

Gylfason, Thorvaldur; Wijkman, Per Magnus

Working Paper

Double Diversification with an Application to Iceland

CESifo Working Paper, No. 5386

Provided in Cooperation with:

Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Gylfason, Thorvaldur; Wijkman, Per Magnus (2015) : Double Diversification with an Application to Iceland, CESifo Working Paper, No. 5386, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:

<https://hdl.handle.net/10419/110886>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



Working Papers

www.cesifo.org/wp

Double Diversification with an Application to Iceland

Thorvaldur Gylfason
Per Magnus Wijkman

CESIFO WORKING PAPER NO. 5386

CATEGORY 6: FISCAL POLICY, MACROECONOMICS AND GROWTH
JUNE 2015

An electronic version of the paper may be downloaded

- from the SSRN website: www.SSRN.com
- from the RePEc website: www.RePEc.org
- from the CESifo website: www.CESifo-group.org/wp

ISSN 2364-1428

CESifo

Center for Economic Studies & Ifo Institute

Double Diversification with an Application to Iceland

Abstract

Excessive concentration increases national risk in an uncertain world. This paper views economic and political diversification as an essential aspect of national risk management aimed at promoting efficiency, growth, and welfare. The paper first presents economic and political diversification side by side in a cross-country framework and discusses how they interact and encourage more stable long-run economic growth. Thereafter, the paper considers Iceland as a case study of the intertwined effects of insufficient economic and insufficient political diversification. Dominated for decades by the fishing industry, the Icelandic economy is more diversified than before following the financial crisis of 2008 with tourism now generating more foreign exchange than fisheries. The paper ends with some general policy conclusions.

JEL-Code: F430, O130, O430.

Keywords: diversification, concentration, democracy, Iceland.

Table of contents

1. Introduction
2. Economic diversification
3. Political diversification
4. Recap: Double ascent
5. Not by fish alone: The case of Iceland
6. Conclusion

Thorvaldur Gylfason
University of Iceland
Reykjavik / Iceland
gylfason@hi.is

Per Magnus Wijkman
University of Göteborg
Gothenburg / Sweden
per.wijkman@telia.com

For International Handbook of Economic Diversification Policies.

Final version, 27 May 2015.

The authors thank Gylfi Magnússon and Hans Sjögren for their comments on a version of the text that was presented at the 17th Annual Conference on European Integration organized by the Swedish Network for European Studies in Economics and Business (SNEE) in Mölle, Sweden, 19-22 May 2015.

1. Introduction

Specialization in production for export, as David Ricardo pointed out, generates gains from trade. However, there can be too much of a good thing. First, specialization can excessively concentrate economic activity, thereby increasing macroeconomic risk and volatility and undermining economic growth (Aghion and Banerjee, 2005). If the specialized sector is too dominant, its problems may inflict extensive damage on the rest of the national economy. Economic diversification reduces this risk. Second, the specialized sector can have significant adverse spillover effects on other industries. This risk is greater for industries based on natural resources generating rents than for those based on human capital or social capital. The negative externalities, manifest in many countries, include rampant rent seeking, repeated bouts of the Dutch disease and distortions of the political system. In the words of Michael Spence *et al.* (2008, 8-9):

Economies blessed with abundant oil, minerals, or other natural resources should be able to invest the “rents” or proceeds at home, raising their growth potential. But the historical experience has most often been the reverse. The pitfalls are well known. Sometimes the state sells extraction rights too cheaply or taxes resource revenues too lightly. Sometimes the money it raises is stolen or squandered by rent-seeking elites and vested interests. When the money is invested, it is not always invested wisely or transparently. And by providing a ready source of foreign-exchange, natural resources can also reduce incentives for diversifying exports, a predicament known as “Dutch disease.” States will improve on this sorry historical record only if they capture an appropriate share of the resource rents; save a judicious amount overseas; and set clear, growth-oriented priorities for absorbing the remainder at home.

Abundant natural resources, if not judiciously managed, may be seized by rent seekers whose forte is the usurpation of wealth, rather than its creation. Abundant natural resource wealth may also breed a false sense of security among politicians as well as the general public, making them feel that it is unnecessary to build up human resources and social capital and to lay a strong foundation for inclusive economic growth.

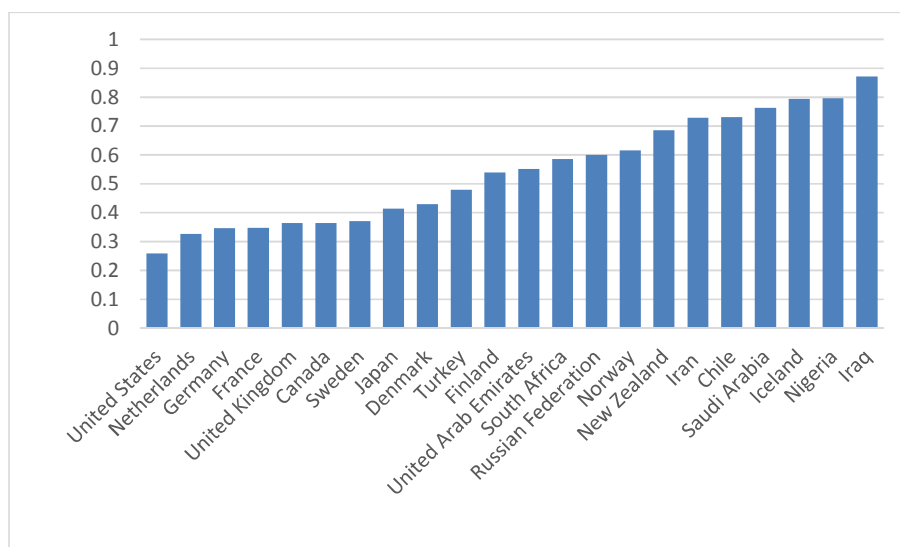
This paper views broadly based diversification as an essential aspect of a national risk management policy aimed at promoting social efficiency as well as economic growth. It argues

that economic diversification away from dependence on a too narrow economic base and, similarly, political diversification away from dependence on a too narrow political base are complementary policies: two sides of the same coin. We first discuss economic and political diversification side by side and demonstrate their relation to long-run economic performance in an empirical cross-country framework. We then apply this analysis to Iceland where the economy used to be dominated by the fishing industry and where economic and political aspects of diversification are intertwined. Today, for the first time, tourism in Iceland generates more foreign-exchange earnings gross than the fishing industry.

2. Economic diversification

Most large open economies export a diverse range of merchandise products to other countries, mostly manufactures. Other countries, especially those specializing heavily in the production of primary commodities for export, often fail to develop other lines of production. Small countries tend to have less diversified and more open economies than large ones.

Chart 1. Herfindahl merchandise-export diversification index 2013



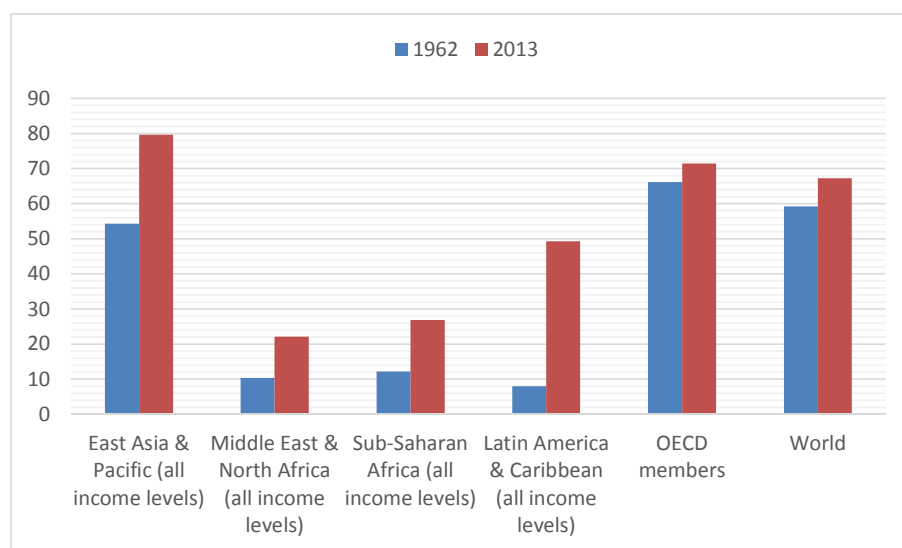
Source: UNCTAD.

Note: The diversification index shows whether the structure of exports by product of a given country differs from the world average. The index ranges from 0 to 1, with values closer to 1 indicating a bigger difference from the world average and hence a relatively more concentrated economy. The index covers only merchandise exports, i.e., exports of goods, not services.

2.1 An international overview of economic diversification

Chart 1 describes different degrees of export diversification by comparing the United States, the United Kingdom, France, Germany, and Canada at one extreme with Chile, Iran, Saudi Arabia, Nigeria, and Iraq at the other. The first group of countries on the left in the chart has an export structure that is rather mainstream, that is, similar to the world average, while the second group on the right in the chart has an export structure that is quite different from the world average – that is, much less diversified. Notice that New Zealand's specialization in agricultural exports makes its export structure less diversified than that of Norway, still among the world's chief exporters of oil. Notice also that Iceland's exports of fish and aluminum render its export structure as concentrated as that of Saudi Arabia and Nigeria.

Chart 2. Share of manufactures exports in total merchandise exports, select years between 1962 and 2013 (%)



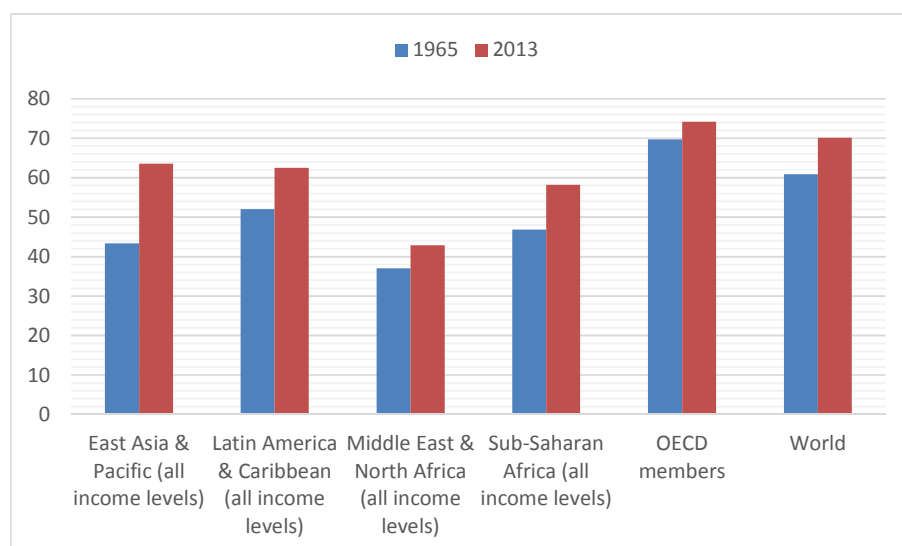
Source: World Bank, World Development Indicators.

Note: The data for East Asia and the Pacific refer to 1964 and 2013, the data for the Middle East and North Africa refer to 1974 and 2010, and the data for Sub-Saharan Africa refer to 1974 and 2013. The membership of the OECD expanded significantly from 1962 to 2013.

Economic diversification, including, in particular, diversification away from agriculture and other primary production toward manufactures and services, is on the rise around the world. Chart 2 describes the rise of manufacturing exports since 1962, highlighting the spectacular expansion of manufacturing exports in Latin America. This is good for growth because increased diversification of the product composition of merchandise trade reduces risk and

enhances efficiency – that is, the amount of output that can be squeezed out of given inputs (Gylfason, 1998, Ch. 4) – and also because manufacturing has proved to be a reliable source of innovation and spillovers benefitting service industries that claim a steadily higher proportion of world GDP. To stress the point, Chart 3 describes the rise of the share of services in GDP, showing how the relative size of the service sectors of the emerging economies approaches that of the industrial countries. In countries that have jumped directly from agriculture to services (India is a case in point; see Gylfason (2006) and Panagariya (2008, Ch. 13)), bypassing the development of a strong manufacturing sector, this may or may not be good for growth because of the beneficial spillover effects of manufacturing on technological development and services (Rodrik, 2013).

Chart 3. Share of services, value added, in GDP, select years between 1965 and 2013 (%)



Source: World Bank, World Development Indicators.

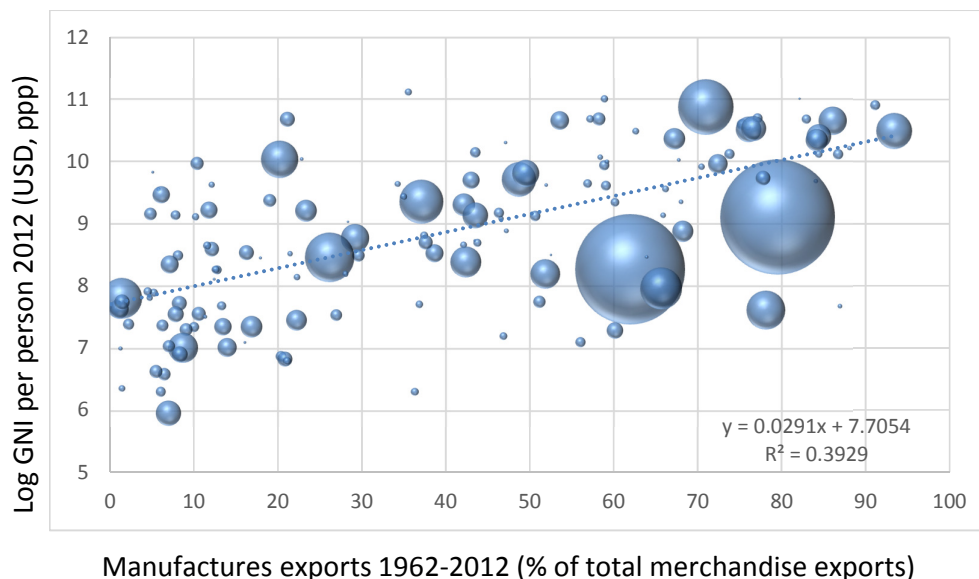
Note: The data for East Asia and the Pacific refer to 1970 and 2012 and the data for the Middle East and North Africa refer to 1980 and 2013. The data for the OECD region and the world refer to 1997 and 2012 and 1995 and 2012, respectively. Presumably some of the increase in recorded services is due to improved service statistics due to outsourcing.

2.2 Diversification of exports

The experience of several East Asian countries since the 1960s suggests that some exports – certain manufactures (e.g., automobiles) and high-tech items (e.g., electronics) – are more conducive to long-run economic growth than others. Therefore, the composition of exports with regard to manufactures and other products matters for long-run growth. We shall test

this hypothesis informally by considering the relationship between Gross National Income (GNI) per capita and two different measures of export diversification.

Chart 4. Exports of manufactures and per capita GNI



Source: Authors' computations based on data from World Bank, World Development Indicators.

Note: The scatterplot shown covers 139 countries, one observation, or balloon, for each country.

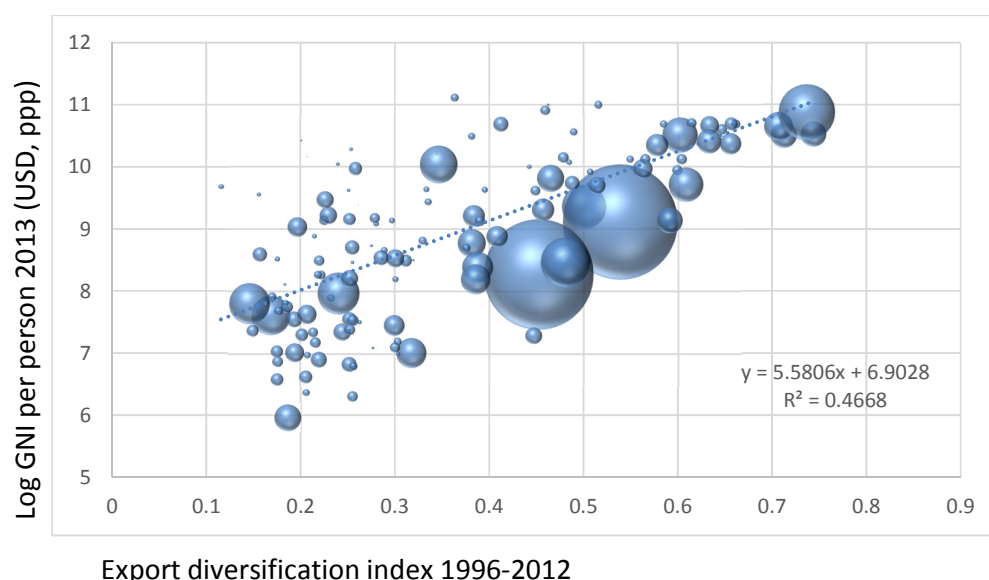
Chart 4, replicated from Gylfason and Nguessa Nganou (2014), illustrates the cross-country relationship between the share of manufactures in merchandise exports and per capita GNI in 139 countries from 1962 to 2012.¹ Each country is represented by a balloon whose size reflects the country's population; hence, India and China are easy to spot in the chart. Here export diversification, shown along the horizontal axis, is measured by the average share of manufactures in total merchandise exports 1962-2012. Growth is represented by the natural logarithm of the purchasing power of per capita GNI in 2012 because the level of current income reflects its rate of growth in the past. The use of only the end-of-period value of per capita GNI for each country rules out reverse causation (i.e., from economic growth to export diversification). The relationship shown is significant in a statistical sense (Spearman rank correlation = 0.62)² as well as in an economic sense. The slope of the regression line (0.029)

¹ In Chart 4 and other scatter plots to follow, all available observations are included. No outliers are left out.

² Rank correlation assigns less weight than ordinary correlation to outliers in the sample of countries under review.

suggests that, for a typical country in the sample, a twenty-point increase in the manufacturing share of exports (e.g., from 40% to 60%) goes along with an increase in real per capita GNI by well over a half (i.e., by 58%), other things being equal. This suggests that export diversification toward manufactures is good for growth.

Chart 5. Export diversification and per capita GNI



Source: Authors' computations based on data from UNCTAD and World Bank, World Development Indicators.

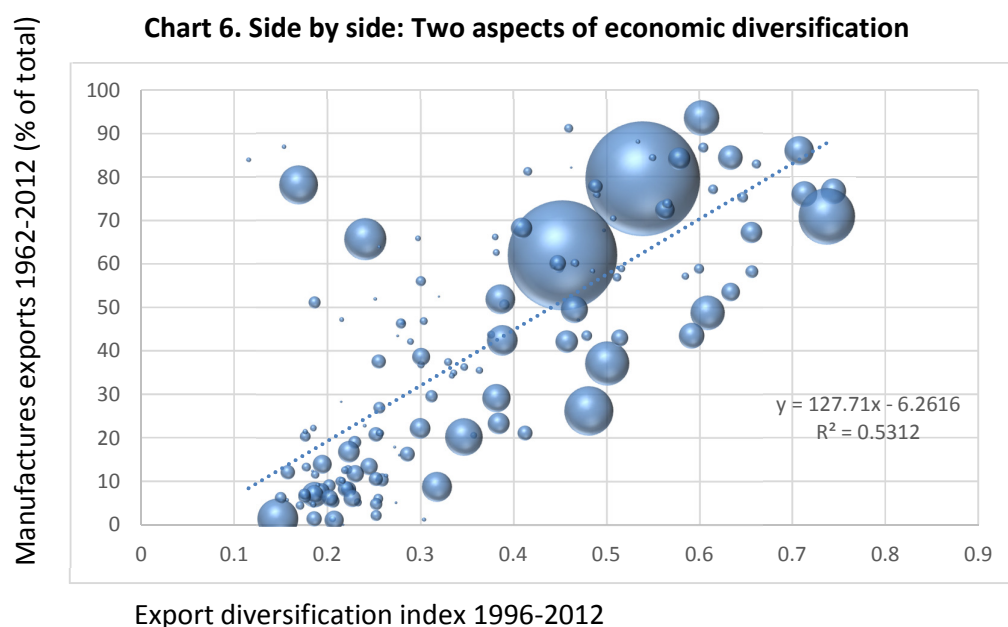
Note: Export diversification is measured along the horizontal axis by one minus the divergence of the structure of a country's merchandise exports from the world average. The higher the index, the greater the diversification of exports.

Chart 5, also replicated from Gylfason and Nguessa Nganou (2014), illustrates the cross-country relationship between export diversification and growth in 128 countries from 1962 to 2012. It tells a similar story as Chart 4. Export diversification, shown along the horizontal axis in the chart, is here measured by one minus the average Herfindahl index for 1996-2012. The Herfindahl index shows the extent to which the structure of exports by product in a given country diverges from the world average. The index ranges from zero to one, with values closer to one indicating a larger divergence from the world average (recall Chart 1). Therefore, the diversification index shown in Chart 5 – i.e., one minus the Herfindahl index – rises with diversification. As before, growth is represented by the natural logarithm of the purchasing power of per capita GNI in 2012. The relationship shown is significant in a statistical sense

(Spearman rank correlation = 0.67) as well as in an economic sense. The slope of the regression line (5.58) suggests that, for a typical country in the sample, a twenty-point increase in the export diversification index (e.g., from 40% to 60%), corresponding roughly to the difference between Russia's 0.40 and Japan's 0.59 (again, recall Chart 1), goes along with an increase in real per capita GNI by more than a factor of two (i.e., by 112%), other things being equal. Also this measure of diversification suggests that export diversification is good for growth.

2.3 The two measures of diversification compared

Our two measures of export diversification are closely correlated as shown in Figure 6 covering 140 countries (Spearman rank correlation = 0.71). This suggests that either one can be used as a measure of export diversification in empirical work.



Source: Authors' computations based on data from UNCTAD and World Bank, World Development Indicators.

The argument for economic diversification rests on the well-understood need to avoid unnecessary exposure to macroeconomic risk (Gelb, 2011). It is supported by the need to avoid excessive concentration which can reduce competition and lead to oligopolistic inefficiency as well as expose an economy to shocks. This is why dependence on a few natural resources, for example, has proved problematic for many countries, resulting in

macroeconomic volatility and sluggish growth. We conclude that diversification of exports is essential for economic prosperity.

3. Political diversification

We next suggest that a similar argument supports the need for political diversification. If the prime responsibility for political decision-making is vested in self-sustaining ruling elites that are shielded from effective competition in the political arena, this concentration of political power can have damaging effects on political life as well as on the economy. Institutions such as free elections, free press, independent courts, a non-corrupt and professional civil service and transparent governance are necessary to expand civil liberties and political rights and ensure healthy electoral competition. Thus, political diversity in the form of competitive political advocates is essential for effective governance just as economic diversification in the form of competitive industries is essential to reduce the risks associated with economic concentration. We shall first consider the expansion of political and democratic rights in recent decades around the world and thereafter note the relationship between these rights and economic standards of living.

3.1 The advance of freedom in the world

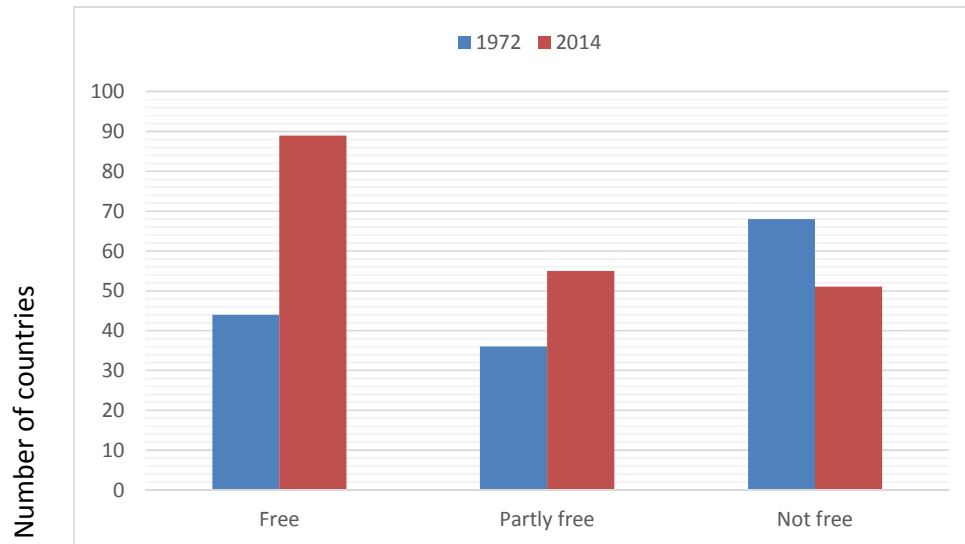
Like economic diversification, political diversification has been on the rise around the world. Europe had only five democratic states in 1943: Iceland, Ireland, Sweden, Switzerland, and the United Kingdom.³ Chart 7 demonstrates the advance of freedom as measured by indices of civil liberties and political rights in 205 countries compiled by Freedom House since 1972. Each country score is based on two numerical ratings – each from 1 to 7 – for political rights and civil liberties, with 1 representing the most free and 7 the least free. Countries scoring from 1 to 2.5 are classified as Free, those scoring from 3 to 5 are classified as Partly Free, and those scoring from 5.5 to 7 are classified as Not Free. About 50 countries remain Not Free.

Chart 8 uses the same data as Chart 7 but shows the trend over time in the average scores of 200 countries toward more civil liberties and political rights. The average improvement from 4.2 to 3.3 for civil liberties and from 4.5 to 3.3 for political rights is quantitatively

³ The Polity IV Project classifies Finland as fully democratic from 1944 onward. Switzerland granted women the right to vote in 1971.

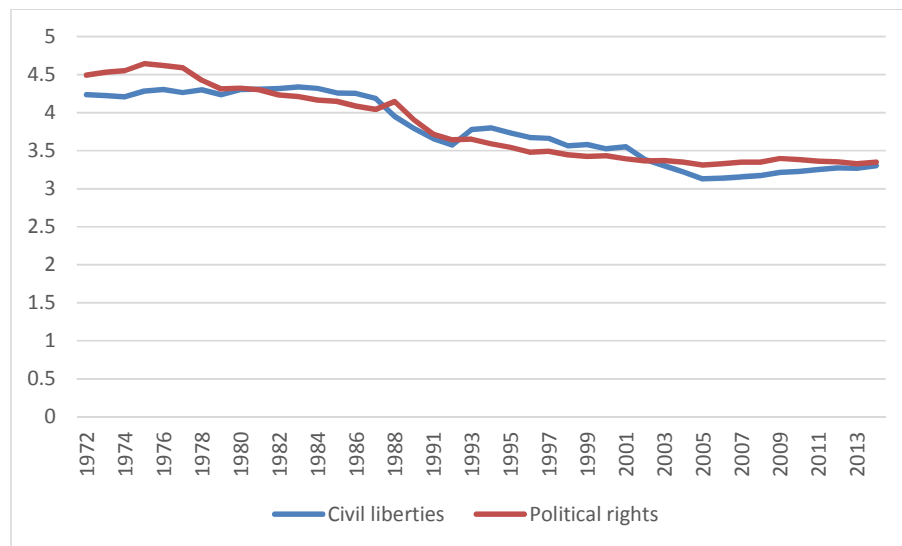
significant on a scale from 7 to 1. The consistent improvement ceases after the turn of the century. While the number of countries classified by Freedom House as Free has doubled from 44 in 1972 to 89 in 2014 (Chart 7), that number too has been stagnant since 2002. Several countries have become more democratic, true, but others have slid in the other direction, including Bangladesh, Kenya, Russia, Thailand, and Turkey (Diamond, 2015).

Chart 7. Civil liberties and political rights 1972 and 2014



Source: Authors' computations based on data from Freedom House.

Chart 8. Civil liberties and political rights again 1972-2014

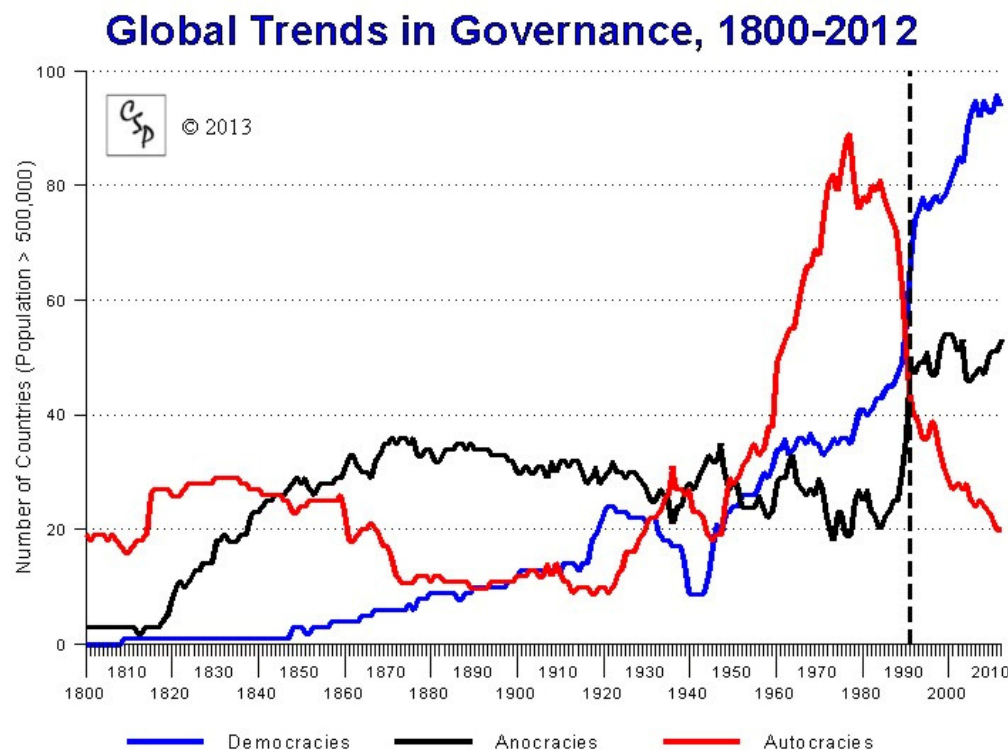


Source: Authors' computations based on data from Freedom House.

Note: Low scores indicate good performance.

Another measure of democracy is the Polity IV Project's Polity2 variable which reflects the characteristics of democratic and autocratic authority in governing institutions rather than discrete and mutually exclusive forms of governance. The Polity2 variable spans a spectrum from fully institutionalized autocracies through mixed authority regimes to fully institutionalized democracies on a 21-point scale ranging from minus ten (hereditary monarchy) to plus ten (consolidated democracy). Countries are classified as democratic if their Polity2 score is larger than or equal to plus six, as neither democratic nor autocratic ("anocracies") if the score lies from plus five to minus five, and as autocratic if their score is smaller than or equal to minus six.

Chart 9. Global trends in governance 1800-2012



Source: Center for Systemic Peace, Polity IV Project.

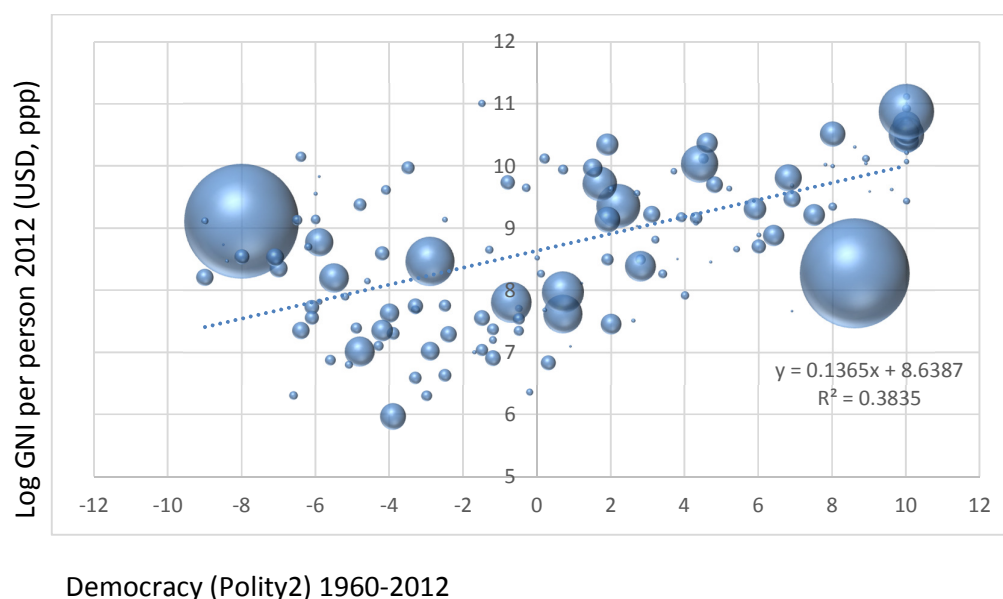
Figure 9 shows that, since 1990, the advance of democracy around the world has gone along with a decrease in the number of autocracies while the number of anocracies has remained about the same. The number of autocratic regimes began its descent some time before the

collapse of communism in East and Central Europe in 1989-1991. The number of democracies stagnated after 2003. Charts 7-9 describe the political equivalent of the economic diversification illustrated in Charts 2-3.

3.2 The economic effect of democracy

Just as economic diversification spurs growth by transferring labor from low-paying jobs in low-skill-intensive farming and mining to more lucrative jobs in more high-skill-intensive occupations, political diversification can boost growth by redistributing political power from narrowly based ruling elites to broader segments of the people. Replacing a group's monopoly on political power by democracy and pluralism means promoting electoral competitiveness, openness and popular participation. This can be viewed as an investment in social capital, strengthening as it does civil society and promoting good governance and societal institutions that people can trust (Paldam, 2000). This section attempts to assess the economic effects of democracy. As in Section 2 we use two standard measures of democracy, one from Polity IV Project and the other from Freedom House.

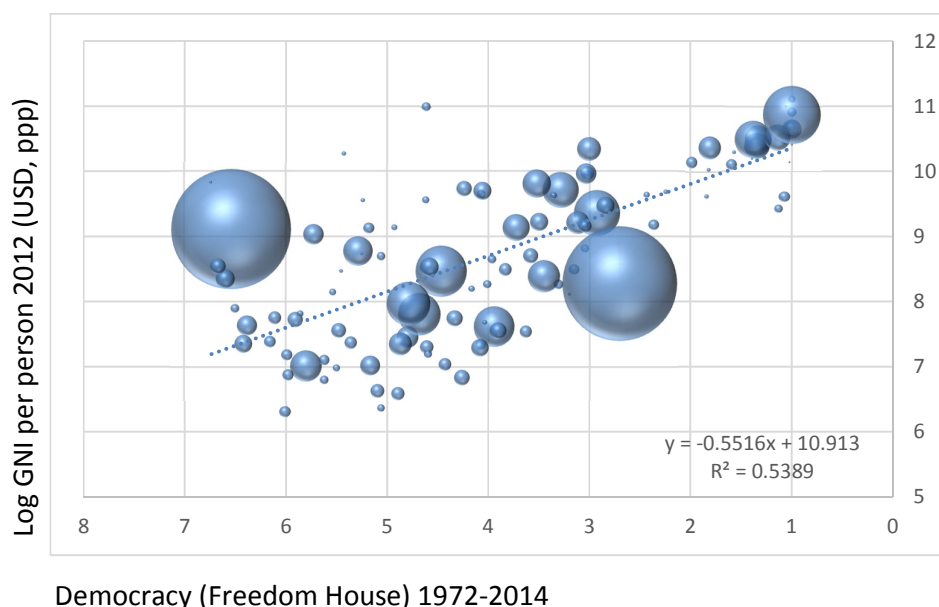
Chart 10. Polity2 index of democracy and per capita GNI



Source: Authors' computations based on data from Polity IV Project and World Bank, World Development Indicators.

Chart 10, reproduced from Gylfason and Nguessa Nganou (2014), illustrates the cross-country relationship between economic growth and political diversification through democracy in 139 countries from 1960 to 2012. Democracy is measured by the average of the Polity2 variable in each country over the sample period, 1960-2012. Reflecting the possibility that an undemocratic past can have lingering effects, we use the period average of the democracy index rather than its value at 2012. As in Charts 4-5, growth is represented by the logarithm of the purchasing power of per capita GNI in 2012 to rule out reverse causation from growth to democracy. The relationship is significant in a statistical sense (Spearman rank correlation = 0.62) as well as in an economic sense. The slope of the regression line (0.14) suggests that a four-point increase in Polity2 (e.g., from 4 to 8) goes along with an increase in real per capita GNI by a bit more than a half (i.e., by 56%). This is a significant impact.

Chart 11. Freedom House index of democracy and per capita GNI



Source: Authors' computations based on data from Freedom House and World Bank, World Development Indicators.

Note: Civil liberties and political rights increase from left to right along the horizontal axis.

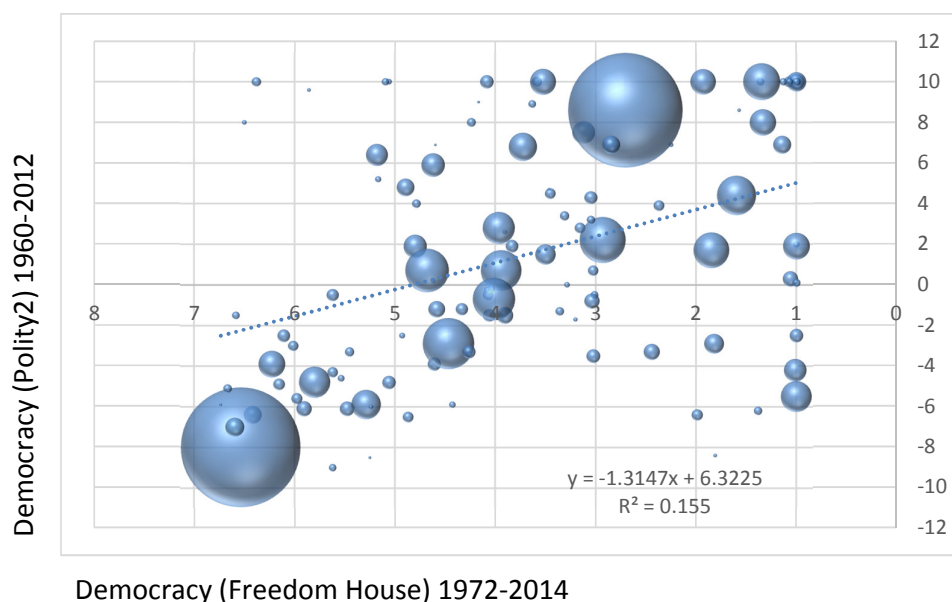
Chart 11 tells a similar story as Chart 10. It illustrates the cross-country relationship between the average value of Freedom House's indices of civil liberties and political rights during 1972-2014 displayed in Chart 8 and per capita income in 2012 in 111 countries. The Spearman rank correlation is 0.73. The slope of the regression line (0.55) suggests that a one-point increase

in the Freedom House index goes along with an increase in real per capita GNI by a bit more than a half (i.e., by 55%). Like in Chart 10 where an increase in the democracy index spanning about one-fifth of the scale from -10 to +10 goes along with an increase in per capita GNI by a bit more than a half, in Chart 11 an increase in the democracy index spanning one-sixth of the scale from 7 to 1 goes along with an increase in per capita GNI by a similar amount. This is an indication that “democracy matters,” also for economic outcomes.

3.3 Side by side

Charts 10 and 11 feature two different democracy indices but provide strikingly similar results. The two indices are fairly closely correlated as shown in Chart 12 which covers 109 countries. The Spearman rank correlation equals 0.41, and is statistically significant given the sample size of 109.

Chart 12. Side by side: Two aspects of political diversification

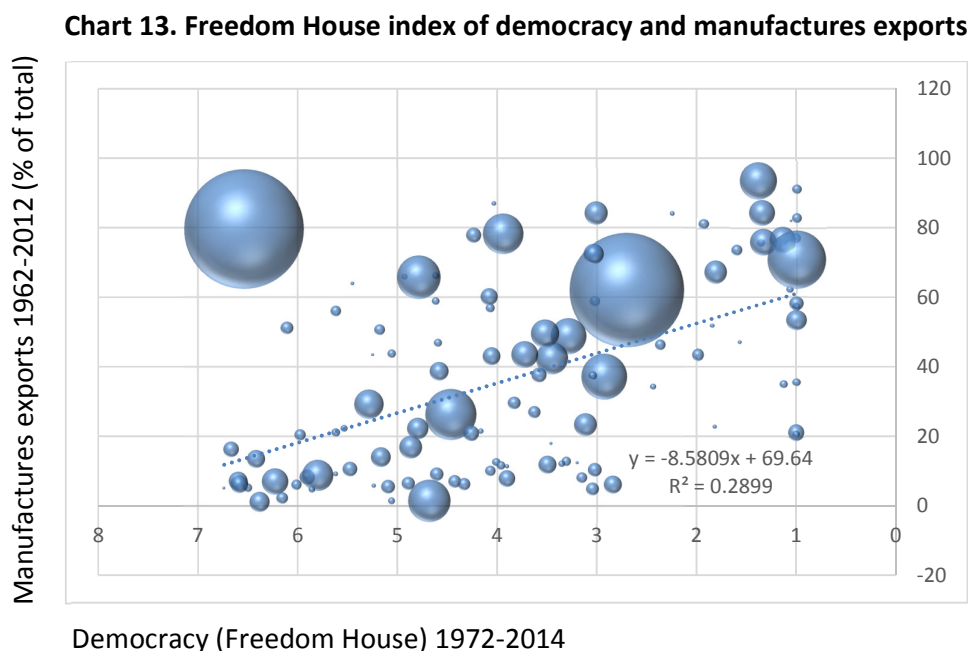


Source: Authors’ computations based on data from Freedom House and Polity IV Project.

Note: Civil liberties and political rights increase from left to right along the horizontal axis.

Notice also the broad similarities between the patterns shown in Charts 4-5 and Charts 10-11 where, in each pair of charts, we see a clear tendency for our two different measures of diversification to go hand in hand with per capita GNI in 2012, our indicator of economic

growth in the preceding decades. The cross-country patterns are similar for economic diversification in Charts 4-5 and for political diversification in Charts 10-11. Each of the two economic diversification indices in Charts 4-5 is fairly closely correlated with each of the two political diversification indices in Charts 10-11. We should consequently not be surprised that the index of civil liberties and political rights shows a high correlation with measures of export diversification.



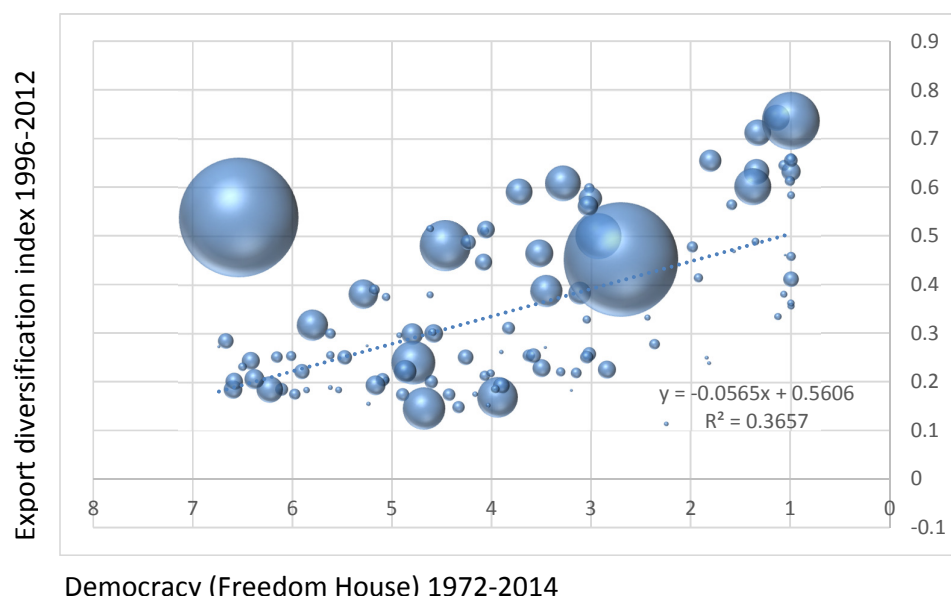
Source: Authors' computations based on data from Freedom House and World Bank, World Development Indicators.

Note: Civil liberties and political rights increase from left to right along the horizontal axis.

Chart 13 shows the cross-country correlation between the Freedom House index of democracy and manufactures exports in 109 countries for which data are available (the Spearman rank correlation is 0.53). Likewise, Chart 14 shows the cross-country correlation between the Freedom House index of democracy and the Herfindahl export diversification index in 110 countries (Spearman = 0.56).⁴ The bottom line is invariably the same: Economic diversification and political diversification go together.

⁴ Corresponding charts showing the cross-country correlations between the Polity2 index of democracy, manufacturing exports, and the Herfindahl index are presented in Gylfason and Ngnessa Nganou (2014, Fig. 7).

Chart 14. Freedom House index of democracy and export diversification



Source: Authors' computations based on data from Freedom House and UNCTAD.

Note: Civil liberties and political rights increase from left to right along the horizontal axis.

4. Recap: Double ascent

To recapitulate, we have argued that economic diversification and political diversification are both good for growth. Furthermore, they go hand in hand across countries: The more diverse the economy, the more diverse the political structure and *vice versa*. If the absence of democracy enables rent seekers to hold back economic as well as political diversification, the advance of democracy – that is, political diversification – creates conditions for economic diversification. As in finance, effective diversification of economic activity requires production to be dispersed with a reasonable weight distribution across several different sectors whose ups and downs are inversely correlated and thus even each other out. Similarly, risk is reduced if different political parties compete for electoral support. Diversity is not enough, however. Even well-diversified nations and regions – e.g., the United States during 2007-2013 and the Nordic countries during 1989-1994 – experience crises. Arguably, though, the recent US crisis can be attributed in part to intensified power concentration (i.e., decreased political diversity) manifest in the increasing role of money in politics or perhaps even deeper flaws (Levinson, 2006). In contrast, having learned their lesson from 1989-1994, the Nordic countries other than Iceland escaped relatively unscathed from the recent crisis.

Economic diversification and democracy are on the rise around the world. We have already mentioned the transformation of Europe from five democracies in 1943 to full house today. Among the ten Spanish or Portuguese-speaking countries of Latin America, the number of democracies (countries with Polity2 scores from 6 to 10) grew from three in 1961 to eight in 2012 (source: Polity IV Project), while the share of manufactures in total merchandise exports rose from 8 percent to 46 percent (recall Chart 2). A similar pattern is observed in other regions but not in Europe and Central Asia where manufactures now comprise about 70 percent of total exports as they did already 50 years ago.

On the whole, the double ascent of economic diversification and democracy bodes well for general prosperity and growth. Even so, there are signs in several countries of insufficient diversification on both fronts and even reversals in some cases. Russia is an unsurprising case in point where a 50 percent drop in oil prices in world markets made the ruble lose a half of its value in 2014 mainly due to the Russian economy's excessive dependence on oil exports. Meanwhile, in Norway next door the krone only lost a sixth of its value thanks to Norway's judicious management of its oil wealth. Next, however, we shall present a surprising case of insufficient economic diversification in Europe: Iceland.

5. Not by fish alone: The case of Iceland

Since acquiring Home Rule in 1904 as a nation of peasants where economic life had stood still for centuries, Iceland has developed into a modern market economy evidencing some of the problems described in the preceding section associated with "double concentration." This section describes Iceland's dependence on natural resource exports, the overrepresentation of these natural resources in the political process, the industry capture of economic policy and institutions and the consequent problems of inflation and inefficiency.

5.1 Insufficient economic diversification

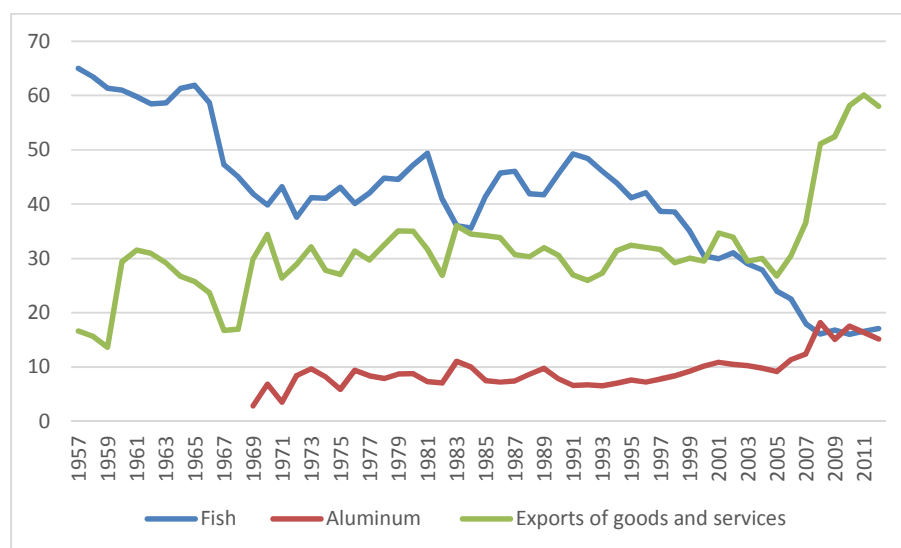
Through the ages, Icelandic waters were full of fish. With the mechanization of fishing vessels, the education and training of the labor force, and the gradual extension of Iceland's economic jurisdiction to 200 nautical miles⁵ in the 20th century, fish became a significant export commodity. Export earnings matter a great deal for small countries enabling them to import

⁵ 200 nautical miles equal 230 miles or 370 kilometers.

many goods and services from abroad. Iceland's population is only 330,000.

Chart 15 describes the evolution of Icelandic exports since the late 1950s. In 1957, fish products constituted more than 90 percent of merchandise exports and accounted for 65 percent of total exports of goods and services. The share of fish in total merchandise exports hovered around 40-50 percent in the 1970s and 1980s and thereafter dropped little by little to 17 percent in the mid-2000s. This computation takes merchandise exports to equal exports of goods. On this assumption, the share of fish exports in total exports of goods and services shown in Chart 15 is defined as the share of fish exports in merchandise exports times the share of the exports of goods in total exports of goods and services. Statistics Iceland has made a poor job of documenting foreign trade in services despite the rapid rise of such trade. Chart 16 reports a higher share of fish in total exports, 26 percent in 2013 (the discrepancy may be related to the conversion described above).

Chart 15. Iceland: Level and composition of exports 1957-2012 (%)



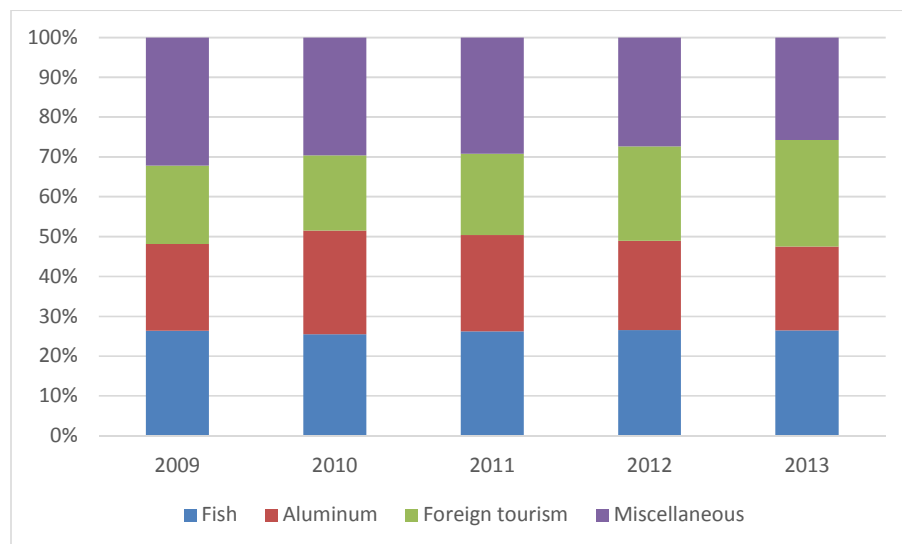
Source: Authors' computations based on data from Statistics Iceland.

Note: Fish exports and aluminum exports, including ferrosilicon, are expressed as a percentage of total exports of goods and services which, in turn, are expressed as a percentage of GDP.

The decline in the share of fish in exports and GDP was a natural consequence of conservation measures taken in the mid-1980s when fish stocks appeared close to collapsing due partly to overfishing. The government, in response, began issuing catch quotas based on the concept of maximum sustainable yield. With a fixed, quota-bound tonnage of fish in the numerator of

the ratio and gradually expanding total exports in the denominator, it was natural for the share of fish products in total exports to dwindle over time.

Chart 16. Iceland: Composition of export earnings 2009-2013 (%)



Source: Authors' computations based on data from Statistics Iceland.

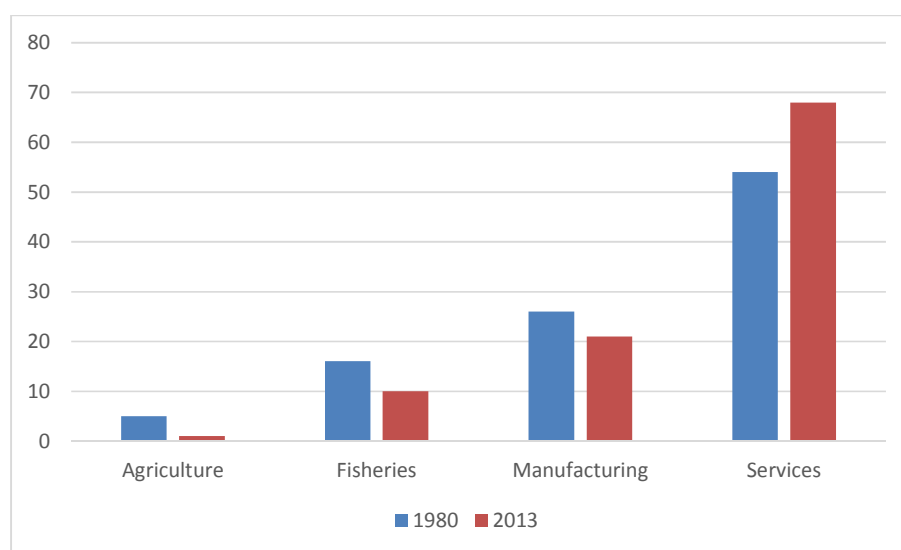
Note: Fish exports, aluminum exports, including ferrosilicon, and foreign-exchange earnings from tourism are expressed as a percentage of total exports of goods and services.

Together, fish and aluminum account at present for a total of a third of export earnings (Chart 15) or a half (Chart 16). Exports of goods and services doubled as a proportion of GDP following the depreciation of the Icelandic króna by a third in real terms before and after the financial crash of 2008. This was a textbook example of a currency depreciation that boosted export earnings and slashed imports, thereby closing the huge deficit in the balance of payments that had developed as a counterpart to the financial capital inflows preceding the crash of 2008 (Gylfason and Zoega, 2014). Thus, natural-resource-based exports (fish, aluminum, and ferrosilicon) fell from 65 percent of total exports in 1957 to 34 percent (or 48%, Chart 16) in 2012.

Iceland has diversified away from fisheries primarily as a result of the growth of services, in particular foreign tourism, to nearly 70 percent of GDP, close to the OECD average (Chart 17). No longer a fish-based economy or even a natural-resource-based economy, Iceland has developed into a diversified service-oriented economy with a tiny manufacturing sector apart from aluminum and ferrosilicon. Except for artificial limbs, computer games, fish processing

equipment, and generic drugs, Iceland's exports are on the whole remarkably low-tech. The diversification away from fisheries was not the result of deliberate government policy. Rather, it was market-induced. Deliberate economic diversification would probably have been more conducive to lasting success than the accidental, incomplete economic diversification that took place, and would, moreover, have been more likely to be accompanied by commensurate political diversification to which we now turn.

Chart 17. Iceland: Composition of GDP 1980 and 2013 (% of GDP)



Source: Statistics Iceland.

5.2. Insufficient political diversification

Iceland was an overwhelmingly agricultural society until 1900, more so than much of the rest of Europe. This meant that the Icelandic Parliament,⁶ even following Home Rule in 1904, was under the control of farmers. To protect their turf, farmers wrote electoral laws granting voters in rural areas disproportionate influence in parliamentary elections. This was done through a blatant form of gerrymandering – that is, by dividing the country into electoral constituencies such that in the emerging towns, including the capital Reykjavík, it took up to four times as many votes to elect a member to Parliament as it took in rural constituencies. In one election, for example, the Progressive Party, the party of the farmers, obtained a majority in Parliament with only 33 percent of the popular vote. As a result of this electoral bias, the

⁶ Parliament was established in 930, and is one of the world's oldest legislative bodies.

minority of voters left behind in rural areas as people flocked to the emerging fishing towns around the coast as well as to Reykjavík, retained a majority or at least a disproportionate influence in Parliament. This imparted a provincial, inward-looking bias to policy making.

This bias persists, even if it has diminished with time through piecemeal and marginal constitutional reform. Today it takes about two times as many votes to elect a member to Parliament in the Reykjavík area where two thirds of the country's electorate resides, as it takes in rural areas.

The disproportionate political influence of rural residents has manifested itself in a protectionist farm policy regime, restricting since the 1920s imports of farm commodities that could compete with local produce, mainly dairy products and meat. These import restrictions, still largely intact, reduced the demand for foreign exchange as import restrictions are wont to do, thus imparting an upward bias to the exchange value of the króna.⁷ More importantly, however, as the 20th century progressed and the fishing industry bypassed agriculture as Iceland's main economic activity, the fisheries began to share in the political clout that had earlier been the prerogative of the farm lobby. Hence, the privileges accorded agriculture through import protection, generous farm subsidies, subsidized credits from state banks, and so on were extended to the fishing industry. A telling sign of this arrangement is the names given to two of the country's three large state banks from the 1930s onward: Agricultural Bank and Fisheries Bank. In 1960, subsidies to the fishing industry absorbed 43 percent of government outlays, prompting a new reform-minded government to slash the subsidies to 3 percent of government outlays and to compensate the fishing industry by a big devaluation of the króna. This switch, necessary though it was, set a precedent for repeated devaluations to shore up the profitability of the fishing industry, thereby reducing its financial self-responsibility and cost consciousness.⁸ If costs became too high or profits too low, the government could be counted on to devalue the króna.

The devaluation cycles were in part a symptom of the scourge of overvaluation resulting even more strongly from the government's generous support of the fisheries sector than from the farm policy regime. Just as farm protection increases the exchange value of the domestic

⁷ True, agriculture uses imported inputs. The magnitude of the net effect of farm import restrictions on the exchange rate has never been investigated, and remains unknown.

⁸ Not so long ago, when asked how his fishing firm was doing, its CEO responded: Very well, thank you, except financially.

currency by reducing the demand for imports, government subsidies to fish exports, overt or not, increase the exchange value of the currency by encouraging export supply.

5.3 Inflation bias and overvaluation

Insufficient economic and political diversification helps to explain the systemic overvaluation of the Icelandic króna. The long-standing excessive political clout of farmers – that is, of agriculture and later also fisheries⁹ – impacted economic policy.

Iceland is unique among high-income countries in that the exports-to-GDP ratio was stagnant from 1870 (this is not a misprint) until the crash of 2008. The main reason for the failure of exports to grow more quickly than domestic output, which is the general rule around the world, is a systemically overvalued currency which, whether under a fixed exchange-rate regime or under flexible rates, restrained exports and, by design, kept imports artificially inexpensive. Such an overvaluation strategy is or at least used to be commonly observed in developing countries, and helps to explain persistent current account deficits and the attendant accumulation of external debts.

Iceland has had the second highest inflation rate in the OECD region since 1960, second only to Turkey. High inflation is an independent source of systemic overvaluation. Since 1939, Icelandic króna has lost 99.95 percent of its value *vis-à-vis* the Danish krone. When inflation reached 83 percent in 1983 and the government decided to clamp down on inflation by, among other things, introducing price indexation of financial obligations to bring real interest rates above zero, the fishing industry was compensated by the introduction of a system of catch quotas allocated free of charge to vessel owners based on arbitrary rules considered by many to be discriminatory. On grounds of efficiency and fairness a number of economists and others had advocated a market-friendly regulation of the fisheries either through fishing fees or quota auctions with revenues accruing to the citizen-owners of the common resources (for early warnings in English, see Wijkman 1976, 1982), but their advice was not heeded. Instead, one form of subsidy was thus replaced by another. The original quota legislation is known to have been drafted in the offices of the Vessel Owners Association. By a stroke of the pen,

⁹ Agriculture and fisheries have always been viewed as separate occupations in Iceland even if fishing began as the extracurricular activity of farmers sending their farm workers out to sea in small boats, and did not emerge as a separate activity until the 20th century when bigger, mechanized boats had entered the scene.

parliament produced a class of local oligarchs – billionaires – by granting them free access to a hugely valuable common property resource, a controversial decision from the outset that has had important political ramifications to which we now turn.

5.4 Capture of the constitution by vested interests

The system of gratis quota allocations turned a dispersed natural resource – i.e., fish – into a concentrated one like oil, with all the potential for political capture and cartelization that implies. Iceland's situation contrasts starkly with that of Norway which, unlike Russia, for example, has managed its oil wealth in a way that has not created a class of oligarchs in Norway. The word "oligarch" is never heard in Norwegian political debate. In Iceland, on the other hand, the words "quota king" and "quota queen" are commonly used in political discourse, for a good reason. Iceland has not managed to avoid the pitfalls that Norway has so effectively stayed clear of. While Norway's democratic credentials have not in any way been adversely affected by its discovery and export of oil since 1970, Iceland's discriminatory management of its fishing industry has thrown Iceland's standing among fully democratic European nations into question.

In 2007, the United Nations Committee on Human Rights issued a binding opinion instructing Iceland to remove the discriminatory element from its system of fisheries management and to pay damages to the two fishermen who brought their complaint before the committee. The Icelandic government responded by promising a new constitution with a provision on natural-resource management declaring that Iceland's natural resources belong to the people without any discrimination.

After the crash of 2008, parliament resolved to initiate revision of the 1944 constitution of Iceland, a 70-year old promise that parliament had failed to keep (Gylfason, 2013). A constituent assembly elected by the nation drafted a constitution bill containing, among other reforms, provisions on equal voting rights (one person, one vote, no gerrymandering) as well as on national ownership of natural resources, stipulating that "government authorities may grant permits for the use or utilization of resources or other limited public goods against full consideration." In a national referendum called by parliament in 2012, 67 percent of the voters accepted the constitution bill as a whole as well as the provision on equal voting rights and 83 percent of the voters accepted the provision on national ownership of natural resources. Even so, parliament has thus far declined to respect the will of the people as

expressed in the results of the constitutional referendum, the clearest sign to date of the danger of according disproportionate political power to a special interest group. It has never before happened in a democracy that the national legislature fails to adopt the overwhelming result of a constitutional referendum.

The Icelandic parliament's refusal to ratify the new post-crash constitution shows clearly how differently Norway and Iceland have met the challenge laid out at the end of the quote from Spence *et al.* (2008) in Section 1. Norway used its oil wealth to build up an Oil Fund, later renamed Pension Fund to reflect its intended use. At present, the fund exceeds \$800 billion. It is invested overseas, and is the world's largest sovereign wealth fund, equivalent to \$170,000 per person in Norway. Iceland, on the other hand, following its financial meltdown in 2008, carries a crushing debt burden despite abundant fish and energy resources. Export concentration sometimes translates into concentration of political power, a problem that Norway judiciously avoided but Iceland did not (Gylfason, 2015).

Whether Iceland's ongoing economic diversification away from the fisheries through the advance of tourism will be followed by political diversification away from parliamentary subservience to the fishing lobby remains to be seen. A comparison between Iceland and Mauritius may be relevant here. Until the 1980s, Mauritius was a natural-resource-based economy. Its sugar cane industry was the country's main foreign exchange earner (Frankel, 2012). As tourism gained momentum, however, the importance of the sugar industry in economic activity waned and the political clout of the plantation owners declined accordingly. This could also happen in Iceland.

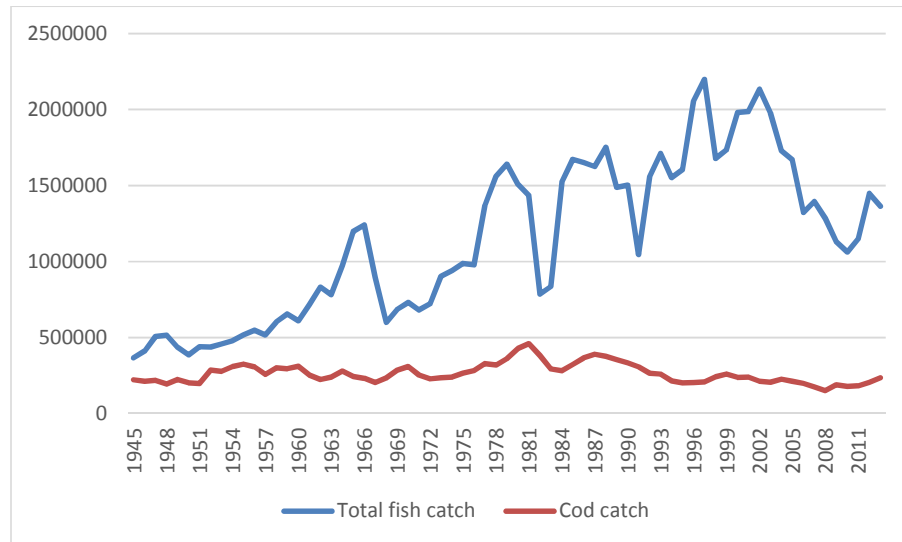
5.5 Failed attempts to pick the winners

We have already described the decline of the share of fish products in total exports as a natural and inevitable consequence of fixed catch quotas in a growing economy. At about 200,000 tons per year, the cod catch in Icelandic waters is today about the same as it was in 1945 even if Iceland's economic jurisdiction was far smaller in 1945 than it is now (cod is Iceland's most valuable fish species). Total fish catches are larger today than in 1945, true, but they are smaller than they were a generation ago, in 1980 (Chart 18).

While the main reason, and a legitimate one, for tight-fisted fish quotas is conservation of imperiled fish stocks, quota holders clearly also have a financial incentive to keep the quota allocations under control so as to increase their value, a strategy well known to many oil

producers. So, the declining weight of fisheries in the Icelandic economy did not result from government strategy but was rather an inevitable outcome dictated mostly by nature.

Chart 18. Iceland: Fish catches 1945-2013 (tons)



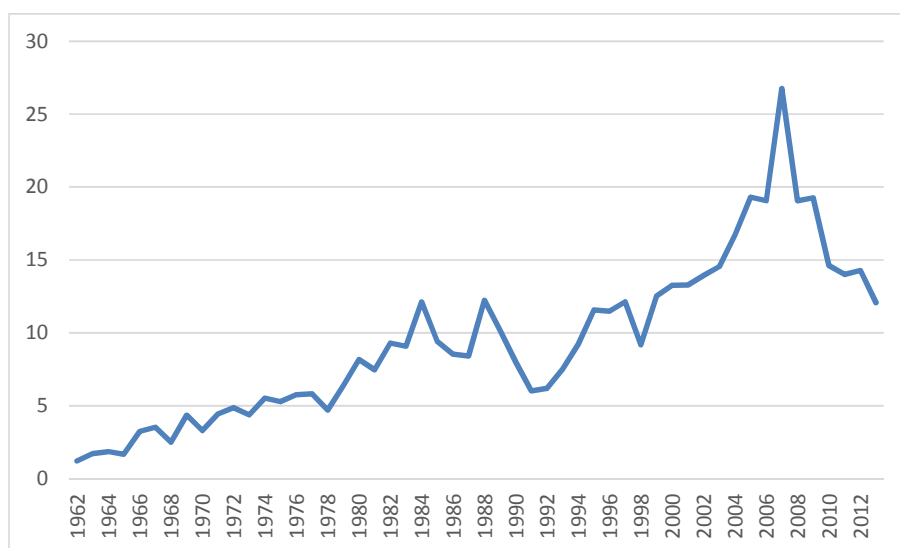
Source: Statistics Iceland.

The government's first strategic response to the decline of the fisheries was to start harnessing waterfalls as well as geothermal energy for use in the production of aluminum and ferrosilicon, energy-intensive products of light weight that are relatively easy to transport as a way of indirectly exporting energy. Plans to harness waterfalls for industrial use in the early years of the 20th century had come to naught partly for environmental reasons, but the decline of the fishing sector induced the government to change its mind in the 1960s. Hence, a new natural-resource-based industry was intended to pick up the slack left by the natural decline of the old one. This was long before problems associated with excessive reliance on natural resources began to attract the attention of economists and policy makers (Sachs and Warner, 1995).

In response to the declining contribution of fish to export earnings, hydropower projects in conjunction with mostly foreign-owned and highly energy-intensive aluminum and ferrosilicon plants were launched in the late 1960s. The share of aluminum and ferrosilicon hovered around 10 percent of total exports until the mid-2000s when their share of foreign-exchange earnings rose to match that of fish products.

From the outset, Iceland's energy sector was mired in controversy for environmental reasons as well as due to opposition to foreign involvement in Iceland's economy and, importantly from an economic perspective, because the price at which the energy was sold to foreign aluminum and ferrosilicon producers was not made public, triggering suspicions that the price was lower than it could have been. One reason why the price may have been low is the habit of Icelandic politicians to prematurely promise aluminum plants and iron smelters to the voters ahead of time, thus undermining the *ex post* negotiating position of the government *vis-à-vis* the foreign firms. Without publicly available information on the price of energy, it is impossible to assess the contribution of the energy sector to Iceland's economy apart from registering its share in export earnings (Chart 16), employment, etc. Only recently, the National Power Company of Iceland began publishing the average price of energy to big industry.

Chart 19. Iceland: Manufactures exports 1962-2013 (% of merchandise exports)



Source: World Bank, World Development Indicators.

There was, on the other hand, no conscious government strategy to support the buildup of manufacturing or services which is why the high-exchange-rate policy remained in place until the crash of 2008. All the emphasis by the government was on energy as a substitute for fish. As a result, manufacturing for the domestic market or for export markets did not have a chance to develop in earnest (Chart 19). While manufactures in neighboring countries typically account for two thirds of merchandise exports, their share in Iceland is far less. At 14 percent

in 2012, the share of high-tech manufactures in total manufactures was lower than in the 1990s when it was 20 percent (not shown). In manufacturing, the cheaper króna after the crash of 2008 was not enough to offset or outweigh the adverse consequences of the crash that made GDP contract by 10 percent during 2008-2009 and resulted in negative net investment – that is, a declining real capital stock – four years in a row, 2009-2012.

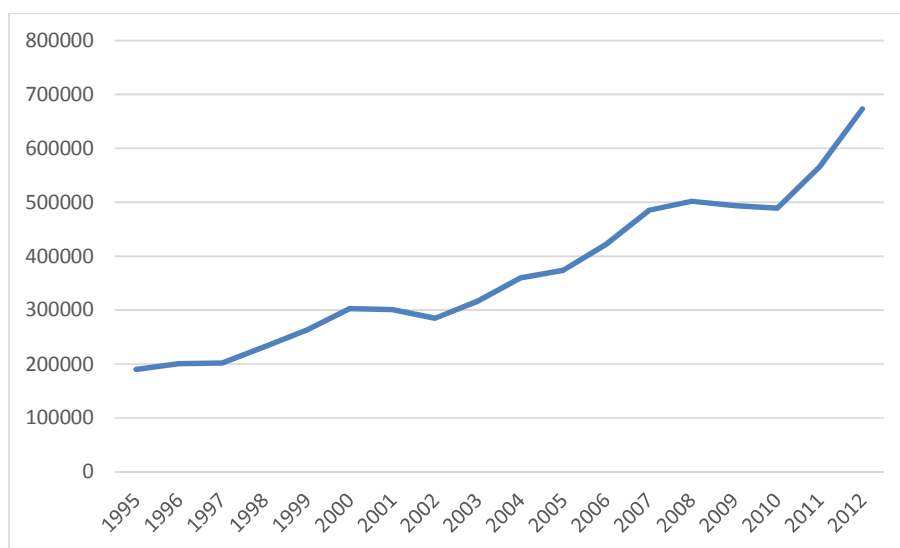
5.6 Growth of tourism – a market response to the cheaper króna

The number of foreign tourists visiting Iceland has risen sharply since 2002, reaching a multiple of the country's population, a rare feat in an international comparison (Figure 20). The rapid rise of tourism was propelled first, in part, by the foreign-credit-driven banking boom before the financial crash of 2008 and thereafter by the collapse of the króna. Tourism in Iceland is not kept in check on environmental or other grounds. There is as yet no limit on the number of tourist arrivals comparable to the catch quotas placing a limit on the number of fish caught each year in Icelandic waters. Tourism, which already generates more foreign exchange each year than the once-dominant fishing industry (recall Chart 16), may in the years ahead permanently surpass the fishing industry as Iceland's main foreign exchange earner. This would provide a strong boost to the domestic economy. Unlike fish exports which are paid for abroad, a significant part of tourism services is paid for on location, at home. Further, tourism seems likely to generate positive externalities, learning by doing and the like, resulting in significant political diversification away from government acquiescence to the densely concentrated fishing industry dominated by a few firms holding much of the catch quotas granted to them by the government virtually free of charge toward diversified tourist-related services which, as experience from other countries shows, usually creates few political problems related to rent seeking and power concentration (Gylfason and Zoega, 2014).

These contrasts notwithstanding, there are some striking parallels. Both tourism and fishing exploit natural resources with attendant risks of overexploitation of common-property resources at public expense. By common consent, access to fishing grounds, a common-property resource by local law as well as by international human-rights covenants, needs to be restricted by market-friendly, nondiscriminatory methods in the interest of efficiency and fairness. Likewise, access by tourists to public infrastructure as well as to natural wonders needs to be regulated to forestall environmental degradation. Specifically, just as catch quotas need to be sold or auctioned off on a level playing field to vessel operators wishing to exploit

the common property resource at sea, with anything less than full price amounting to an implicit government subsidy, admission tickets need to be sold to tourists in one way or another.

Chart 20. Iceland: Foreign tourist arrivals 1995-2012 (number of persons)



Source: World Bank, World Development Indicators.

5.7 Key policy implications of insufficient diversification in Iceland

Iceland's economic diversification away from heavy dependence on export earnings from fisheries was not the result of deliberate government policy. Rather, it was market-induced, and ultimately initiated by a financial meltdown in 2008 that reduced the real value of the Icelandic króna by a third. This created for the first time reasonably favorable economic conditions for new types of exports, especially of tourism services. Further, Iceland's economic diversification has not yet been accompanied by commensurate political diversification. Agricultural and especially fishery interests retain disproportionate political influence. This influence has permeated four important national issues with profound consequences: Electoral laws, fisheries policy, EU accession, and the Icelandic constitution.

Electoral laws. Iceland saw its first written proposal of equal voting rights – i.e., one person, one vote – in 1849, but to no avail. The laws governing elections to parliament were originally written by farmers for farmers, and have to this day remained biased in favor of residents of rural areas at the expense of the inhabitants of the Reykjavík metropolitan area where the bulk of the electorate resides. In recent years foreign monitors of parliamentary elections in

Iceland have repeatedly condemned the continued discrimination among voters inherent in the electoral laws.

Fisheries. Successive governments have long undercharged vessel owners for use of Icelandic fishing grounds. The government granted access to the resources to vessel owners free of charge from 1984 to 2002 when nominal fishing fees were levied on vessel owners. These fees amounted to only a small fraction of the market value of the fishing rights as could be established by competitive auction. While the fishing grounds are by law a common-property resource belonging to the country's citizens, the resource thus benefits primarily the fishermen. Even after the crash of 2008 when the government faced an acute shortage of revenues, it shied away from significantly raising fishing fees.

EU accession. Despite fairly consistent though not strong majority support for EU membership reflected in public opinion polls from the early 1990s until the crash of 2008, Parliament showed no interest in applying for membership or holding a national referendum on the issue except briefly after the crash. Instead, Parliament sided with the farm lobby and the fishing lobby, which feared losing its privileged access to Icelandic fishing waters. At present the Icelandic Parliament shows no interest in joining the European Union.¹⁰ Parliament did not file a membership application until after the crash of 2008 when public opinion had swung against EU membership, partly because some voters blame foreigners, including the EU, for Iceland's home-made financial meltdown and partly because of the EU's current debt problems. The application has been put on hold by the government in office since 2013. The new government has even attempted, unsuccessfully so far, to circumvent Parliament by withdrawing Iceland's application as opposed to just putting it on hold.¹¹

Constitution. Parliament invited the electorate to a national referendum on a new post-crash constitution in 2012. A specially elected constituent assembly had drafted the bill in full accordance with the conclusions of a national forum in 2011, and passed it unanimously. The national forum comprised 950 Icelanders selected at random from the national register, meaning that every Icelander had an equal chance of being invited to participate in the forum.

¹⁰ The parliaments of oil-rich Norway and super-neutral Switzerland are the only other national legislatures in Europe opposed to EU membership, both in accordance with public opinion as expressed in national referenda.

¹¹ A withdrawal without parliamentary consent would, if the EU **were to go** along with such a violation of democratic practice, make it necessary for a new Parliament to restart the application process from square one, securing renewed individual approval by each member country, a tall order.

The bill was accepted by two thirds of the voters in the 2012 referendum as were its most important individual provisions on equal voting rights (67%), national ownership of natural resources (83%), and direct democracy through increased use of national referenda (73%). A majority in Parliament (32 members out of 63) declared in public that they wanted to ratify the new constitution in keeping with the result of the referendum. Yet, Parliament adjourned in 2013 without ratifying the bill, inviting the new Parliament elected in 2013 to put the bill on ice as if no referendum had taken place (Gylfason, 2014). This is an example of how a narrow political base favors special interests at the expense of the general welfare.

6. Conclusion

Economic diversification and political diversification both confer economic benefits through socially productive diversity and pluralism and both reduce macroeconomic risk. A broad industrial base comprising manufacturing, trade, and services confers economic gains that can be compared to the political benefits of checks and balances, accountability, and transparency, the hallmarks of good governance. Economic and political diversification both reduce the risk of macroeconomic damage caused by excessive industrial concentration and insufficient competition. Hence the need to diversify away from agriculture that tends to perpetuate poverty as well as from excessive dependence on natural resources which, if not well managed, tend to stifle or delay the development of modern manufacturing and services. Further, modern economies need democratic pluralism with broad political participation to provide the people with an efficient and fair way of exercising their political will through free elections and to safeguard their human rights. Without democracy, bad governments tend to last too long. The need for political diversification is particularly urgent in some resource-rich countries that often face a double jeopardy – that is, natural wealth that is concentrated in the hands of relatively small elites that seek to preserve their privileges by blocking both economic and political diversification that would disperse their power and wealth (Ross, 2001). Rent-seekers typically resist reforms – economic diversification as well as democracy – that would redistribute the natural resource rents to their rightful owners: the people. A people's right to their natural resources is a fundamental human right proclaimed in international law and enshrined in many national constitutions (Wenar, 2008).

Specialization in production for export is an essential source of economic efficiency and long-run growth. However, excessive concentration of economic activity can, by increasing

national risk and volatility, pose a threat to efficiency, growth, and welfare. Shockwaves in the specialized sector may spread to other parts of the national economy. This risk calls for economic diversification. Likewise, political concentration can amplify national risk by facilitating the adoption of economic policies that favor special interests, disregard common interests and lack economic rationality. Economic and political diversification is thus an essential feature of national risk management aimed at promoting efficiency and growth. Both types of diversification are vital to protecting and promoting national welfare. A narrow economic base as well as a narrow political base each increases the risk of economic losses. Also, they tend to be mutually reinforcing. A modern, service-oriented economy with a well-educated work force is easier to diversify than an agrarian or natural-resource-based economy.

We have provided evidence over time and across countries showing that long-term income growth goes along with diversification of exports and of political institutions, world-wide. Double diversification pays off! We have presented indications that natural-resource based economies are more prone to retain a narrow base than economies based on manufactures or services. More work needs to be done to clarify the pattern of spillover effects across different types of production. More work is also needed to establish the important interactions between economic and political diversification to identify how to establish positive feedbacks with cumulative effects.

Policy prescriptions will differ from country to country depending on each country's history and specific circumstances. We offered a case study of Iceland, stressing the capture of policy by special interest groups made possible by their overrepresentation in the political system. The example of Iceland demonstrates how the failure to diversify exports and other economic activity in time can weaken or even undermine political diversity and ultimately pose a threat to liberal democracy unless the people find a way to prevail in the political arena.

References

- Aghion, Philippe, and Abhijit Banerjee (2005), *Volatility and Growth*, Oxford University Press, Oxford and New York.
- Diamond, Larry (2015), "Facing Up to the Democratic Recession," *Journal of Democracy* 26 (7), 141-155.
- Gelb, Alan (2011), "Economic Diversification in Resource-rich Countries," in Rabah Arezki, Thorvaldur Gylfason, and Amadou Sy, *Beyond the Curse: Policies to Harness the Power of Natural Resources*, International Monetary Fund, Washington, DC, 55-80.
- Gylfason, Thorvaldur (1998), *Principles of Economic Growth*, Oxford University Press, Oxford and New York.
- Gylfason, Thorvaldur (2006), "How Do India and China Grow?," *Challenge* 49 (1), 74-89.
- Gylfason, Thorvaldur (2013), "From collapse to constitution: The case of Iceland," in *Public Debt, Global Governance and Economic Dynamism*, ed. Luigi Paganetto, Springer, 379-417.
- Gylfason, Thorvaldur (2014), "Constitution on Ice," CESifo Working Paper No. 5056, November.
- Gylfason, Thorvaldur (2015), Iceland: How Could This Happen?, Chapter 12 in *Reform Capacity and Macroeconomic Performance in the Nordic Countries*, eds. Torben M. Andersen, Michael Bergman, and Svend E. Hougaard Jensen, Oxford University Press.
- Gylfason, Thorvaldur, and Jean-Pascal Nguessa Nganou (2014), "Diversification, Dutch Disease, and Economic Growth: Options for Uganda," CESifo Working Paper No. 5095, November.
- Levinson, Sanford (2006), *Our Undemocratic Constitution: Where the Constitution Goes Wrong (And How We the People Can Correct It)*, Oxford University Press.
- Paldam, Martin (2000), "Social Capital: One or Many? Definition and Measurement," *Journal of Economic Surveys* 14 (5), December, 629-653.
- Panagariya, Arvind (2008), *India: The Emerging Giant*, Oxford University Press, Oxford and New York.
- Rodrik, Dani (2013), "Unconditional Convergence in Manufacturing," *Quarterly Journal of Economics* 128 (1), February, 165-204.
- Ross, Michael (2001), "Does Oil Hinder Democracy?," *World Politics* 53, April, 325-361.
- Spence, Michael, et al. (2008), *The Growth Report: Strategies for Sustained Growth and Inclusive Development*, Commission on Growth and Development, The World Bank,

Washington, D.C.

United Nations Human Rights Committee. 2007. *International covenant on civil and political rights*, CCPR/C/91/D/1306/2004, 14 December. 14 December.

http://www.ccprcentre.org/wp-content/uploads/2012/12/1306_2004-Iceland.pdf

Wenar, Leif (2008), "Property Rights and the Resource Curse," *Philosophy and Public Affairs* 36 (1), Winter, 1-32.

Wijkman, Per M. (1976), "Comments on the Exploitation of Common Property Natural Resources," *Fjármálatíðindi* 22, No. 2, Central Bank of Iceland.

Wijkman, Per M. (1982), "Managing the Global Commons," *International Organization* 36 (3), June, 511-536.

Wijkman, Per M. (1982), "UNCLOS and the Redistribution of Ocean Wealth," *Journal of World Trade* 1, 27-48.