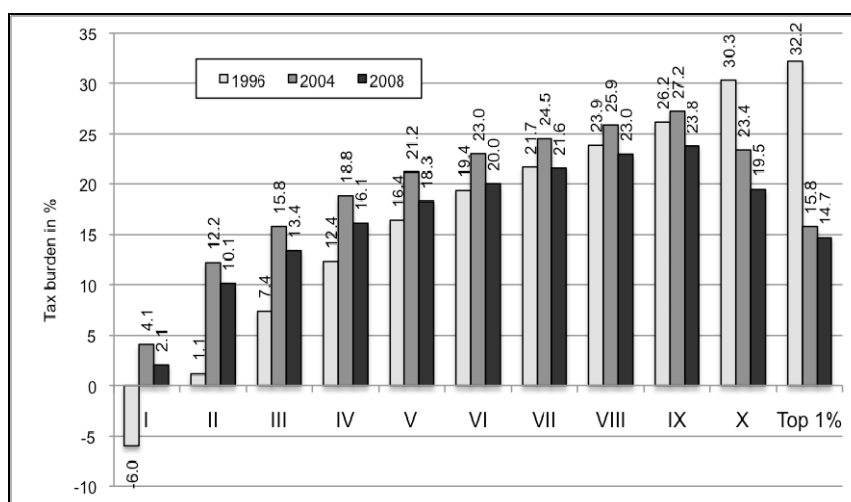


Figure 10: Net tax burden (total direct taxes paid, net of personal allowance, child benefit, occupational pension fund contribution and mortgage interest rebates, as % of gross income) by deciles and the top 1%, in 1993, 2004 and 2008.

As the figure shows the increase in tax burden was most marked in the lower income groups and more so in 1996-2004 than in the period after 2004. The rise in tax burden for the lowest groups was indeed very large and reduced the redistributive effect of the taxation system. The reason for changes in the latter part of the period is that in 2006 a public discussion about the role of reduced personal tax allowance, child benefits and mortgage interest rebates led to a change of policy within the Federation of Labour which then affected the government from the latter part of 2006. The entrance into government of the Social Democratic Alliance in spring of 2007 also facilitated a change of tax policy in this respect (Ólafsson 2007, Kristjánsson



2009). The left government which came to power in 2009 further increased redistributive effects of the taxation system, by raising the personal allowance and benefits in addition to raising the top marginal tax rate in 2010. In the period from 2004 to 2008 the tax burden decreased for all income deciles (see figure 10). In this respect there has been a major change of tax policy, especially from 2007 onwards, with equalization effects increasing again.

But the reduced tax burden in the top decile as well as in the top 1% group is though the most spectacular of these developments in the effective tax burden. The figure shows that from 1996 to 2004 the net tax burden increased in fact for all income deciles except the highest. The net tax burden in the highest income decile decreased from 30.3% in 1996 to 23.4% in 2004. The decrease was even more extensive for the top 1% group, where the effective tax burden went from 32.2% to 15.8%. The role of increased share of financial earnings in the gross earnings of the top 10% and top 1% of income receivers is most important for explaining the reduced tax burden there, since the taxation of financial earnings was significantly lower than the taxation of labour and pension incomes. Lower marginal tax rates also had some role in producing this outcome.

Thus unlike what was common in other Western nations the governments of Iceland actively increased the market trend towards increased inequality of incomes with their taxation policy, which effectively reduced the equalization effect greatly (Ólafsson 2006a and 2007; Brandolini and Smeeding 2009; Kenworthy and Pontusson 2005).

Lastly we try to quantify the role of different aspects of the equalization process. Measuring the equalizing effects of public redistribution (benefits and progressive taxation) is usually done by comparing the distribution of market income with disposable income. A widely used measure is the reduction in the Gini coefficient due to benefits og income taxation (see Lambert 2001; Mahler and Jesuit 2006). The redistribution can also be disaggregated by programme type.

Figur 11 shows the development of the equalizing effects of transfer income and income taxation from 1992 to 2008. The figure shows both public redistribution (public benefits and income taxation) as well as private redistribution (occupational pension). The rationale for combining public and private redistribution is that the occupational pension in Iceland is a mandatory pension sceme.

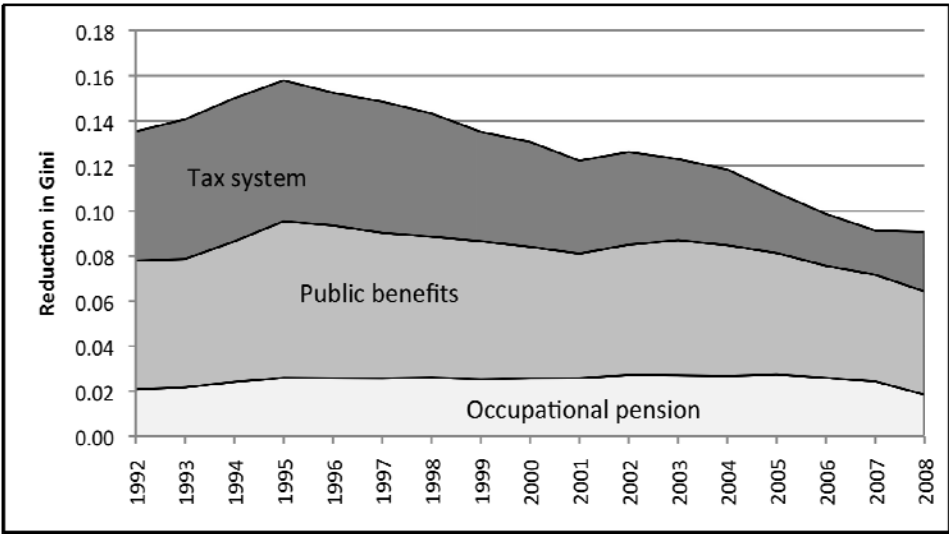


Figure 11: Equalizing effects of taxes, benefits and pensions, for couples, from 1993 to 2008 (measured as reduction in Gini coefficients).

As the figure shows the equalizing effects for couples have been greatly reduced from 1995 to 2007. In 1995 the reduction of the Gini due to transfers and taxes together was 0.118 but it had gone down to 0.064 in 2007. The reduced equalization was mainly due to the tax system. The redistributive effects of the public benefits system decreased marginally while the occupational pension system offset this trend only to a minor extent.

By 2005 Iceland had entered the group of nations in OECD which had one of the lowest redistributive effects of taxes and public benefits (Ólafsson 2006a; OECD 2008; Haraldsson and Árnason 2009). That was indeed quite a dramatic development, in addition to the underlying market trend towards increased inequality, not to mention the extra effects of the extreme bubble economy from 2003-2007.

A reversal of taxation policy in the last years as well as the present financial crisis are set to reverse the process towards increased inequality. It remains to be seen whether the income distribution of Iceland will return fully to the standards of the Scandinavian egalitarianism again. That will most likely depend on the effective political power distribution in the country in the coming years.

## *V. Conclusions and Discussion*

## Appendix I

Table A1: Summary measures of inequality 1992-2008.  
Equivalized disposable family income among individuals

	Relative range	Mean log deviation	Robin Hood	Coefficient of Variation	Atkinson (e=0.5)	Atkinson (e=1)
1992	0.041	0.079	0.191	0.553	0.072	0.166
1993	0.038	0.073	0.185	0.530	0.067	0.155
1994	0.037	0.071	0.183	0.524	0.065	0.151
1995	0.038	0.072	0.185	0.529	0.066	0.153
1996	0.041	0.078	0.192	0.557	0.070	0.164
1997	0.046	0.085	0.198	0.595	0.077	0.179
1998	0.045	0.090	0.204	0.597	0.079	0.187
1999	0.052	0.095	0.213	0.655	0.085	0.196
2000	0.060	0.095	0.218	0.709	0.090	0.196
2001	0.077	0.106	0.225	0.830	0.100	0.217
2002	0.083	0.103	0.228	0.881	0.103	0.211
2003	0.108	0.120	0.242	1.101	0.122	0.242
2004	0.098	0.118	0.243	1.024	0.119	0.237
2005	0.142	0.141	0.269	1.427	0.152	0.277
2006	0.148	0.149	0.279	1.495	0.161	0.290
2007	0.198	0.179	0.309	1.969	0.200	0.338
2008	0.108	0.133	0.258	1.142	0.133	0.265

## Appendix II

*Data description (to be added)*

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