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Iceland's Currency Dilemma

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Abstract

Iceland is the world's smallest currency area with a flexible exchange rate system. Recently increased turmoil in Iceland has sparked a lively debate if it should become a member of the European Union and adopt its single currency. In terms of growth potential and welfare, the euro could be expected to bring lower long-term interest rates, which would increase capital investment and labour productivity. Also the euro might lower consumer prices by facilitating a comparison with other euro countries. Not surprisingly, markets in microstates are often dominated by a few firms, especially when it comes to services. The adoption of the single currency might lead to lower domestic prices through not only price comparisons but also the entry of European firms in sectors such as banking, insurance, and retailing. But there are also costs in the form of increased variability of unemployment and the loss of an independent monetary policy. The conclusion of the paper is that the quality of monetary policy decision making has to be convincing for anyone to be willing to sacrifice the benefits that would likely follow the adoption of the euro. However, the verdict on this is still out!

Keywords: Iceland, monetary policy, single currency, Europe

JEL Classification: F33, F15, E42

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1. Introduction

The United Kingdom approached its negotiations with the European Union (EU) in the 1960s and 1970s with some hesitation similar to what we witness today around the euro. There were those claiming that EU membership was essential for trade and prosperity, while opposing voices insisted that membership would impinge on political and economic sovereignty. The attitudes revealed by the groups opposed to further integration could be characterized as an “island mentality”, in that the proponents have a strong urge to maintain the identity of the nation and its independence in most spheres yet are afraid of being left out and excluded by their neighbours.

The island mentality is, if anything, stronger in Iceland where the same issues are currently being debated. The arguments proposed for and against joining the EU and adopting the euro mirror those raised in the UK, but the debate is even more interesting because the choices faced are starker. Iceland has only 300 thousand inhabitants, which is roughly the population of the London suburbs of Ealing (305,019) and Camden (210,661) or the German cities of Bonn (302,200) and Karlsruhe (276,600). Iceland, to a greater extent than the UK, is dependent on trade; its labour market is even less integrated with continental Europe, and its economic shocks are more asymmetric. A rather half-baked solution was concocted 14 years ago when Iceland joined the *European Economic Area* – negotiated between the EU and seven EFTA states in 1992 – guaranteeing the freedom of movement of goods, services, labour and capital within the areas.^{1,2}

In this article we will not discuss the costs and benefits of EU membership for Iceland. Instead, we focus on the choice of an optimal currency regime, which we find interesting due to the very small size of Iceland’s economy and the fact that the health of the tiny Icelandic krona has recently started to play a role in world financial markets: the recent depreciation of the krona scared investors (the carry traders) out of many emerging market economies, causing , contagion and depreciation of currencies in places such as Hungary, New Zealand, Turkey, and Latin America. Following a brief monetary history of Iceland, we first describe Iceland in light of the optimal currency area literature and then move on to what we regard as the more interesting aspects of this question relevant to microstates such as Iceland. These involve small government bureaucracy, imperfect competition in the service sector, monetary policy and international capital flows, banking supervision, and the risk premium. We conclude with a summary and comments about Iceland’s future monetary arrangements.

2. Iceland’s monetary history abridged

Iceland was settled in the 9th and 10th centuries, and after early exploitation of its natural wealth (mainly forests), it remained poor for over a thousand years. The nation preserved in its memory vivid descriptions of the old Viking society – interesting for

¹ The EFTA countries took on board Community legislation on consumer protection, the environment, and company law.

² Subsequently, three of the EFTA countries joined the EU, and Switzerland decided in a referendum not to participate in the economic area. Currently, only Iceland, Liechtenstein and Norway belong to the free trade area without formal membership of the EU.

its lack of a formal state – its heroes and battles captured in the Sagas.³ But its economy never took off until the end of the 19th century. In spite of a rather lively period of trade in the 16th century, technology remained stagnant; the population did not grow, and living standards did not improve, providing a good example of Malthusian population dynamics.

The use of money was limited during the thousand years of economic stagnation, to say the least. Barter was the rule.⁴ The basic unit of account was wool. A certain quantity of wool (“alin”) was used as a unit of account, and its value was pegged to silver. Silver served as a store of value, but neither silver nor wool was much used in transactions. The value of land was measured in another unit – called a “hundred” – and its value fixed in terms of wool. Prior to 1873 the only money used had been Danish notes, first issued in 1713, but the Icelanders were not keen on those because they were difficult to store and the main function of money was as a store of value.

This all sounds rather complicated, which it was, and there were serious economic consequences. First, trade was limited due to the lack of a medium of exchange. Second, price ratios were fixed for many centuries and did not respond to market forces.⁵ Third, there was a profound lack of liquidity – which further hampered trade – and capital was limited, which made investment very difficult. The consequences for the standard of living on the island were dramatic. No data are available for GDP up to 1870, but there is evidence suggesting that the standard of living was considerably higher at the end of the settlement period than at the beginning of the 19th century. In effect the “take-off” of the Icelandic economy did not occur until the middle-to-late 19th century.⁶

Population growth in Iceland was dependent on the forces of nature until the economic take-off at the beginning of the 19th century. Earthquakes, volcanic eruptions, drift ice from the Arctic, glacier bursts, harsh weather and epidemics affected population growth profoundly. During the early settlement, the climate had been relatively warm, making the cultivation of a variety of crops possible. The climate became harsher when temperatures declined, resulting in what is sometimes referred to as “the little ice age” from the end of the 11th century until the end of the 19th century. As a consequence, drift ice became more common, which then made the climate even more difficult to cope with.⁷ It is estimated that there were approximately 32 thousand inhabitants in Iceland at the end of the settlement period and 78 thousand in the early 13th century, but, due to the reasons described above, the

³ Iceland's early (pre-independence) history can roughly be divided into four periods. First, there is the Era of Settlement (874-930) by Norwegian Vikings and their Irish slaves, which is followed by the Commonwealth (930-1262). In 1262 social unrest and resource constraints forced the Icelanders under the King of Norway, and the country remained under his control until 1397. In 1397 the third period started when Iceland followed Norway into the so-called Kalmar Alliance formed by Denmark, Norway, and Sweden, and dominated by the first. Thus, a prolonged period of Danish influence set in. When that alliance was resolved in 1448, Iceland remained an integral part of Denmark until the establishment of home rule in 1904, autonomy in 1918, and full independence in 1944.

⁴ See Júlíusson et al. (1992).

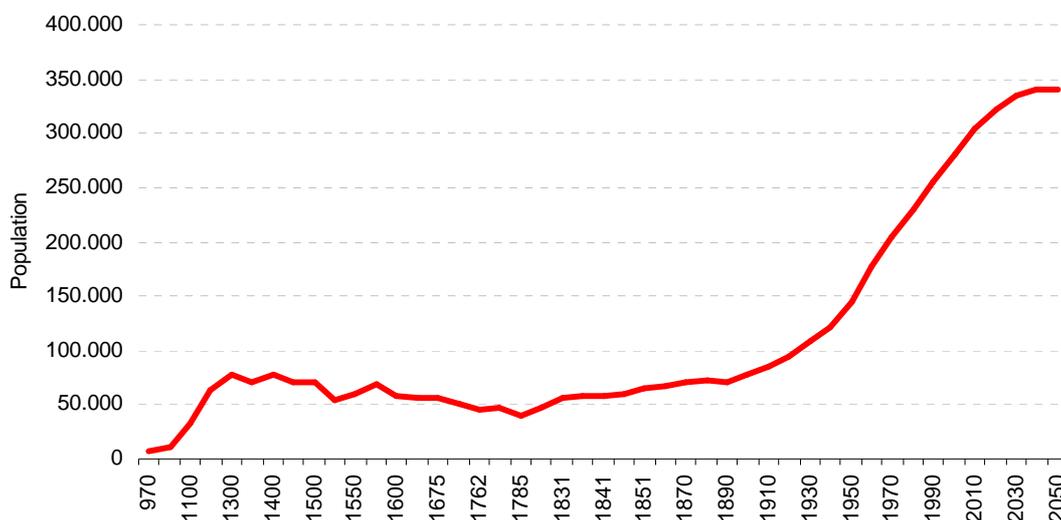
⁵ Unfortunately, the relative price of fish in terms of agricultural commodities was artificially low so that the country did not take full advantage of its comparative advantage.

⁶ This is based on the fact that conditions for farming deteriorated after 1300. These harsher conditions, among other things, changed the demographic structure, reflecting malnutrition and poverty. See Steffensen (1958).

⁷ Thorarinsson (1960).

population fell to almost 40 thousand people towards the end of the 17th century.⁸ Figure 1 plots the population from the time of settlement to the forecasted value in 2050.⁹

Figure 1. Population in Iceland, 970-2050



Improvements in the country's monetary system played an important role in the take-off of the economy in the late 19th and early 20th century. Denmark introduced its krone as official currency in 1873, and in the same year the krona was introduced in Iceland as official currency. Around the same time foreign money started to come to the island; the British paid for horses and sheep with gold coins; Norwegians caught herring and whales and paid workers in money; and around the turn of the century, a few shops started to accept money in exchange for goods. In spite of this, the financial system remained underdeveloped for a very long time, in fact, until quite recently. The first bank was founded in the late 19th century. A private bank – Islandsbanki – was founded in 1904 and authorised to issue money. This right was taken away from it in 1927 and given to a state-owned commercial bank that also had a note-issuing department. The exclusive right was then finally granted to a domestic central bank in 1961. The Central Bank was effectively under the control of the government for the next 40 years, until it was given independence by law in 2001.

Although wool had been exported from early on, substantial export activity did not appear until the 13th century with the advent of fishing on a larger scale. During the 12th century the price of fish in Europe had started to increase, and fishing became a major occupation on the island after 1400 although it was not the sole occupation of anyone.¹⁰

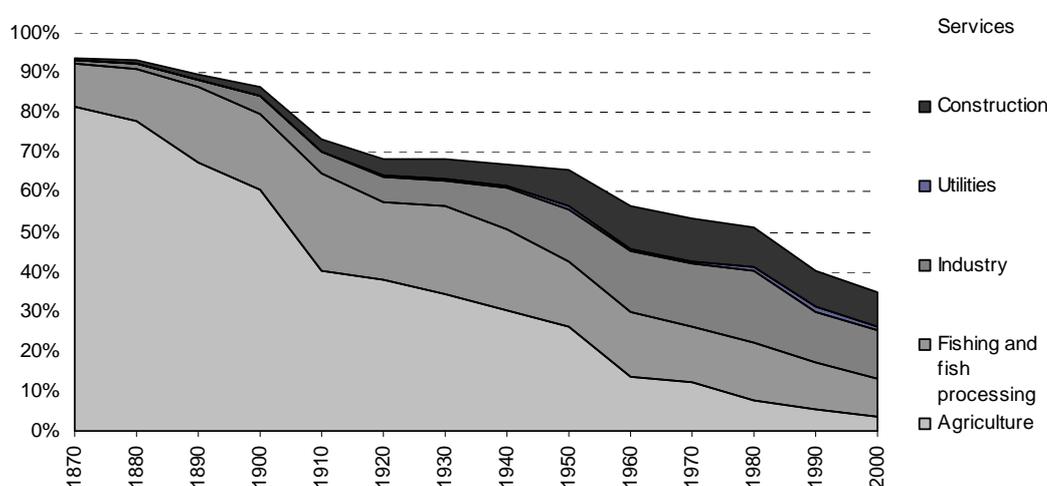
⁸ Much of the population figures are estimates and guesswork since the first general census was taken in Iceland in 1703, the first census along modern lines covering the whole country. See Thorarinsson (1961).

⁹ Data on population 874-1702 come from Steffensen (1975) and 1703-1995 from *Statistics Iceland* (1997). Data on population 1996-2050 are from United Nations Population Division's median variant population projections.

¹⁰ This was due both to the seasonality of fishing and laws that forced all workers who did not own land to be continuously registered on farms. These laws, abolished in 1893, heavily restricted labour

The take-off of the Icelandic economy can also be traced to the liberalization of trade in the 19th century and to the fact that warmer climate made agriculture easier, which freed up labour to start other industries and commerce. Better fishing technologies (such as sailing boats at the end of the 19th century and motor boats and trawlers at the beginning of the 20th) also contributed to increased growth. Economic growth rose dramatically when increased use of money, a greater supply of capital, free trade and new fishing technologies came together and allowed the country to utilise its comparative advantage in fishing. Increased income then had the effect of raising the demand for services, which gradually expanded from the beginning of the 20th century. Figure 2 shows the distribution of employment across industries in Iceland 1870-2000.¹¹

Figure 2. Distribution of Workers between Industries in Iceland, 1870-2000



In spite of this, the financial system remained underdeveloped for decades to come. In the 1960s and 1970s the financial system had the appearance of modernity, yet banks were predominantly state-owned and run by politicians. Interest rates were decided by decree and were usually lower than the inflation rate, and capital was rationed and often distributed along political lines and rent seeking was rampant. The political parties were – and are to this day – represented on the Board of Governors of the Central Bank (appointed by the Prime Minister), and even more explicitly on the bank’s Supervisory Board (elected by Parliament). Households invested in real estate in order to protect their savings, and the little that ended up in bank deposits was given out to firms that paid sharply negative interest rates. As a result, economic growth was mainly propelled by steadily increasing fish catches generated by continuous investment in new fishing vessels as well as the extension of the fishing zone to 200 miles following disputes with the UK and Germany (the so-called Cod Wars!).

mobility and entrepreneurship for many centuries. However, it is estimated that during the fishing season, as much as half of the male workforce was engaged in fishing and fish processing.

¹¹ Jónsson (1999) and the *National Economic Institute*.

Financial market liberalisation – initially in response to steadily falling deposits in the banking system, not surprising in light of the negative real interest rates – started in the 1980s. The first step involved the indexation of financial obligations in 1979. Interest rates were subsequently made market determined. Privatisation of commercial banks followed in the 1990s. The country now has private banking, international financial mobility, a central bank that is independent by law with an explicit inflation target, a public sector that – although not really performing counter-cyclical policy – is somewhat frugal and does run budget surpluses in good times. The contrast with the economy 100 years earlier could not be starker: the supply of capital is abundant; people with ideas and ambition can get loans; there are no restrictions on foreign borrowing or investing, and the country, in a several-year span, has accumulated foreign assets amounting to 250% of its GDP. The country now ranks second on the Human Development Index¹² and sixth in terms of GDP per capita. The only EU countries ranking higher in terms of PPP income per capita are Luxembourg and Ireland, but they rank considerably lower on the human development index.¹³

Now we come to the main question posed in this paper: Should this affluent microstate have its own currency, or would it be better off as part of the European Union using its common currency? Is it possible that an economy the size of Karlsruhe should have its own currency? This is an important question for Iceland because if the question is answered in the negative, then applying for EU membership and adopting its single currency might best serve the country's interests.

3. Optimum currency area considerations

We start with the obvious benefits of adopting the euro and then turn to the costs in light of the optimum-currency-area literature.¹⁴

Foreign trade, as a fraction of GDP, is surprisingly low in Iceland. Also, exports are still dominated by the fishing sector – although its share in total exports has fallen sharply in the past 15 years or so¹⁵ – followed by aluminium production, financial services, and tourism.¹⁶ Figure 3 shows openness as a function of size for a cross section of countries. Note that Iceland is an outlier in the figure in that it is less open than what one would expect based on its size.

¹² The index is based on GDP per capita, life expectancy, average years of schooling and literacy rates. Source: UN Development Program.

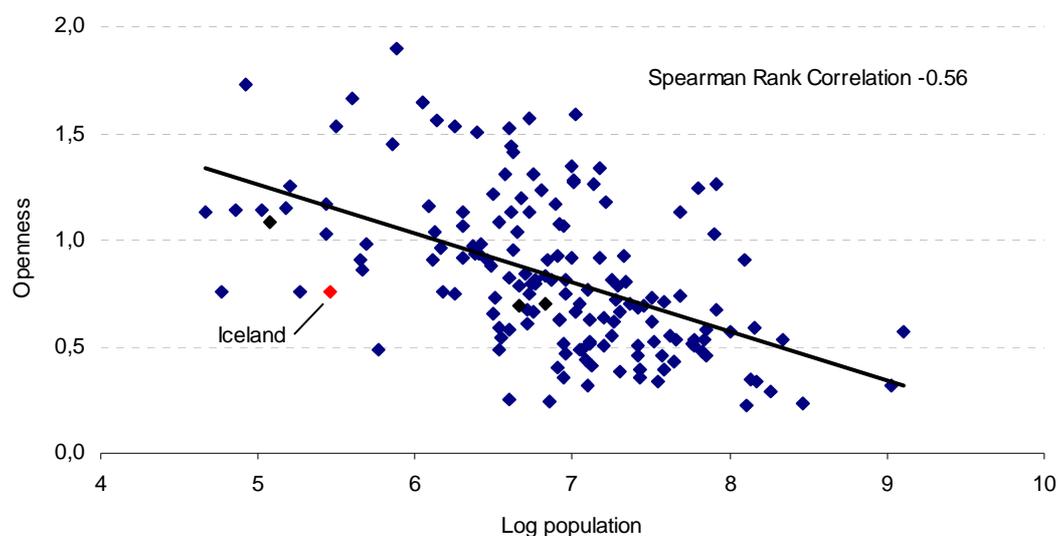
¹³ Ranked 11th-15th alongside Denmark, Finland and the UK.

¹⁴ A recent book of ours does exactly this by considering the possible benefits as well as the costs in light of this theory. See Herbertsson and Zoega (2005).

¹⁵ The share of fish products in the value of total exports is now just over 55% but was in the range 75-80% as late as 1990 and hovered around 90% for much of the 20th century.

¹⁶ One possible reason for the low ratio of exports to GDP is the high value added of the export industry. Exporting fish products involves exporting a much higher value-added than exporting many industrial goods or services.

Figure 3. The Partial Relationship between Population Size and Openness in a Sample of 160 Countries in 2003¹⁷



The question arises whether adopting the euro would increase Iceland's trade with the rest of the world.¹⁸ In a path-breaking study, Rose (2000) used a cross section of countries to test for the effect of exchange-rate fluctuations and currency union on the volume of trade. He found that while the former had a small negative effect, the latter had a big positive effect, i.e., it is not the fixed exchange rates per se that promote trade but a currency union as a whole. Breedon and Pétursson (2004) also find that international trade would increase considerably in Iceland if the country would join the EU.

Experience from the euro zone tells us that trade within the zone has increased significantly since the adoption of the euro. In fact, data for France and Germany show that within two years from the adoption of the euro, their trade with other EU countries had risen between 3 and 5 percent of GDP (Layard et al. 2002). These results are confirmed by Micco, Stein, and Ordoñez (2002), who find that between 1992 and 2001 the boost to intra-EMU trade was 18 to 35 percent; Bun and Klaassen (2002, p.1) also find that the euro significantly increased trade, with a long-run effect of about 40 percent.¹⁹ Baldwin (2006) finds support for the "Rose effect" by looking at both EMU and non-EMU currency unions and concludes that the euro has already increased intra-euro area trade significantly by 5-10 percent, which is, however, somewhat less than the initial Rose estimates.

The potential benefits of maintaining an independent, floating currency are also very clear. Not surprisingly, the business cycles of Iceland and continental Europe are not symmetric; the former being mainly driven by variation in the catch of fish and its price and that of aluminium in world markets. Also not surprisingly, the mobility of

¹⁷ Data source: World Data Bank. Openness is defined as (import + exports)/GDP ratio.

¹⁸ There is substantial theoretical literature on this topic. Ethier (1973) and Demer (1991) found that exchange rate fluctuations should reduce trade, while others have reached different conclusions. Bacchetta and van Wincoop (2001) used a general equilibrium analysis with inconclusive results; exchange rate fluctuations could either increase or reduce trade.¹⁸

¹⁹ However, Berger and Nitsch (2005) find that considering a longer time horizon makes the effect of the euro on the trade volumes disappear.

labour between Iceland and the euro zone is limited, although rising. In addition to the asymmetric shocks caused by fluctuations in the fish catch and the terms of trade, the government has followed a policy of encouraging foreign direct investment in energy-intensive sectors, such as the production of aluminium. Such investment projects are often huge in relation to the overall size of the economy because the increased energy production requires new hydro- or geothermal facilities. This is another source of asymmetric demand shocks.

Flexible labour markets should make the adoption of the euro easier. The labour market in Iceland is very flexible by European standards when it comes to its institutional structure. It may not seem impossible that it offers sufficient flexibility to cushion the effect of asymmetric shocks even in the absence of an independent monetary policy. Table 1 compares Iceland to the other OECD economies in terms of several labour market institutions. Taxes on labour are low (sum of income taxes and payroll taxes) since the state relies to an unusually large extent on indirect taxation for its revenue. The tax wedge in Iceland is similar to that in the US, the UK, Australia, Canada, Ireland, New Zealand and Portugal. Turning to the benefit system, the level of unemployment benefits is very low, comparable to the Anglo-Saxon world but the duration is high.²⁰ Union density is high as is coverage, but the unions are coordinated so they take the macroeconomic consequences of their actions into account. Negotiated wages often serve as de-facto minimum wages in that paid wages can never be lower, but employers often choose to pay higher wages. The union leadership has in the past fifteen years or so acted in a very responsible manner, taking productivity developments and macroeconomic data into account when formulating their wage demands. We should note that public sector unions have been more aggressive than those in the private sector. So, overall, in spite of apparently strong unions, they have not affected employment adversely in recent times. Finally, employment protection is limited, and workers can generally be laid off with a three-month notice.²¹

With flexible institutions one might expect some flexibility when it comes to hiring, firing and wage setting. While hiring and firing occur seamlessly, there is more doubt about the flexibility of money wages. A recent paper by one of us documents the results of a survey of business managers where they are asked if they would respond to an economic downturn by cutting the wages of their employees.²² Only 9.4% responded affirmatively, while 90.6% said they would not do so. The survey results indicate that firms have a clear preference for some workers over others, and that in a recession they prefer taking the initiative and firing the least desirable workers instead of cutting wages across the board and leaving it to the workers to decide whether to stay.²³ The most important reasons for not wanting to cut wages have to do with a desire to retain experienced and productive workers to limit the volume of overall

²⁰ Benefits have so far not been related to previous income. However, new legislation being proposed in Parliament does tie benefits to past income up to a certain level.

²¹ Mass layoffs require the employer to consult with labour unions and local authorities, but these consultations are not costly for firms and never impinge on the eventual decision to fire workers.

²² See Karlsson and Zoega (2005).

²³ This may be due to wage compression within firms, which makes productivity differences exceed wage differences across workers, hence making the most productive workers most desirable.

turnover for the workforce. It follows that money wages can be (downward) rigid in spite of the absence of institutional impediments to wage changes.

Table 1. Labour market institutions

	Tax wedge	Replace ratio	Duration	Union density	Union coverage	Union coord.	Empl. protection
Australia	28.6	32	1	35	99	1.5	2.4
Austria	44.9	55	0.68	39	80	2.0	1.1
Belgium	54.2	66	0.78	–	90	2.0	2.1
Canada	32.3	64	0.42	36	36	1.0	0.6
Denmark	41.5	59	1.00	76	69	2.0	1.5
Finland	43.8	64	0.63	80	95	2.5	2.1
France	47.4	71	0.47	10	95	1.5	3.1
Germany	50.7	61	0.75	27	92	2.5	2.8
Iceland	29.7	49	1	84	95	3.0	0.9
Ireland	23.8	29	0.77	43	–	3.0	1.0
Italy	45.7	52	0	37	82	2.5	1.0
Japan	26.6	63	0	22	21	2.5	3.3
Netherlands	43.6	71	0.64	24	85	3.0	2.6
New Zealand	20.7	37	1	21	70	1.0	2.9
Norway	36.9	66	0.60	55	31	2.0	2.4
Portugal	32.6	78	0.58	25	71	2.0	1.0
Spain	38	70	0.29	18	78	2.0	3.7
Sweden	48	81	0.02	87	89	2.0	3.2
Switzerland	28.8	72	0.31	23	53	1.5	2.4
U.K.	31.2	45	0.96	35	40	1.0	1.3
USA	29.6	56	0.22	14	17	1.0	0.5

Source: OECD, Nickell (2003) and Herbertsson and Zoega (2005). Numbers refer to the late 1990s. The *tax wedge* measures the sum of payroll contributions (by employee and employer alike) and income taxes (minus transfers) as a proportion of total labour costs. The *unemployment benefits replacement ratio* measures the ratio of benefits and average wages at the start of an unemployment spell for a single individual. The *duration of unemployment benefits* is measured by the weighted average of the replacement ratio in year two and year four of an unemployment spell divided by the ratio for the first year. *Union density* measures the fraction of the labour force belonging to a labour union, while *coverage* measures the fraction of workers getting paid on the basis of union contracts. *Coordination* measures the extent to which the macroeconomic effects of wage contracts are taken into account, an index from 1-3, where 3 stands for maximum coordination. *Employment protection* is measured on an index from 0-4, where 4 indicates maximum protection.

The preceding discussion shows that euro adoption has both economic benefits and costs when considering Mundell's criteria: trade would in all likelihood increase, and this would be very helpful for such a small economy, but the combination of large and asymmetric demand shocks, imperfect labour mobility and the downward rigidity of money wages may cause employment to become more cyclical and perhaps result in

increased structural unemployment. Of course, structural relationships could change if the country joined the EU and adopted the euro. We will later describe how labour market institutions and union behaviour may change under these circumstances.

One could summarise the preceding discussion by saying that the debate among economists has been inconclusive, and politics is supposed to take over. Instead of going down that route – which is clearly not our area of expertise – we will now discuss some further economic reasons for Iceland to either adopt or reject the euro.

4. Microstates, Micro-bureaucracies and Global Markets

Small government bureaucracies

Institutional independence requires efficient and capable local bureaucracies. Running an effective monetary policy and fiscal policy is dependent on competent decision-making. The same can be said about most other functions of the state. The writing and passing of new laws requires a mature and sizable law profession, law enforcement requires competent policing and so forth. The competence of the bureaucracy is possibly related to the size of the population, *ceteris paribus*. If the population of Karlsruhe or the borough of Camden, London, to take an example, had to come up with experts in monetary economics and central banking as well as all other areas of public policy, one might not be that surprised to find out that the average competence of each selected individual was lower than that of their UK or German counterparts. How can Camden compete with the UK and Karlsruhe with Germany in this respect?

So what we called the island mentality at the beginning of this paper is bound to lead to practical problems in a very small economy. While independence may be deemed desirable, the day-to-day policy making may be fraught with problems. The question is how small countries have to be in order to run into such problems. We are not aware of any empirical work explaining differences in the performance of bureaucracies with country size. In Iceland, as in all other countries, different bureaucracies are in need of competent, properly educated individuals and a regulatory framework that both allows them to have an influence and induces them to do their best. The same applies to the university and many industries. It must be difficult for a small group of professionals to gather the necessary statistics, to analyse them, draw reasonable conclusions and give proper advice and then to find a central bank governor who is trained to think independently about the quality of the advice he receives and the optimal timing of interest rate decisions. An increasingly integrated world with large capital flows and carry trade would make this task even more of a challenge.

Perhaps Iceland is just big enough to be able to have efficient bureaucracies. World Bank data shows that in a sample of 207 countries, there are 43 with populations between 100 thousand and 1.3 million inhabitants. Of these 26 are island economies. Perhaps surprisingly, the average per capita GDP in these small countries in 1999 was 9,600 dollars, while the comparable figure for the sample of 207 countries was 6,900 dollars. Moreover, the average growth rates were comparable between the two

groups.²⁴ However, these numbers are only indicative and do not reflect directly on the quality of monetary policy decisions.

The same problem may arise when it comes to the writing and passing of new laws. In the past, this problem was partly solved in Iceland by importing Danish legislation (Denmark was, after all, the old colonial power) and adapting it to local conditions. Recently the European Economic Area agreement has brought in a lot of EU legislation and regulation. Sometimes importing foreign ideas takes more subtle forms, a good example of which is the independence of the Central Bank (by law since March 2001) and its inflation-targeting policy, which mimics Bank of England practices. But day-to-day decision making requires local experience, knowledge and competence that cannot be imported.

Corruption and political influence on decision-making

In a very small country it is unavoidable that most people working in closely related areas know each other personally. More or less all economists working in the public sector formulating policy in Iceland are personally acquainted, and acquaintances usually reach far into other areas as well. Unofficial contacts take on prominence not seen in larger countries. The question must arise whether these are impediments to proper decision-making or, alternatively, help the system function more efficiently. As a matter of fact, Iceland ranks high in the world in terms of non-corruption and comes first in terms of freedom of the press.²⁵ A possible reason for this is that reputation takes on more importance in such a small society; improper behaviour may leave a stain more permanent than if done in a larger country. However, the distinction between efficiency-enhancing unofficial contacts and rent-seeking contacts may sometimes not be so clear in practice. In a recent paper Knack and Azfar (2003) find no robust relationship between country size and corruption.

Financial Stability under Fixed vs. Flexible Exchange Rates

We now come to the question of whether having a competent bureaucracy in a microstate is sufficient for the effective conduct of monetary policy in an increasingly integrated world, as well as financial stability. Someone might suspect that a micro-currency, such as the Icelandic krona, might be easy prey for the world's currency speculators, dwarfing the advantages of having an independent currency by excessive exchange-rate fluctuations and threatening the stability of the financial system.

There are three traditional routes to financial instability that have manifested themselves in recent financial crises in the world; financial liberalization with weak prudential regulation and supervision; severe fiscal imbalances; and imprudent monetary policy. Fortunately, none of these routes appears to describe the recent or current situation in Iceland.²⁶

Iceland has frequently experienced large current account deficits, but rapid adjustment has taken place in the past without significantly stressing the Icelandic financial

²⁴ See Thorvaldur Gylfason, "Size and Growth: Small States in the Global Economy," lecture at Harvard University, May 2002.

²⁵ According to *Transparency International*.

²⁶ Tryggvi Thor Herbertsson and Fredric S. Mishkin (2006). *Financial Stability in Iceland*: Reykjavik, Chamber of Commerce.

system. The economy has adjusted to financial liberalization, while prudential regulation and supervision is generally up to the task. Fiscal imbalances are not a problem in Iceland; quite the opposite. Iceland has a good fiscal position with low net government debt (less than 2% of GDP in 2006) and a fully funded pension system with assets amounting to more than 120% of GDP. Furthermore, recent inflationary episodes cannot be traced to lax monetary policy, which has had some success – at least until quite recently – in offsetting demand and keeping inflation near the inflation target (particularly when housing prices are excluded from the inflation measure). However, Iceland has persistently run very large current account deficits, but current account deficits by themselves do not lead to financial instability.

Economies with a liberalized capital account and fixed exchange rates are more vulnerable than economies with flexible rates. This is not only because imbalances are more likely to build up with fixed exchange rates, but also because prices are sticky, and, as a consequence, real exchange rate adjustments are much slower than with floating rates. This can lead to stagnation, deterioration in balance sheets of firms and households and a more fragile financial system: Italy is possibly a case in point as Nouriel Roubini pointed out at the 2006 World Economic Forum Meeting. Stanley Fisher has drawn attention to the fact that each of the major international capital market-related crises since 1994 – Mexico in 1994, Thailand, Indonesia, and Korea in 1997, Russia and Brazil in 1998, and Argentina and Turkey in 2000 – have in some way involved a fixed or pegged exchange rate regime. At the same time, countries not having pegged rates – among them South Africa, Israel, and Mexico in 1998 – avoided crises that afflicted emerging market countries with pegged exchange rates.²⁷

However, joining the Euro zone may contribute to a more robust financial system. Since 2000 the banking system has been transformed from a local depositary system, with assets amounting to approximately the country's GDP, to an international financial intermediary system with assets of over five times GDP. This has pushed the banks to finance themselves on the international capital market, which might pose an increased risk to the financial system. Iceland's small size and openness make it more vulnerable because small changes in international financial flows as a percentage of overall flows in financial markets can have a huge impact on the country's asset prices and particularly the exchange rate. Self-fulfilling prophecies, in which concerns about an Icelandic financial crisis could lead to massive withdrawals from Icelandic assets that would then cause a financial crisis, cannot be ruled out. High yielding currencies like the krona are particularly prone to this risk because of the carry trade. This risk would be eliminated under a credible fixed exchange regime.

5. Welfare

Iceland's choice of a currency arrangement may also have microeconomic implications. Here we consider the implications for the price level and interest rates.

Imperfect competitions in goods markets

At the beginning of the 1990s food prices were estimated to be around 55-65 percent higher in Norway, Sweden, and Finland than on average in the EU. In 2005 prices were still 50 percent higher in Norway but about 15 per cent higher in Sweden and

²⁷ Fredric S. Miskhin (2006). *The Next Great Globalization: How Disadvantaged Nations Can Harness Their Financial Systems to Get Rich*, Princeton, NJ: Princeton University Press, (forthcoming).

Finland, which entered the EU in 1995. Prices had, however, already fallen somewhat before the countries entered the union, partly because they reformed their agriculture before joining and partly because of lower value-added taxes on food.

OECD estimates that the prices of agricultural products in Iceland were on average 120 percent higher in the period 2002-2004 than world prices. A comparable figure for the EU was 30 percent. It is estimated that the food bill of the average Icelandic household could drop by as much as 5 percent if the country joined the EU due to lower prices of agricultural products. It is of course possible that the Icelanders could accomplish this without membership in the EU, and without adopting the euro, simply by reforming their agricultural system and allowing more competition from abroad. However, EU membership could provide the necessary political cover for such drastic and probably controversial actions.

The risk premium and interest rates

It is fairly obvious that small currencies like the Icelandic krona are more fragile than big currencies, such as the euro. As a consequence, world capital markets have to charge a higher risk premium on small currencies, other things being equal. As a matter of fact, this is reflected in credit default swap spreads (CDS spreads) that the Icelandic credit system enjoys.

Until recently risk was not properly priced in financial markets. For example, the CDS spread on Icelandic bank bonds was only around 20 basis points, which meant that you could buy Icelandic bank bonds and a 20 basis point insurance in the credit market, and you would have paper bearing approximately the same estimated risk as US treasury bonds. It is obvious that the risk was not priced correctly. In recent months credit markets have started to demand a higher risk premium. At the moment CDS spreads are around 70 basis points, a premium possibly better reflecting the true risk associated with the krona. Furthermore, it is likely that foreign banks will set up subsidiaries in Iceland with this introduction of the common currency, and thereby suppress interest rates even further, some say by an additional 50 basis points.

6. Politics

The literature on optimum currency areas has often neglected the implications of the Lucas critique for the debate. Decision rules of agents in the labour market – as well as the government in power – may vary systematically with changes in the monetary regime; hence, one cannot keep behaviour – such as unions' objective functions and the government's fiscal policy – constant while contemplating giving up monetary authority and joining a single currency.²⁸

Endogenous labour market institutions

Although unions in the private sector in Iceland have in recent years played a fairly constructive role, usually taking macroeconomic factors into account, this may

²⁸ Hochreiter and Winckler (1995) tested the Mundell conditions for Austria in the late 1970s and found that they failed in terms of the asymmetry of shocks, real-wage rigidity and factor mobility. However, in looking at the 1980s and early 1990s, they found that wages (and unit labour costs) behaved differently than in the 1970s in the sense that wage settlements responded to low growth and structural problems in the 1990s but rose at a rate exceeding productivity growth in the 1970s.

change. Also, in recent years public sector unions have been more militant. In a monetary union, labour unions may change their behaviour. Cukierman and Lippi (1999) argue that a centralised labour union that dislikes inflation is likely to restrain real-wage demands with an independent currency in order to keep unemployment down and hence reduce the incentive to inflate. In a monetary union, this tendency is diminished as the union now has less to fear from a supranational central bank. This poses an externality problem: A large union in any member country imposes a negative externality on other countries by demanding higher real wages resulting in higher domestic unemployment. The externality is felt in higher rates of inflation in other countries. Similarly, there is an external benefit to wage moderation by a large, national union. An opposing effect takes the form of a large union in one country being able, through wage moderation, to induce companies to relocate from other countries, hence raising domestic employment and reducing foreign employment. A fall in domestic wages leads over time to an outward shift in the labour-demand schedule, which can later generate both higher wages and employment. This effect would tend to reduce real wages everywhere and raise employment. It is not clear which of the two effects is stronger.

How would EU membership constrain Iceland's government?

Since Iceland's labour market is already quite flexible, incentives for labour-market reforms may not be that important. There are of course Sibert and Sutherland (1997), who argue that the incentive for labour-market reform is likely to be reduced when monetary independence is lost.²⁹ The pressure is reduced in a monetary union because the European Central Bank also takes into account unemployment in other countries. High structural unemployment in one country imposes a negative externality in the form of an inflation bias on other countries, and a low level of structural unemployment in any one country imposes a positive externality on other countries in the monetary union because of a reduced inflation bias. The externality arises because of the centralised nature of monetary policy and the decentralised nature of labour-market policy.³⁰

A counterargument is found in Calmfors (1998), who argues that monetary union would hasten labour market reforms. He starts by assuming that the business cycle could become more severe within the monetary union due to a loss of monetary policy and incomplete price- and wage flexibility. With cyclical unemployment more volatile, pressures for reforms meant to reduce structural unemployment are likely to

²⁹ This occurs if the incentive to inflate is greater at higher rates of equilibrium unemployment because voters do not differentiate between high cyclical and a high structural unemployment – the pressure to inflate is higher at high levels of structural unemployment. For this reason, the pressure to undertake fundamental labour-market reforms is higher in countries that have their own monetary policy, as this is likely to reduce the temptation to inflate.

³⁰ Another argument in the same direction is from Calmfors (1998), who emphasizes the complementarity of labour-market reforms and monetary policy. Successful reforms lead to a fall in equilibrium unemployment, but actual unemployment only gradually converges to this new equilibrium. The speed of adjustment depends on the speed at which real wages can be reduced. This can come about through either an absolute decline in nominal wages and/or an increase in the general price level. Of the two, an increase in the price level is likely to reduce real wages faster as resistance to nominal-wage cuts appear to be endemic in market economies, perhaps because of workers' concern about relative wages. Since an independent monetary policy can be used to reduce real wages through a higher price level, such countries are more likely to embark on reforms.

build if there is increasing marginal disutility of unemployment in the minds of policy makers or labour-market participants. A higher variance of cyclical unemployment reduces expected utility in such a setting but reducing average – or structural – unemployment raises expected utility for a given variance of cyclical unemployment.

A more promising change in the Icelandic government's behaviour would take the form of a more activist fiscal policy – now its discretionary part is quite neutral and automatic stabilisers are left to do the work – and also a greater aversion to publicly planned investment projects, such as those in the energy intensive sectors. Hence the need for an independent monetary policy may diminish if the country joins the EU and adopts the euro, but this might of course be an optimistic view, keeping in mind the current fiscal situation of some member states and the level of the real exchange rate in Portugal, Spain, and Italy.

7. Concluding remarks

We have found, not surprisingly, that Iceland does not satisfy Mundell's optimum currency area criteria; it has asymmetric shocks, imperfect labour mobility, and downward rigidity of money wages. However, Mundell was not oblivious to the gains from a single currency in the form of increased trade and lower transaction costs, quite the contrary. In light of Europe's experience with the euro raising trade volumes, Iceland should benefit from its adoption but could possibly pay the cost in terms of greater employment fluctuations.

The benefits of an independent monetary policy depend on a well-functioning central bank, government bureaucracies and political structures. These might be more difficult to generate in microstates like Iceland. Furthermore, it might be beneficial for Iceland to adopt the European currency to avoid the turbulence surrounding speculations (the carry trade) in international financial markets.

In terms of growth potential and welfare, the euro could be expected to bring lower long-term interest rates, perhaps in the range of 50-100 basis points. This would of course increase capital investment and labour productivity. The euro might lower consumer prices by facilitating a comparison with other euro countries. Not surprisingly, a few firms often dominate markets in microstates, especially when it comes to services. The adoption of the euro might lead to lower domestic prices through not only price comparisons but also the entry of European firms into sectors, such as banking, insurance, and retailing.

In sum, the quality of monetary-policy decision making has to be convincing for anyone to be willing to sacrifice increased trade, lower interest rates, and perhaps lower consumer prices that would likely follow the adoption of the euro. The verdict on this is still out!

References

- Bacchetta, P. og van Wincoop, E. (2000), „Does Exchange-Rate Stability Increase Trade and Welfare?” *The American Economic Review*, 90 (5), p. 1093-1109.
- Baldwin, Richard (2006), “The Euro’s Trade Effects,” European Central Bank, Working Paper Series NO 594 / MARCH 2006.
- Berger, Helge and Volker Nitsch (2004), “Zooming out: The Trade Effect of the Euro in Historical Perspective,” CESIFO Working Paper No. 1435.
- Breedon, Francis and Thórarinn G. Pétursson (2004). “Out in the cold? Iceland's trade performance outside the EU,” Central Bank of Iceland Working Paper No, 26.
- Bun, Maurice, and Franc Klaassen (2002), “Has the Euro Increased Trade?” Tinbergen Institute Discussion Paper, TI 2002-108/2.
- Calmfors, Lars (1998), “Unemployment, Labour-market Reform and Monetary Union,” CESifo Working Paper No. 173.
- Cukierman, Alex and Francesco Lippi (1999), “Central Bank Independence, Centralization of Wage Bargaining, Inflation and Unemployment: Theory and Some Evidence,” *European Economic Review*. 43, p. 1395-1434.
- Demers, M. (1991), „Investment Under Uncertainty, Irreversibility and the Arrival of Information Over Time,” *Review of Economic Studies*, 58, p.333-50.
- De Nardis, Sergio and Claudio Vicarelli (2003) “Currency Unions and Trade: The Special Case of EMU”, *World Review of Economics*, 139 (4), p. 625-649.
- Ethier, Wilfred (1973), “International Trade and the Forward Exchange Market,” *The American Economic Review*, 63 (3)., p. 494-503.
- Herbertsson, Tryggvi Thor and Gylfi Zoega (2005), *Iceland’s Future Monetary Arrangements*, Institute of Economic Studies, University of Iceland.
- Herbertsson Tryggvi Thor and Fredric S. Mishkin (2006). *Financial Stability in Iceland*: Reykjavik, Chamber of Commerce.
- Hochreiter, Eduard and Georg Winckler (1995), “The Advantages of Tying Austria’s Hands: The Success of the Hard Currency Strategy,” *European Journal of Political Economy*, 11, p. 83-111.
- Jónsson, Guðmundur (1999), *Hagvöxtur og iðnvæðing: Þróun landsframleiðslu á Íslandi 1870-1945* [Growth and Development: The Development of the GDP in Iceland,1870-1945], Report No. 3, Reykjavik, National Economic Institute.
- Júlíusson, Árni D., Jón Ó. Ísberg og Helgi S. Kjartansson (editors) (1992), *Íslenskur Söguatlas:Frá 18.öld til fullveldis*. Reykjavík: Iðunn.

- Knack, Stepehn and Omar Azfar (2003), "Trade Intensity, Country Size and Corruption," *Economics of Governance*, Springer Verlag, Berlin/Heidelberg.
- Layard, Richard, Willem Buiters, Christopher Huhne, Will Hutton, Peter Kenen and Adair Turner (2002), "Why Britain should join the euro", KPMG London.
- Micco, Alejandro, Ernesto Stein, and Guillermo Ordoñez (2002), *Should the UK Join EMU?* (Washington: Inter-American Development Bank).
- Miskhin, Fredric S. (2006). *The Next Great Globalization: How Disadvantaged Nations Can Harness Their Financial Systems to Get Rich*, Princeton, NJ: Princeton University Press, (forthcoming).
- Nickel (2003), "Labour Market Institutions and Unemployment in OECD Countries," *CESifo DICE Report* 2/2003 18 Forum.
- Rose, A.K. (2000), „Do Currency Unions Increase Trade? A “Gravity” Approach,” *FRBSF Economic Letter*, Federal Reserve Bank of San Francisco.
- Sibert, Anne and Sutherland, Alan (1997), "Monetary Regimes and Labour Market Reform," CEPR Discussion Papers 1731.
- Steffensen, J. (1958), "Líkamsvöxtur og lífsafkoma Íslendinga" [The Stature and Living Standards of the Icelanders], *Saga* 2, p. 280-308.
- Steffensen, J. (1975), *Menning og meinsemdir* [Culture and Pathologies], Reykjavik, Ísafoldarprentsmiðja.
- Thorarinsson, S. (1961), "Population Changes in Iceland," *The Geographical Review*, p. 519-33.
- Zoega, Gylfi and Thorlakur Karlsson, "Does Wage Compression Explain Rigid Money Wages?" Forthcoming in *Economics Letters*.

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