

---

# Is It Possible to Adjust 'With a Human Face'?

Differences in fiscal consolidation strategies between  
Hungary and Iceland

---

Bruno Martorano

Office of Research Working Paper

WP-2014-No. 03 | May 2014

## INNOCENTI WORKING PAPERS

UNICEF Office of Research Working Papers are intended to disseminate initial research contributions within the programme of work, addressing social, economic and institutional aspects of the realization of the human rights of children.

The findings, interpretations and conclusions expressed in this paper are those of the authors and do not necessarily reflect the policies or views of UNICEF.

This paper has been extensively peer reviewed both internally and externally.

The text has not been edited to official publications standards and UNICEF accepts no responsibility for errors.

Extracts from this publication may be freely reproduced with due acknowledgement. Requests to utilize larger portions or the full publication should be addressed to the Communication Unit at [florence@unicef.org](mailto:florence@unicef.org).

For readers wishing to cite this document we suggest the following form:

Martorano, B. (2014). Is it possible to adjust 'with a human face'? Differences in fiscal consolidation strategies between Hungary and Iceland, *Innocenti Working Paper* No.2014-03, UNICEF Office of Research, Florence.

© 2014 United Nations Children's Fund (UNICEF)

ISSN: 1014-7837

## THE UNICEF OFFICE OF RESEARCH

In 1988 the United Nations Children’s Fund (UNICEF) established a research centre to support its advocacy for children worldwide and to identify and research current and future areas of UNICEF’s work. The prime objectives of the Office of Research are to improve international understanding of issues relating to children’s rights and to help facilitate full implementation of the Convention on the Rights of the Child in developing, middle-income and industrialized countries.

The Office aims to set out a comprehensive framework for research and knowledge within the organization, in support of its global programmes and policies. Through strengthening research partnerships with leading academic institutions and development networks in both the North and South, the Office seeks to leverage additional resources and influence in support of efforts towards policy reform in favour of children.

Publications produced by the Office are contributions to a global debate on children and child rights issues and include a wide range of opinions. For that reason, some publications may not necessarily reflect UNICEF policies or approaches on some topics. The views expressed are those of the authors and/or editors and are published in order to stimulate further dialogue on child rights.

The Office collaborates with its host institution in Florence, the Istituto degli Innocenti, in selected areas of work. Core funding is provided by the Government of Italy, while financial support for specific projects is also provided by other governments, international institutions and private sources, including UNICEF National Committees.

For further information and to download or order this and other publications, please visit the website at [www.unicef-irc.org](http://www.unicef-irc.org).

### **Correspondence should be addressed to:**

UNICEF Office of Research - Innocenti  
Piazza SS. Annunziata, 12  
50122 Florence, Italy  
Tel: (+39) 055 20 330  
Fax: (+39) 055 2033 220  
[florence@unicef.org](mailto:florence@unicef.org)  
[www.unicef-irc.org](http://www.unicef-irc.org)

**IS IT POSSIBLE TO ADJUST ‘WITH A HUMAN FACE’?  
DIFFERENCES IN FISCAL CONSOLIDATION STRATEGIES BETWEEN HUNGARY AND ICELAND**  
**Bruno Martorano\***

\*UNICEF Office of Research and University of Florence  
bmartorano@unicef.org

**Abstract.** Hungary and Iceland were among the countries most affected by the recent macroeconomic shock. Although they suffered a similar GDP drop and started from much the same fiscal conditions, their respective governments decided to follow different strategies of adjustment. Each country cut public spending according to different priorities. However, the most important differences are related to the revenue side. While the Hungarian government implemented a flat tax reform, the Icelandic government replaced the previous flat tax system with a progressive one increasing the participation in the fiscal consolidation process for high income groups. These two opposite adjustment strategies produced different economic and social outcomes. In both countries, the primary balance turned positive and the level of debt on GDP started to decrease. Nonetheless, while Iceland fully met the objectives of the IMF programme, the worsening of economic conditions forced the Hungarian government to ask for additional help from the EU and the IMF in 2012. In terms of distribution, social transfers contributed to reduce inequality in both countries, while the different tax strategies operated in opposite ways. Indeed, the results show that the Hungarian tax system became more regressive while the 2010 Iceland’s Tax Reform contributed to reduce inequality by nearly two points.

**Keywords:** crisis; fiscal adjustment; tax reform; tax incidence; inequality

**Acknowledgements:** I would like to thank Jonathan Bradshaw, Sudhanshu Handa, and Peter Whiteford who read an earlier version of this paper. In addition, I am grateful to Stefán Ólafsson for his careful comments and suggestions on the Icelandic case and Fruzsina Albert, Andras Gabos, Katalin Nagy and Peter Vakhil for their useful suggestions on the Hungarian case. I also thank Giovanni Andrea Cornia and the Advisory Group of the Innocenti Report Card Project for their helpful suggestions.

## TABLE OF CONTENTS

1. Introduction	6
2. The Impact of the Crisis and the Resulting Policy Responses in Hungary and Iceland	6
2.1 Hungary	6
2.2 Iceland	8
3. The Impact of the Fiscal Consolidation Strategy	10
3.1 The performance of fiscal indicators	10
3.2 Performance on other macroeconomic variables	12
4. The Distributional Impacts of the Fiscal Consolidation Strategies in Hungary and Iceland	13
4.1 The progressivity of the measures on social protection	13
4.2 The progressivity of the measures on taxation	15
4.3 The impact of the policy responses in terms of redistribution	17
5. Conclusions	19
References	21

*‘The human face’ indicates the need for the human implications of an adjustment policy to be made an integral part of adjustment policy as a whole, not to be treated as an additional welfare component. (Cornia et al, 1987: 2)*

## 1. INTRODUCTION

Before the recent economic crisis, Hungary and Iceland were considered to be two excellent models of development. Following the suggestions of the neoliberal economy, both countries promoted economic liberalization and privatization, reducing as much as possible the role of the state in the economy.

Nonetheless, something changed during the recent Great Recession. Indeed, Hungary and Iceland were among the countries affected earliest and most by the recent macroeconomic shock, suffering a similar drop in GDP (Carey, 2009; IMF, 2012). In contrast to the other developed countries that reacted to the crisis introducing a stimulus package (Martorano et al, 2012), both countries soon went into a fiscal adjustment process. Starting from generally similar fiscal conditions, they introduced several measures such as cuts in public spending in order to achieve a consolidation of public finances. However, the main differences were related to the revenue side and to the role played by taxation in their adjustment strategies. While the Hungarian government implemented a flat tax reform in order to stimulate economic activity, the Icelandic government replaced its flat tax system with a progressive one increasing the participation of high income groups in the adjustment process.

The aim of this paper is to compare the opposite adjustment paths followed by Hungary and Iceland on selected outcomes. For this purpose, the analysis is developed in two stages. First, it compares their performance on fiscal and economic indicators at a macro-level. Second, this work presents an evaluation of their distributional consequences – with a special look at households with children. The paper is organized in the following way: Section 2 discusses the impact of the crisis and policy responses in Hungary and Iceland; Section 3 illustrates the results of the fiscal consolidation strategies in both countries; Section 4 shows the progressivity and redistributivity of the measures implemented in Hungary and Iceland; Section 5 concludes.

## 2. THE IMPACT OF THE CRISIS AND THE RESULTING POLICY RESPONSES IN HUNGARY AND ICELAND

### 2.1 Hungary

During the transition toward a market economy, Hungary was one of the best performing countries in the CEE/CIS group.<sup>1</sup> Many scholars agree with this point arguing that ... “it seemed to be in the best position to converge fast with the European Union, both in terms of income level and institutional quality” (EEAG, 2012: 115).

Nonetheless, many problems began to be evident during the mid-2000s. In particular, the sensitivity of fiscal policy to the business cycle and to the electoral cycle fueled persistent high

---

<sup>1</sup> For a detailed performance comparison among the CEE/CIS group see Cornia (2010).

fiscal deficits in the years before the recent economic crisis. As a consequence, Hungary was placed under the Excessive Deficit Procedure after its formal entrance into the European Monetary Union. Moreover, the new and growing banking system considered that it was more convenient to provide loans to the private sector denominated in foreign currency increasing in this way the country's exposure to external shocks (EEAG, 2012). As a result, the depreciation of the national currency against the Euro and the Swiss Franc between late 2008 and early 2009 dramatically increased the cost of foreign-denominated debt. This situation increased the country's risk assessment by international markets and reduced access by the Hungarian government to the bond market. So, the arrival of the international crisis "pushed an already fragile and highly indebted Hungarian economy towards recession" (OECD, 2012: 126).

Due to the bad economic conditions and the low credibility of its fiscal policy, the government requested support from the IMF and the EU to obtain a stand-by loan of about EUR 20 billion in late 2008. In return, the Hungarian authorities were required to implement measures necessary to achieve macroeconomic stabilization. To strengthen and increase the credibility of fiscal policy, the government quickly implemented a Fiscal Responsibility Law that introduced procedural rules to contain the growth of public expenditure, some constraints on debt and deficits,<sup>2</sup> and established an independent fiscal council for monitoring and evaluating the government's actions<sup>3</sup> (Hagemann, 2011). However, this institution was abolished after the election of the new government in the spring of 2010 and replaced by a less independent authority.

Beyond this, the Hungarian authorities introduced some expenditure measures concerning the pension system, the freezing of public wages, the reduction of unemployment benefit duration (from 12 to 3 months) but also cuts in employee contributions for vulnerable worker groups (e.g. younger workers) and on the Employee Tax Credit for low income workers (OECD, 2012). On the other hand, the government tried to support households modifying their loan contracts and allowing them to pay off their debts according to more favourable conditions (EEAG, 2012).

Many reforms on taxation were implemented over the period 2009–2013. In order to reduce the cost of efficiency without impairing budgetary necessity, the tax burden was shifted from labour to consumption. In particular, the government increased the VAT rates and other taxes on specific goods. Furthermore, it implemented cuts on corporate taxes to improve the competitiveness of firms and tried to make a more family-friendly tax structure expanding the family tax allowance system (Tóth and Virovác, 2013). Lastly, new taxes were levied on the banking sector and on other predominantly foreign-owned sectors (e.g. telecommunication and retail sectors).

Personal income taxation was also modified many times after the crisis. However, the most emblematic policy measure was represented by the flat tax reform. Promising less austerity, the new government implemented a reform in January 2011 replacing the old progressive tax system with a 16 per cent flat tax rate on personal income (Table 1). The aim of this reform was to boost economic activity via positive effects on labour supply and household consumption. An additional

---

<sup>2</sup> "The debt rule adopted in the fiscal responsibility law of 2008 specified that the budget should be consistent with a debt-to-GDP ratio constant in real term [sic]... A cardinal law adopted in late December 2011, which repealed the law on fiscal responsibility, specified that public debt can increase only by expected inflation minus half of expected real GDP growth from 2016 onwards" (Beynet and Paviot, 2012: 5).

<sup>3</sup> "The council had three members nominated by the President of the Republic, the Governor of the National Bank of Hungary, and the President of the State Audit Office and confirmed by the parliament for a non-renewable tenure of nine years" (EEAG, 2012: 122).

effect expected from the introduction of the flat rate was the broadening of the tax base due to the increasing participation of taxpayers in the labour market, but due also to its positive effects on tax compliance (Hogye, 2011).

*Table 1. Hungary: Income taxation in 2009 and 2011*

2009	2011
18 % for income between HUF 0 - 1,700,000	flat tax rate 16 per cent
36 % for income between HUF 1,700,000 - 7,446,000 + HUF 306,000	
+ 4% for income exceeding HUF 7,446,000	

Source: author's elaboration

## 2.2. Iceland

Until some years ago, Iceland was considered to be an excellent model of development. However, the boom recorded by this small economy hid an intrinsic fragility related to the unbalanced growth driven by the banking system.

Since the mid-1990s and especially during the 2000s, the government embarked upon important free-market reforms. Several policy measures such as the openness of the capital account, tax cuts, privatizations and de-regulation were implemented in order to promote the competitiveness of the economic system. The banking sector gained more than others from these reforms recording a disproportionate growth. Icelandic banks started to expand their activities abroad especially in the United Kingdom and Nordic countries taking advantage of the difference between the national and foreign interest rates. As a result, the three biggest banks – i.e. Glitnir, Kaupthing and Landsbanki - recorded before the crisis an asset value about nine times higher than Iceland's GDP.

However, the strong ties with the political system, the lack of stringent supervision and the easy access to international markets fueled a speculative bubble (Ólafsson, 2011a). "The government, through the state-owned Housing Financing Fund, played its part in starting the mortgage boom by raising the maximum loan-to-value ratio to 90 per cent and raising the maximum nominal loan amount in the initial phase of the upswing" (Ólafsson and Vignisdóttir, 2012: 8). On the other hand, banks started to offer private sector loans denominated in foreign currency and to offer mortgages up to the total price of the house. Thus, the level of indebtedness of households grew dramatically since nine out of 10 households held a loan in the mid-2000s.

Despite positive comments on Iceland's economic conditions (e.g. Mishkin and Herbertsson 2006), some doubts about the solidity of the banking sector emerged before the crisis. After that the outlook of Iceland was downgraded by Fitch at the beginning of 2006 "the krona fell sharply, the value of banks' liabilities in foreign currencies rose, the stock market fell and business defaults rose, and the sustainability of foreign-currency debts became a public problem" (Wade and Sigurgeirsdottir, 2012: 136). However, the majority of the problems for the Icelandic banking sector occurred later, after the collapse of Lehman Brothers in October 2008. The strong



depreciation of the krona led the three biggest banks – i.e. Glitnir, Kaupthing and Landsbanki – to an insolvent condition because of the inability to finance their high debt level denominated in foreign currency. Since the Central Bank was not in a condition to operate as lender of last resort, the government could not bail out the banking sector. While the three biggest banks came into state ownership, “the stock market, bank bonds, house prices and average income went into free-fall, along with the currency” (Wade and Sigurgeirsdottir, 2012: 138). As a consequence, people started to protest and to demand the government’s resignation.

The IMF tried to support Iceland’s economy via a conditional loan of \$2.1 billion. In contrast to the past, the IMF did not push the government toward a strong fiscal consolidation path without contrasting the decisions to introduce temporary capital controls and to avoid that the cost of the banking sector failure fell on household incomes.

The adjustment process was promoted via a severe devaluation of the national currency that provoked a marked cut in living standards. Beyond this, several measures were implemented in order to pursue macroeconomic stabilization, to promote economic activity and to protect households, especially those with lower and middle incomes. In particular, government introduced cuts in capital investments as well as in current expenditures – e.g. compensation of employees (OECD, 2012). Furthermore, some savings came from cuts to education and health care services (Ólafsson, 2012) as well as from the social protection system through cuts in services and administrative costs and through improvements in targeting resources to the most vulnerable groups (e.g. for children). Finally, housing expenditure increased sharply due to the policy of debt relief introduced by the government for helping households in economic difficulties (Ólafsson, 2011b).

As in other developed countries, government acted on indirect taxation increasing the VAT rate a little and also levying higher excises on items such as fuel, vehicles, alcohol and tobacco (OECD, 2012). Moreover, it used direct taxation implementing new taxes on wealth and increasing that on capital income, inheritance and social security. However, the most emblematic reform was related to taxation of personal income. If the Hungarian flat tax reform was thought to promote economic activity more than macroeconomic stabilization, taxation played a crucial role in the consolidation strategy followed by Iceland. Reflecting the idea of the necessity to contribute to the adjustment according to the “ability to pay”, the flat rate set at 37.2 per cent in 2007 was replaced with a progressive tax structure based on three rates (Table 2).

*Table 2. Iceland: Income taxation in 2009 and 2011*

<b>2009</b>	<b>2011</b>
Flat rate at 37.2 per cent	37.32 % for income below ISK 241,475 per month
	40.22 % for income between ISK 241,476 - 739,510 per month
	46.22 % for income exceeding ISK 739,510 per month

Source: author’s elaboration

### 3. THE IMPACT OF THE FISCAL CONSOLIDATION STRATEGY

#### 3.1 The performance of fiscal indicators

Despite the measures implemented to consolidate public finance, the level of public spending initially increased in both countries as a consequence of the dramatic drop in GDP. In particular, it rose by two percentage points in Hungary and by about five points in Iceland between 2008 and 2009 (Table 3). In contrast, public expenditure decreased in both countries by about three percentage points between 2009 and 2012 (Table 3). Furthermore, the different strategies followed by Hungary and Iceland generated different impacts in public spending composition. First, social protection expenditure decreased in Hungary, while it kept stable in Iceland. Second, spending on economic measures rose in Hungary while it dropped dramatically in Iceland compared to the 2008 level. However, both countries cut spending on general public services more than other spending.

The austerity measures also affected the revenue side. In Hungary, the revenue/GDP ratio kept stable around 45.5 per cent over the period 2008-2010 but rose more than eight points in 2011 (Table 3). However, this result was mainly driven by the implementation of a one-off revenue measure (OECD, 2012). In particular, “to support this drastic tax cut, private pensions were nationalised at the beginning of 2011, and the assets of the pension funds, among others, were used to cover the revenue shortfall in 2011” (EEAG, 2012: 126). As a consequence, the revenue/GDP ratio dropped to 46.5 per cent in 2012 (Table 3). The scenario in Iceland was completely different. In particular, the revenue/GDP ratio decreased by about three points from 44.0 per cent in 2008 to 41.2 per cent in 2009, while it increased to 43.1 per cent in 2012 thanks also to the 2010 Tax Reform (Table 3).

In this case too, the different strategies followed by Hungary and Iceland generated opposite results in tax composition. In the former country, the different attempts to shift the tax burden from labour to consumption favored a significant reduction of the share of direct taxes on total taxes. In particular, the contribution of taxes on income, profits and capital gains on total taxes dropped by 9 points between 2008 and 2012, while that on goods and services increased by 8 points. In contrast, the 2010 Icelandic tax reform worked in the opposite way since the ratio of taxes on income on total tax revenue – excluding social security contributions – rose by nearly 4 points over the same period (Table 3).

As a result, Table 3 shows that the primary balance turned positive in both countries during recent years. In Hungary, it went up to 8 per cent of GDP in 2011 due the nationalization of private pensions and decreased to 2.0 per cent of GDP in 2012. In Iceland, the primary balance has improved continuously since 2009 turning positive in 2012 (Table 3).

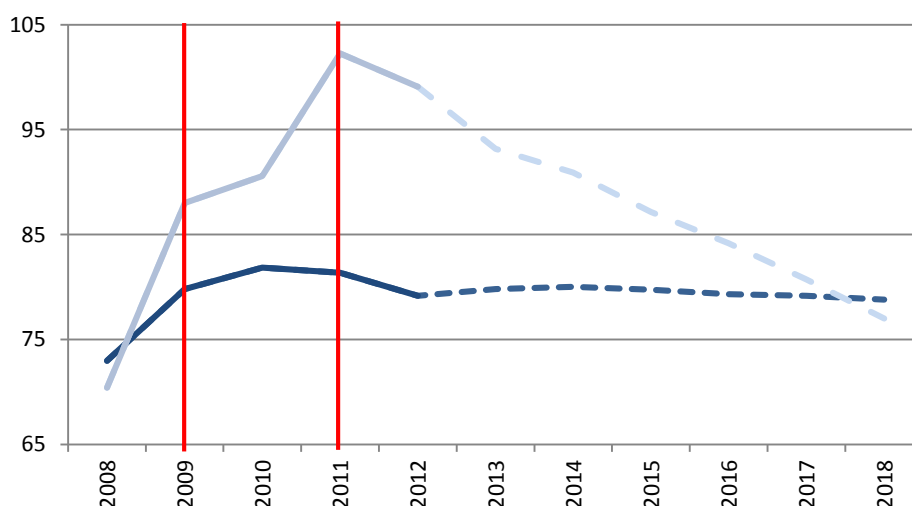
Table 3. Fiscal indicators (% of GDP) in Hungary and Iceland over the period 2007 to 2012

Country	Subject Descriptor	2007	2008	2009	2010	2011	2012
Hungary	revenue	45.6	45.6	46.9	45.4	53.8	46.5
	Expenditure	50.6	49.2	51.5	49.8	49.6	48.5
	Balance	-5.1	-3.7	-4.6	-4.4	4.2	-2.0
	primary balance	-1.2	0.0	-0.5	-0.5	8.0	2.0
Iceland	revenue	47.7	44.2	41.0	41.5	41.7	43.1
	Expenditure	42.3	44.7	49.6	47.9	46.7	46.9
	Balance	5.4	-0.5	-8.6	-6.4	-5.0	-3.8
	primary balance	5.7	-0.6	-6.5	-2.7	-0.8	0.6

Source: WEO database

Thanks to the good performance recorded in the primary balance, the level of indebtedness also started to decrease in both countries (Figure 1). Between 2011 and 2012, the Hungarian debt dropped by about 2 percentage points to 79 per cent of GDP. In Iceland, the debt/GDP ratio rose from 90.6 per cent in 2010 to 102.3 per cent in 2011, but it decreased by more than 3 percentage points to 99 per cent in 2012. Figure 1 also shows the debt/GDP ratio evolution according to the projection of the IMF. While Hungary's debt level is expected to be constant in the next years, the IMF's estimation shows that the Iceland's Debt/GDP ratio is expected to continue decreasing.

Figure 1. General government gross debt (% of GDP) level in Hungary (dark blue) and Iceland (light blue) over the period 2008 to 2018 (estimates start after 2012)

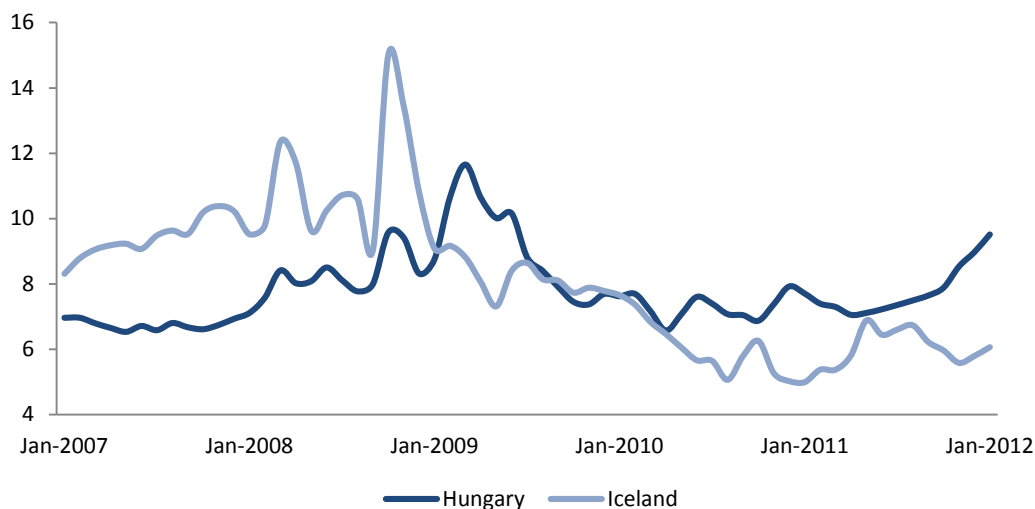


Source: IMF WEO database

As a result, Iceland fully met the IMF programme objectives in 2011 – restructuring the financial system, achieving stabilization of the exchange rate and above all the consolidation of public finance (OECD, 2012). In contrast, the outlook for the Hungarian economy appeared less optimistic and doubts about the fiscal consolidation process were also advanced by the financial markets (Figure 2). “Reflecting the higher sovereign risk, the rating agency Moody’s downgraded Hungarian

government bonds below investment grade on 25 November 2011, which was followed by a downgrade by Standard & Poor's on 22 December 2011" (EEAG, 2012: 127). As a consequence, the Hungarian government asked for additional help from the IMF and the EU in 2012.

Figure 2. Long-term interest rate in Hungary and Iceland over the period 2007 to 2012



Source: IMF WEO and OECD database

### 3.2 Performance on other macroeconomic variables

The success of a fiscal consolidation strategy is also related to the evolution of other macroeconomic variables. In particular, Table 4 compares the changes of the unemployment rate and private final consumption expenditure in Hungary and Iceland over the period 2008 to 2012. In both countries, unemployment sharply rose as a consequence of the macroeconomic shock. In 2009, it increased by 2.5 points in Hungary and more than 6 points in Iceland (Table 4). While the unemployment rate kept stable in 2010, Hungary and Iceland performed differently in the following years: in Hungary, the unemployment rate remained stable at around 10 per cent; in Iceland, it dropped by 0.7 percentage points in 2011 and by about 2 points in 2012 (Table 4).

Table 4 also shows that the initial drop in private consumption was more important in Iceland than in Hungary. In Iceland consumption dropped by 8 and 15 per cent respectively in 2008 and 2009, while in the latter it dropped by 0.7 and 6.7 per cent over the same period. However – similarly to the unemployment rate – the recovery of consumption was faster in Iceland than in Hungary. Although consumption in Iceland kept stable in 2010, it started to recover in the following years growing by 2.6 per cent in 2011 and by 2.4 per cent in 2012 (Table 4). On the other hand, consumption in Hungary continued to increase by about 3 per cent in 2010, remained stable in 2011 and dropped again by 1.6 per cent in 2012 (Table 4).

In recent years, both countries showed signs of recovery (Table 4). In particular, the Hungarian economy turned positive in 2010 while Iceland's GDP returned to a positive growth rate only in 2011. However, Iceland also recorded a positive GDP growth rate in 2012 while the majority of European countries as well as Hungary still fought with the ghost of a default.

Table 4. The impact of fiscal consolidation in Hungary and Iceland over the period 2007 to 2012 on selected macroeconomic variables

		2007	2008	2009	2010	2011	2012	
<b>Hungary</b>	Gross domestic product, constant prices	<i>Per cent change</i>	0.11	0.89	-6.77	1.32	1.65	-1.73
	Unemployment rate	<i>Per cent of total labor force</i>	7.70	8.00	10.50	10.90	10.94	10.94
	Inflation rate	<i>Per cent change</i>	7.94	6.07	4.21	4.85	3.90	5.70
	Private final consumption expenditure growth (volume)	<i>Per cent change</i>	1.05	-0.69	-6.61	-2.99	0.37	-1.58
<b>Iceland</b>	Gross domestic product, constant prices	<i>Per cent change</i>	5.99	1.19	-6.57	-4.10	2.89	1.64
	Unemployment rate	<i>Per cent of total labour force</i>	1.01	1.65	8.02	8.13	7.43	5.77
	Inflation rate	<i>Per cent change</i>	5.06	12.68	12.00	5.40	4.00	5.19
	Private final consumption expenditure growth (volume)	<i>Per cent change</i>	5.7	-7.82	-14.99	0.09	2.60	2.36

Source: IMF WEO and OECD database

## 4. THE DISTRIBUTIONAL IMPACTS OF THE FISCAL CONSOLIDATION STRATEGIES IN HUNGARY AND ICELAND

The success of a fiscal consolidation process is also related to its capacity to reduce the cost for the most vulnerable groups. Indeed, Cornia and Stewart (1990) highlight that the poor tend to suffer more than other groups during a phase of adjustment. Moreover, Stewart (2001) explains that it is also crucial to understand the effects of adjustment policies in terms of horizontal inequality since they have social, economic and political consequences. Thus, the second aim of this work is to analyze the distributional impacts of the fiscal consolidation strategies followed in Hungary and Iceland. In particular, this section shows how adjustment policies impact on vertical as well as on horizontal inequality. For this purpose, we extracted data from the European Union Statistics on Income and Living Conditions (EU-SILC) for both countries over the period 2009 – 2012.<sup>4</sup>

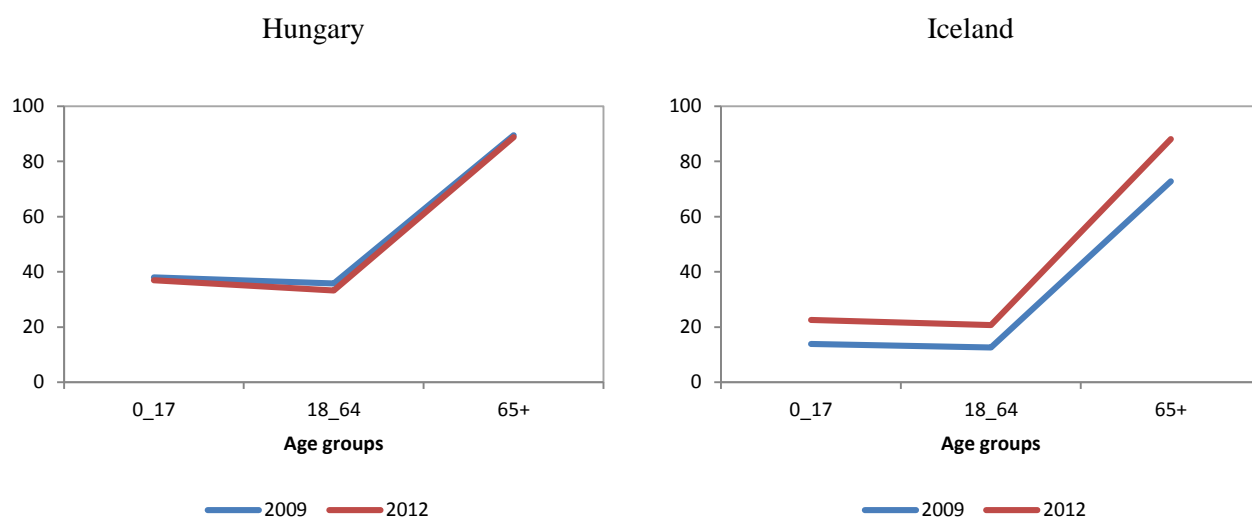
### 4.1 The progressivity of the measures on social protection

As reported above, some measures focused on social protection. In particular, they also affected the money transferred by government to households. Indeed – between 2009 and 2012 – the share of monetary transfers on disposable income rose by about 20 points up to 30 per cent in Iceland, while it slightly declined by 2 points from 45 to 43 per cent in Hungary. According to Figure 3, these changes were equally distributed across the different age groups in both countries. While

<sup>4</sup> The data on income are equivalised applying the modified-OECD equivalence scale. In particular, “this equivalent scale gives a score of 1 to the household head. Each of the other household members aged 14 and more receives a score of 0.5, while each child with age less than 14 receives a score of 0.3. The sum of the individual scores gives the equivalent household size” (Bradshaw et al., 2012: 4).

the situation before and after the reforms was much the same in Hungary, the different groups experienced a similar increase of share of transfers on disposable income in Iceland.

Figure 3. Social transfers incidence according to different age groups in Hungary and Iceland, over the period 2008–2012



Source: Author's calculations based on EU SILC data

Nonetheless, the most interesting differences are related to the impact of these changes on income distribution. Table 5 shows that in Hungary, the share of transfers on disposable income kept stable only for the first and second quintiles. In contrast, it dropped by more than two points for the third and fourth quintiles and by nearly five points for the highest quintile. In Iceland, all quintiles experienced an increase in the share of social transfers on disposable income. However, fiscal policy changes favoured especially people living in the bottom of the distribution, considering that the share of transfers on disposable income rose by 13, 15 and 12 percentage points in the bottom three quintiles (Table 5).

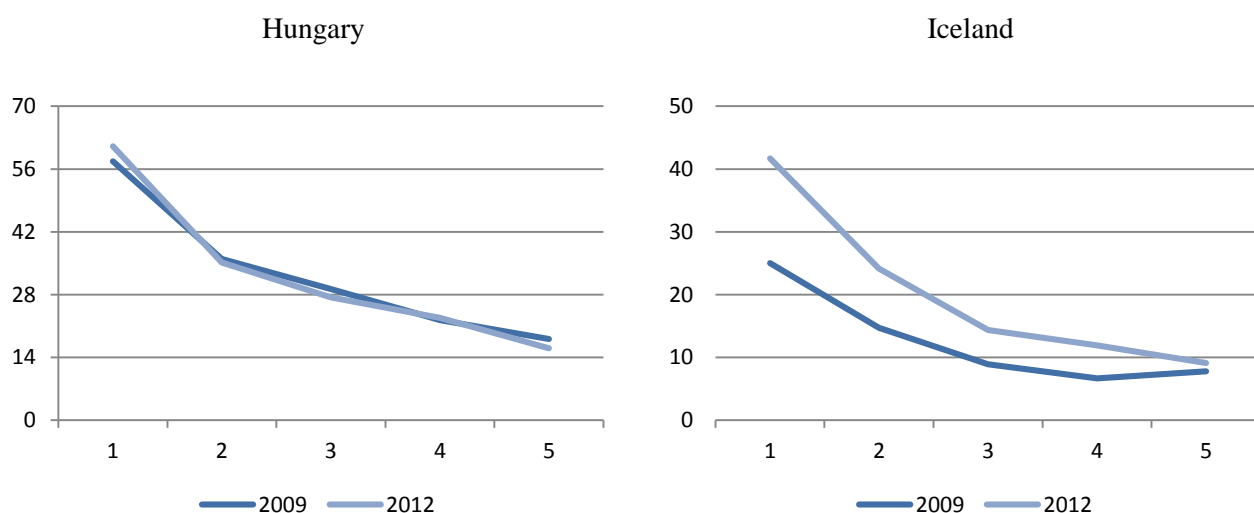
Table 5. Change in the share of social transfers in disposable income for each income quintile in Hungary and Iceland between 2009 and 2012

quintile	Hungary			Iceland		
	2009	2012	<i>Diff</i>	2009	2012	<i>Diff</i>
1	60.6	60.6	<b>0.0</b>	35.5	48.7	<b>13.2</b>
2	50.9	50.6	<b>-0.3</b>	25.6	40.4	<b>14.8</b>
3	44.0	41.9	<b>-2.1</b>	15.3	26.8	<b>11.5</b>
4	37.7	35.3	<b>-2.4</b>	12.4	18.1	<b>5.8</b>
5	29.2	24.5	<b>-4.7</b>	10.4	14.9	<b>4.5</b>
Average	44.5	42.6	-1.9	19.8	29.8	10.0

Source: Author's calculations based on EU SILC data

As can be seen in Figure 4, the results are quite similar considering only people living in households with children. In Hungary, the share of transfers slightly increased for children in the first two quintiles, while it kept stable for the others. By contrast, the measures implemented in Iceland promoted progressivity in the distribution of social transfers. Figure 4 shows that the share of transfers on disposable income increased for the majority of children and especially for those living in poor households, while they decreased and remained stable for those in the highest quintile (Figure 4).

Figure 4, Change in the share of social transfers on disposable income for each income quintile (only households with children) in Hungary and Iceland between 2009 and 2012.



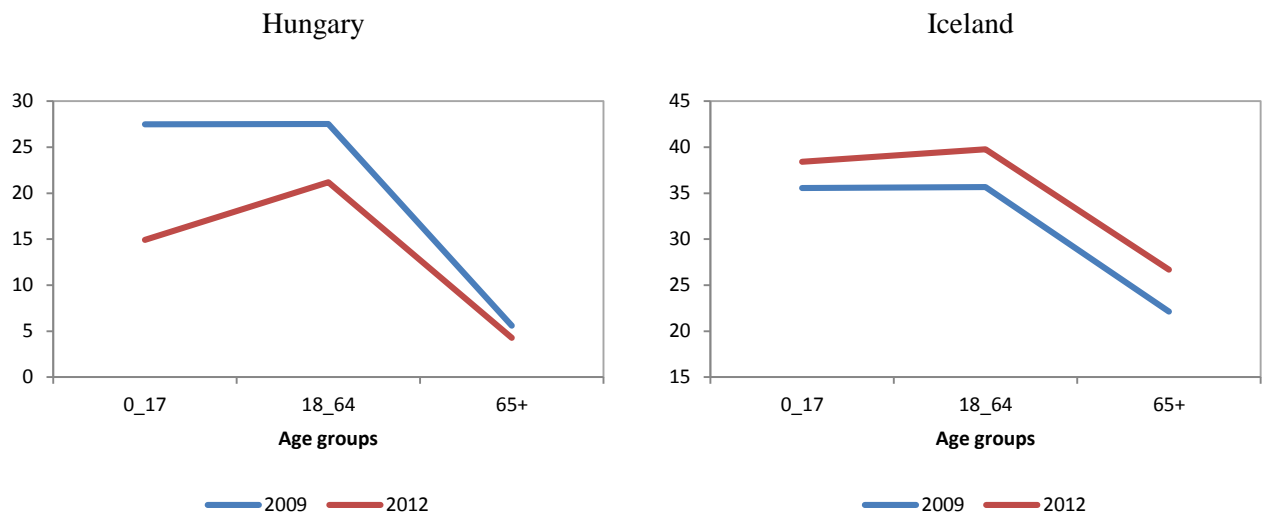
Source: Author's calculations based on EU SILC data

#### 4.2 The progressivity of the measures on taxation

The reforms on taxation also generated important distributional consequences. In Hungary, the share of taxes paid dropped from 24 per cent in 2009 to 17 per cent in 2012. In contrast, in Iceland the tax burden slightly increased by four points from 34 to 38 per cent.

Figure 5 illustrates how the reforms affected the different age groups. In Hungary, the share of taxes paid dropped for children and people of working age, while it slightly decreased by one point for those aged over 65 (Figure 5). In contrast, all age groups experienced an increase in the share of taxes paid in Iceland. The tax burden rose by about three points for children, while it rose by more than four percentage points for people of working age and those over 65 years (Figure 5).

Figure 5. Impact of the tax measures across the different age groups in Hungary and Iceland between 2009 and 2012



Source: Author's calculations based on EU SILC data

Table 6 shows how the average effective tax rates changed across the different income quintiles resulting from the implementation of tax reforms. In Hungary, the winners were clearly taxpayers in the top of the distribution. In particular, Table 6 shows that taxpayers in the fourth and fifth quintiles paid respectively 6 and 15 percentage points less than before the reforms. The reduction in the tax burden was less important for taxpayers in the middle and at the bottom of the distribution since the average effective tax rate decreased by around 4.5 points (Table 6).

In Iceland, the shift from a flat rate to a progressive tax system provoked significant changes in the average effective tax rates for all quintiles. On one hand, the tax burden rose by three points for taxpayers in the lowest quintile while it kept stable for those in the second and third quintile (Table 6). On the other hand, the tax burden rose for taxpayers in the top of the distribution and especially for those in the highest quintile. As can be seen in Table 6, taxpayers in the fifth quintile paid about 12 percentage points more after the 2010 tax reform.

Table 6. Average effective tax rates according to the different income quintiles in Hungary and Iceland between 2009 and 2012

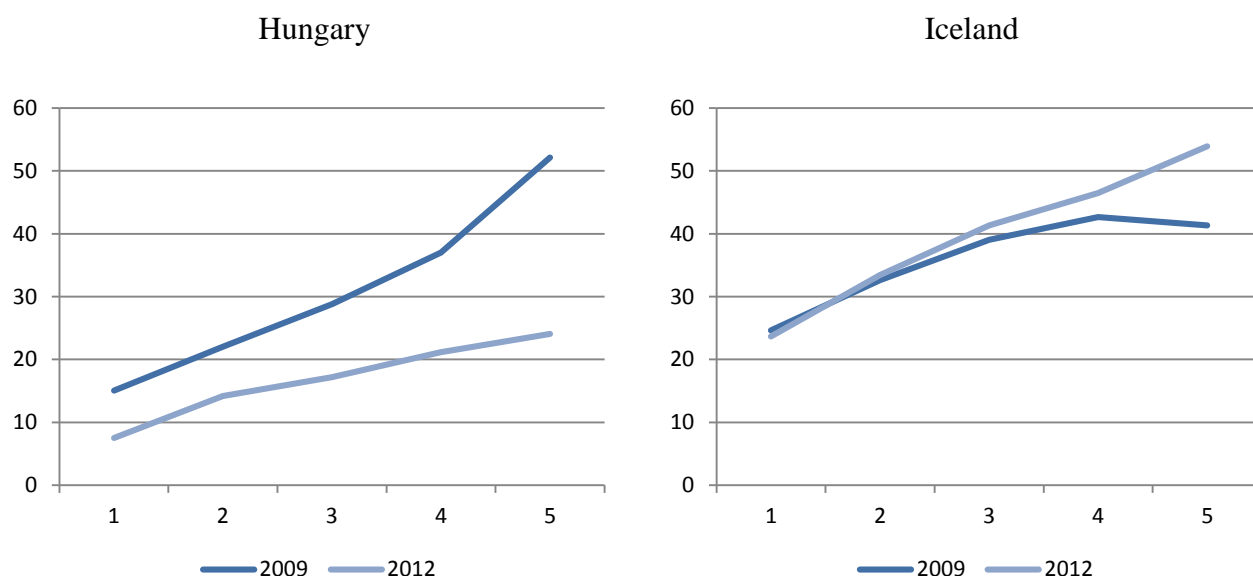
quintile	Hungary			Iceland		
	2009	2012	<i>Diff</i>	2009	2012	<i>Diff</i>
1	13.9	9.5	<b>-4.4</b>	24.5	27.5	<b>3.0</b>
2	17.1	12.9	<b>-4.1</b>	30.3	29.8	<b>-0.5</b>
3	21.5	16.9	<b>-4.5</b>	36.8	37.3	<b>0.5</b>
4	27.1	21.4	<b>-5.7</b>	40.0	43.5	<b>3.4</b>
5	41.3	26.4	<b>-14.9</b>	38.8	50.8	<b>12.0</b>
Average	24.2	17.4	-6.7	34.1	37.8	3.7

Source: Author's calculations based on EU SILC data



Figure 6 illustrates the impact of tax reforms in terms of progressivity considering only people living in households with children. In particular, the analysis confirms that the Hungarian tax reform reduced the progressivity of the tax system. As reported above, the winners were rich taxpayers while tax burden for households with children living in the bottom of the distribution decreased less (Figure 6). In contrast, the 2010 tax reform in Iceland promoted the progressivity of tax system reducing the tax burden for children living in poor households and increasing the participation in tax payment for those living in households in the top of the distribution (Figure 6).

Figure 6. Average effective tax rates according to the different income quintiles (only households with children) in Hungary and Iceland between 2009 and 2012



Source: Author's calculations based on EU SILC data

### 4.3 The impact of the policy responses in terms of redistribution

Table 7 illustrates the impact of the social protection and taxation measures in terms of redistribution over the period 2009-2012. For this purpose, we consider the Reynolds-Smolensky index that is given by the difference between the Gini index before and after government interventions. With regard to social transfers, the Reynolds-Smolensky index kept stable in Hungary, while it rose by about 5 points in Iceland. The changes in the tax system also affected the ability to redistribute in both countries. Indeed, Table 7 shows that the implementation of the Hungarian tax reform led to a drop in the Reynolds-Smolensky index by about two points from 5.97 to 3.48. In contrast, Iceland's tax reform increased the ability of government to redistribute by about three points from 1.67 to 4.42 (Table 7).

Table 7. Gini indicators and Reynold-Smolensky index in Hungary and Iceland, over the period 2009–2011

		Hungary		Iceland	
		2009	2012	2009	2012
<b>Gini</b>	<i>Private income</i>	51.81	51.54	38.11	39.87
	<i>Gross income</i>	30.65	30.40	31.26	28.39
	<i>Disposable income</i>	24.68	26.92	29.59	23.97
<b>Reynolds - Smolensky</b>	transfers	21.16	21.14	6.85	11.48
	taxes	5.97	3.48	1.67	4.42

Source: Author's calculations based on EU SILC data

While the Reynolds-Smolensky index provides only a static picture of the ability of government to redistribute, the Shapley decomposition could be the appropriate strategy in order to measure the marginal contribution of each income component on inequality change (see Shorrocks, 1999). Applying the methodology developed by Azevedo et al (2013), we measure the specific contribution of three main components - i.e. private income, social transfers and taxes - to the change of income inequality over the period 2009 – 2012.<sup>5</sup>

Figure 7 reports the results of our Gini decomposition over the period 2009–2012. In Hungary, changes in market income promoted an increase of inequality by about one point while they provoked a reduction of 1.4 points in Iceland. On the other hand, changes in social transfers slightly reduced inequality by more than three points in Iceland while they did not have distributional consequences in Hungary (Figure 7). However, the most interesting results are related to the contribution of tax reforms: on one hand, the changes in the Hungarian tax system contributed to increase inequality by 1.5 points; on the other hand, Iceland's tax reform of 2010 contributed to reduce income inequality by about one point (Figure 7). As a result, it is interesting to see that while the overall Gini index rose by two points in Hungary, it dropped by about six points in Iceland (Figure 7).

<sup>5</sup> To measure the specific contribution of each component, we carry out a simple comparison between the distribution at the time t+1 and a hypothetical counterfactual distribution. The latter distribution is given by replacing the component value at the time t+1 with its value at the time t (Martorano, 2014).

Figure 7. Gini Decomposition in Hungary and Iceland, 2009 - 2012



Source: Author's calculations based on EU SILC data

## 5. CONCLUSIONS

Hungary and Iceland were among the countries most affected by the recent macroeconomic shock. Although they started from much the same fiscal conditions, their respective governments decided to follow different strategies of adjustment. Both countries cut public spending according to different priorities. While spending on general public services decreased in both countries, the Hungarian government preserved spending on economic affairs, while the government in Iceland preserved that on social protection, especially transfers to households.

However, the most important differences are related to the revenue side. On the one hand, the Hungarian government implemented a flat tax reform to stimulate economic activity and nationalized private pensions to overcome the drastic fall in revenue. In contrast, the Icelandic government replaced the previous flat tax system with a progressive one, increasing participation in the fiscal consolidation process for high income groups.

As expected, these two opposite adjustment strategies produced different economic and social outcomes. In both countries, the primary balance turned positive even though in Hungary the 2011 result was mainly driven by the implementation of a one-off revenue measure. As a consequence, the level of debt on GDP started to decrease in both countries in 2010. Nonetheless, while Iceland achieved the objectives of the IMF programme, the worsening of economic conditions pushed the Hungarian government to ask for additional help from the EU and the IMF in 2012. In terms of distribution, social transfers contributed to reduce inequality in Iceland but not in Hungary. Nonetheless, the Icelandic government decided to increase the value of child benefits at the beginning of 2013 since the measures implemented did not completely compensate for the cut in living standards suffered by households during the crisis. In contrast, the different tax strategies operated in opposite ways. Indeed, the results show that the Hungarian tax system became more regressive and inequality increased by nearly two points. In contrast, Iceland's 2010 tax reform increased progressivity in the tax system and reduced inequality by one point.

All in all, these two case studies provide good policy lessons. First of all, they highlight the central role of fiscal policy in macroeconomic stabilization, especially in a situation such as that experienced by rich countries during the Great Recession. Second, the success of a fiscal consolidation programme is strictly related to the implementation of credible and sustainable measures. The introduction of one-off measures generated only short-term relief without assuring the achievement of good results in the long term. Third, the Icelandic story shows that it is possible to 'adjust with a human face'. During times of crisis, social protection systems should be preserved, protecting the most vulnerable groups, and especially children, who represent the future of society. Participation in the adjustment process should be progressive, reflecting the ability-to-pay rule. In other words, it is difficult to ask people who received less during the good times to participate more in the bad times.

## REFERENCES

- Azevedo, J. P., Inchauste, G. and V. Sanfelice (2013). "Decomposing the Recent Inequality Decline in Latin America", *Policy Research Working Paper Series 6715*, Washington DC, The World Bank.
- Beynet and Paviot (2012). "Assessing the Sensitivity of Hungarian Debt Sustainability to Macroeconomic Shocks under Two Fiscal Policy Reactions", OECD Economics Department Working Papers No. 946, Paris, OECD.
- Bradshaw, J., Chzhen, Y., de Neubourg, C., Main G., Martorano, B. and L. Menchini (2012). "Relative Income Poverty among Children in Rich Countries", *Innocenti Working Paper 01-2012*, Florence, UNICEF Innocenti Research Centre.
- Carey, D. (2009). "Iceland: The Financial and Economic Crisis", OECD Economics Department Working Papers, No. 725, Paris, OECD.
- Cornia, G. A. (2010). "Transition, Structural Divergence, and Performance: Eastern Europe and former Soviet Union over 2000 – 2007", *UNU – WIDER Working Paper, WP2010/32*, Helsinki, UNU Wider.
- Cornia, G. A. and F. Stewart (1990). "The Fiscal System, Adjustment and the Poor", *Innocenti Occasional Paper 11*, Florence, UNICEF ICDC.
- Cornia, G. A., Jolly, R. and F. Stewart (1987). *Adjustment with a Human Face: Protecting the Vulnerable and Promoting Growth*, Oxford, Oxford University Press.
- EEAG (2012). The EEAG Report on the European Economy, "The Hungarian Crisis", CESifo, Munich, European Economic Advisory Group: 115–130.
- Hagemann, R. (2011). "How Can Fiscal Councils Strengthen Fiscal Performance?", *OECD Journal of Economic Studies*, Vol. 2011/1.
- Hogye, M. (2011). "Fiscal Consolidation and the New Flat Rate Individual Income Tax in Hungary", *European Financial and Accounting Journal*, 6(2): 8-27.
- IMF (2012). Hungary: Staff Report for the 2011 Article IV Consultation and Second Post-Program Monitoring Discussions, International Monetary Fund Country Report No. 12/13.
- Martorano, B. (2014). "The Consequences of the Recent Economic Crisis and Government Reactions for Children", *Innocenti Working Paper 2014-05*, UNICEF Office of Research, Florence.
- Martorano, B., Cornia, G. A. and F. Stewart (2012). "Human Development and Fiscal Policy: Comparing the Crises of 1982-85 and 2008-11", *Working Papers Series n. 23/2012*, Università degli Studi di Firenze, Dipartimento di Scienze per l'Economia e l'Impresa.  
[http://www.disei.unifi.it/upload/sub/pubblicazioni/repec/pdf/wp23\\_2012.pdf](http://www.disei.unifi.it/upload/sub/pubblicazioni/repec/pdf/wp23_2012.pdf)
- Mishkin, F. and T. Herbertsson (2006). "Financial Stability in Iceland", Reykjavik, Iceland Chamber of Commerce.
- OECD (2012). Restoring Public Finances, 2012 Update, Paris, OECD.
- Ólafsson, S. (2011a). "Icelandic Capitalism – From Statism to Neoliberalism and Financial Collapse", in *Comparative Social Research*, vol. 28, Special Volume on Nordic Varieties of Capitalism,

edited by Lars Mjösset. <http://www.emeraldinsight.com/books.htm?issn=0195-6310&volume=28>

- Ólafsson, S. (2011b). "Iceland's Financial Crisis and Level of Living Consequences", *Working Paper*, 3:2011, Social Research Centre, University of Iceland
- Ólafsson, S. (2012). "Iceland's Way Out of the Crisis: Welfarism, Redistribution and Austerity". *Working Paper*, 1:2012, Social Research Institute, University of Iceland. <http://thjodmalastofnun.hi.is/>
- Ólafsson, T. T and K. Á. Vignisdóttir (2012). "Households' position in the financial crisis in Iceland", *Working Paper* n. 59, Central Bank of Iceland.
- Shorrocks A. F. (1999). "Decomposition Procedures for Distributional Analysis: A Unified Framework Based on Shapley Value", University of Essex and Institute for Fiscal Studies, mimeo.
- Stewart, F. (2001). "Horizontal Inequalities: a Neglected Dimension of Development", *Wider Annual Lectures* 5, Helsinki, UNU WIDER.
- Tóth G., C. and P. Virovác (2013). "Winners and Losers. An assessment of the Hungarian flat tax reform with microsimulation", *Public Finance Quarterly*, State Audit Office of Hungary, 58(4): 369-385.
- Wade, R and S Sigurgeirsdottir (2012). "Iceland's Rise, Fall, Stabilization and Beyond," *Cambridge Journal of Economics*, 36 (1): 127-44.