

# 18

## *A Nordic Perspective on Natural Resource Abundance*

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### 18.1 THE NORDIC COUNTRIES SINCE 1970

This chapter analyses the Nordic countries as relatively late industrializers and asks what evidence there is that resource abundance continues to affect their economic performance. Since about 1970, the Nordic economies generally have grown less rapidly than those of many other industrial countries have. Their living standards have also diverged from one another: they were approximately the same around 1990, but that is no longer the case. In 1997, for example, Norway's ppp-adjusted per capita GNP, the highest in the group, was 28 per cent higher than that of Sweden, the lowest, compared with a difference of less than 1 per cent, in Sweden's favour, in 1990 (World Bank 1999). If we gauge living standards by ppp-adjusted GDP per hour worked, a better measure because it mirrors labour productivity, then we find a 25 per cent difference between Norway and Sweden and Denmark, a 35 per cent difference between Norway and Finland, and a difference of about 50 per cent between Norway and Iceland (Table 18.1).

[Insert Table 18.1 here]

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<sup>1</sup> Richard M. Auty, Ronald Findlay, Matti Pohjola, Moshe Syrquin, and an anonymous referee provided useful comments and suggestions. For a longer version of the paper see Gylfason (1999a).

It is not enough, however, to look at current income flows and the hours of work necessary to sustain them in order to assess the wealth of nations and their living standards. It is also necessary to view the underlying trends, including the status and movement of key macroeconomic stock variables like natural-resource endowments, including the environment, and other national assets and liabilities. However, many of these assets and liabilities—natural-resource endowments and social capital among them—are notoriously hard to measure. Table 18.2 shows the World Bank's estimates of the level and composition of total ppp-adjusted national wealth per person in 1994 in the Nordic countries (all but Iceland). According to these estimates, the national wealth of each of the Nordic countries is above the West-European average, but below that for North America. Human capital is by far the most important component of wealth everywhere. The share of natural capital is accordingly small everywhere, ranging from 4 per cent in Denmark to 10 per cent in Norway. Natural resources account for a considerably larger share of national wealth in the Nordic countries than in Western Europe and North America on average, however.

[Insert Table 18.2 here]

The natural resource abundance of the Nordic countries is fairly concentrated. Norway's oil and natural gas account for two-thirds of its natural capital compared with just 11 per cent in Denmark (whose agricultural land accounts for two thirds of its relatively small natural wealth). In Finland and Sweden, forests constitute about two-thirds of natural capital. Hence, the natural capital of Norway, Finland, and Sweden is quite heavily concentrated in a single industry—oil and gas in Norway and forests in Finland and Sweden.<sup>2</sup>

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<sup>2</sup> Social capital could not be included because no numerical estimates of it exist.

Unlike natural capital that cannot be accumulated, but only managed and maintained, physical and human capital accumulation requires investment in machinery, equipment, and education. Let us now take a look at each of these in turn and relate them to economic growth performance and prospects. Table 18.3 reviews some indicators of investment, education, external trade, and economic growth in the five Nordic countries. High-quality investment clearly is good for growth at least in the medium term, and perhaps even in the long run. The same argument applies to education and external trade and, in fact, to any significant contribution to increased efficiency. Both education and trade lift the level of output that can be produced from given inputs through increased efficiency.

[Insert Table 18.3 here]

Table 18.3 shows the ratio of gross domestic investment to GDP in 1960-1996 as well as in 1996 alone. Investment in 1996 was well below its historical average and also below the world average in all five countries.<sup>3</sup> The declining trend of investment need not be a matter of grave concern, however, because Nordic investment generally seems to have been of fairly high quality, despite the bad banking that helped trigger the acute financial crises of the 1990s. Rapid growth despite relatively little investment would be a clear sign of efficiency, but sluggish growth with slow investment is not. More saving and more and better investment would clearly be good for growth.

The Nordic countries' commitment to tertiary education as well as to education in general is, with one exception, well above the world average (columns 3 and 4). There are signs, however, at least in Iceland and Sweden, that excessive wage compression in

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<sup>3</sup> A similar trend appears in the industrial countries as a whole, but the pattern is more pronounced in the Nordic countries.

centralized labour markets and blunted incentives due to various tax wedges and welfare policies have reduced the demand for higher education (column 5). Insufficient education tends to impede economic growth.

Table 18.3 also shows the ratio of exports to GDP in 1960-1996 as well as in 1996. Exports in 1996 were above their historical average in all five countries. In 1996, the export ratio was at or above the world average in four of the five countries, but that comparison is flawed because it does not take the small size of the Nordic economies individually into account. This makes a difference because small countries are more dependent than larger ones on external trade to extend their home markets beyond their national borders. Therefore, a comparison of export shares should pit the Nordic countries, with less than five million inhabitants per country on average, against other small countries—say, all countries with a population of ten million or less. There are 65 such countries that report to the World Bank, and their average export ratio in 1996 was 42 per cent. None of the Nordic countries matches that, even if Norway and Sweden come close. Small countries that neglect to make up for the small size of their home markets through judicious specialization and vigorous trade in world markets may expect to have to pay for this neglect through slower economic growth than would otherwise be available to them in the long run.

In Norway and Iceland, in particular, foreign trade has been stagnant, or worse, for decades. This means that the rapid expansion of oil exports from Norway since the mid-1970s has crowded out non-oil exports krone for krone. In Iceland, the export ratio has hovered around a third at least since 1945, an extremely low ratio in a country with only 275,000 inhabitants.<sup>4</sup> No other industrial countries have experienced declining or

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<sup>4</sup> For comparison, the average export share of thirty countries with fewer than two million people, all such countries reporting export ratios to the World Bank, was 50 per cent in 1995.

stagnant export ratios in the post-war period. For comparison, the unweighted world average export ratio rose from 25 per cent in 1960 to 36 per cent in 1996, reflecting partly the increase in the number of small countries since 1960, but partly also increased openness to international trade. Figure 18.1 shows the ratio of the export of goods and services to GDP in the Nordic countries year by year from 1960 to 1997. The Norwegian and Danish export ratios have remained virtually unchanged over this period, while the Icelandic export ratio has actually declined. Only in Finland and Sweden has the export share increased significantly. Why have the Nordic countries' exports in general been so sluggish?—at least when compared with some other small open economies like Ireland. And why have their exports developed so differently?

[Insert Figure 18.1 here]

One can think of at least two possible reasons. The first has to do with inflation. The Nordic countries have a history of somewhat higher inflation than, say, the member countries of the European Union. This means that the real exchange rates of the Nordic currencies have been somewhat higher than they otherwise would have been, and this has hurt exports. Inflation can have real effects at least as long as nominal exchange rates do not adjust fully and instantaneously to changes in domestic or foreign prices. By driving real exchange rates too high above their long-run equilibrium levels, periodically or permanently, and possibly also through other channels, inflation seems to discourage exports across countries (Gylfason 1999b). This helps explain the perceived need for repeated devaluation in Finland, Norway, and Sweden in the 1970s and 1980s.<sup>5</sup> This is

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<sup>5</sup> This phenomenon was also much in evidence in Iceland from 1960 at least until the mid-1990s.

indeed one of the main symptoms of the Dutch disease (Corden 1984 and Wijnbergen 1984).

A second possible explanation for sluggish export performance and for the different trends observed in different countries has to do with primary exports. Figure 18.2 shows the evolution of primary exports relative to merchandise exports in the Nordic countries since 1963. Finland and Sweden, whose total exports have increased most rapidly, are the two countries in the Nordic group whose dependence on primary exports has been the least since the early 1960s, having gradually declined below 20 per cent of the total as manufacturing exports expanded. Norway, by contrast, due to its spectacular oil discoveries since the mid-1970s, has seen its primary export share increase from about 50 per cent in 1963 to almost 80 per cent in 1997. Iceland's primary export share has fallen, yes, but from almost 100 per cent in 1963 to only a little less than 90 per cent in 1997.<sup>6</sup> Even so, exports of fish account for a bit more than a half of total exports of goods and services and about one sixth of Iceland's GDP.

[Insert Figure 18.2 here]

Why all this concern about exports? Of the three pillars of economic growth stressed above, i.e., investment, education, and trade, the last is perhaps the least obvious. Exports and related variables have figured hardly at all among the many significant determinants of economic growth suggested by recent econometric research (Barro and Sala-i-Martin 1995: Ch. 12). But this is hardly surprising because, at least within an endogenous-growth framework, trade and growth are jointly determined. This means

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<sup>6</sup> The almost 90 per cent share of primary exports in merchandise exports from Iceland includes aluminium and ferro-silicon exports, which account for about 10 per cent of the total.

that some of the variables that have been found to affect economic growth across countries and over time may actually do so in part through exports. One of the reasons why inflation, for example, seems to impede economic growth is that inflation hurts exports and thereby also imports, not only of goods, services, and capital, but also of ideas, information, innovation, and know-how (Gylfason and Herbertsson 1996). Foreign trade, like virtually all other sources of increased efficiency, is a likely source of economic growth, directly and indirectly (Sachs and Warner 1995a and Edwards 1998). But this does not mean that *all* trade is equally good for growth. High-tech trade seems more likely to encourage economic growth through technological spillovers than low-tech, labour-intensive trade.

Taken together, the figures reviewed in Table 18.3 do not seem to suggest a particularly growth-friendly environment in the Nordic region. Only Norway and Denmark grew more rapidly than the world economy at large in 1980-1996 (column 8). Economic growth in Iceland and Sweden was especially weak in this period, partly because of severe economic downturns in the early 1990s, but partly also for other reasons. The rest of this chapter discusses some channels through which economic growth in the Nordic countries may have been affected by their abundant natural resources. In earlier work, the share of natural resources in national wealth and the share of primary production in the labour force have been shown to be inversely related to investment, education, and exports among other things, and thereby also to economic growth.<sup>7</sup> Here the aim is to explore the linkages between primary exports, total exports, investment, education, and growth with a view to the Nordic countries, and Norway and Finland in particular.

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<sup>7</sup> See Sachs and Warner (1995b, 1999), Sachs (1999), Gylfason (1999b), and Gylfason, Herbertsson, and Zoega (1999).

## 18.2 SELECTED SYMPTOMS: DIAGNOSING THE DUTCH DISEASE

Most authors have emphasized two closely related symptoms of the Dutch disease, among others:<sup>8</sup> an overvalued currency that impedes non-primary exports and perhaps total exports as well and a heavy dependence on natural resources which, in times of resource booms, is viewed as the root cause of the real overvaluation of the currency. However, as argued in earlier chapters, there is some evidence that natural resource abundance tends to be associated not only with sluggish non-primary exports, but also with slow investment and deficient education, among other things, and thereby also with slow economic growth. Let us now review each of these in turn with one eye on the Nordic countries.

### *18.2.1 Trade*

There are two main ways in which the Dutch disease can manifest itself through exports, namely by making the composition of exports less favourable to economic growth and by reducing total exports and economic growth. The real appreciation of the currency may hurt just the kind of high-tech capital-intensive or high-skill labour-intensive manufacturing and service exports that are particularly conducive to rapid growth. The more intriguing case, however, is the one where a boom in primary exports reduces non-primary exports krone for krone, as in Norway, or worse.

*A priori*, one might expect a positive correlation between the ratio of exports of goods and services relative to GDP and the ratio of primary exports to merchandise exports. This is because resource-rich countries experience primary export booms at regular intervals through new discoveries and so on, and thus have higher export ratios than resource-deficient countries as long as non-primary exports are less than fully

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<sup>8</sup> See Corden and Neary (1982), Wijnbergen (1984), Neary and Wijnbergen (1986), Gelb (1988), Matsuyama (1992), and Auty (1995).

crowded out, *ceteris paribus*. The absence of a correlation might be viewed as a sign of full crowding out. Data for 158 countries over the years 1960-97, however, display a negative correlation between primary exports and total exports across countries (see Gylfason 1999a, Fig 6), but the relationship is weak ( $t = 1.6$ ,  $r = -0.12$ ).<sup>9</sup> A ten-point increase in the primary export share from one country to another is accompanied by a decrease in the export ratio by one percentage point. But although all the Nordic countries are quite close to the regression line, the data do not provide any general indication that their export propensities are directly affected by their primary exports.

Weak though it is, the relationship described above may stem from the tendency of natural-resource-related booms to lift currency rates and real wages, thus reducing exports, other things being equal, but exports depend on other factors as well. At any rate, there is no evidence of a positive relationship between primary exports and total exports. A simple correlation does not entail causation, however. It is conceivable that increased openness reduces the need for primary exports rather than, or as well as, the other way round. It is also possible that primary exports and total exports respond to third factors in ways that generate the pattern observed.

No conclusions are being drawn here as to cause and effect. However, the weak relationship described above accords reasonably well with the results of a multivariate regression analysis, where an attempt is made to distinguish cause from effect (Gylfason 1999b). Moreover, the data cover a large and diverse group of countries at different stages of development as is customary in empirical growth research. This custom stems from the fact that the data for the high-income countries, if they were scrutinized

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<sup>9</sup> The correlation equals the square root of  $R^2$ . The significance of the correlation is established by a t-test of the significance of the slope of the regression line through the scatterplot.

separately, generally do not give rise to significant conclusions about the determinants of economic growth across countries, partly because there are simply not enough of them.

### *18.2.2 Investment*

Primary industries, not least agriculture and fisheries in developing countries, tend to be relatively low-tech and low-skill labour-intensive, so that their own investment needs as well as their encouragement of investment in other industries may be limited. Figure 18.3 shows the relationship between the ratio of gross domestic investment to GDP in 1960-1997 and primary exports in 156 countries. Again, the correlation is significantly negative ( $t = 2.3$ ,  $r = -0.19$ ). A 22-point increase in the primary export share from one country to another goes along with a decrease in the domestic investment ratio by one percentage point. In its turn, a decrease in domestic investment by one per cent of GDP typically shaves 0.1-0.2 percentage points of the annual rate of growth of output per head, *ceteris paribus*.

[Insert Figure 18.3 here]

Over the years, Finland and Denmark have invested just about the amount predicted by the regression shown in Figure 18.3, Sweden less, Norway and Iceland, more. However, average investment rates mask a declining trend in all five countries since the 1960s. In 1996, the investment rates of all five Nordic countries were below the regression line in Figure 18.3.

### *18.2.3 Education*

A third possible source of an inverse relationship between natural resource abundance and economic growth has to do with education. A strong emphasis on primary exports, not least agriculture in developing countries, by not calling for much highly trained

manpower, tends to generate not only less investment in physical capital than otherwise, but also in human capital (Gylfason, Herbertsson, and Zoega 1999).

The relationship between enrolment in secondary schools in 1980-1996 and primary exports in 104 countries shows linkage that is significant (see Gylfason 1999a, Fig 13), both economically and statistically ( $t = 8.4$ ,  $r = -0.64$ ). The regression suggests that a 1½-point increase in the primary export share from one country to another is associated with a one-point drop in the secondary-school enrolment rate. All but two of the almost 40 countries with a secondary-school enrolment rate of 30 per cent or less have a primary export share of about 60 per cent or more. Here there is actually a discernible pattern even in the Nordic part of the picture: among the five countries, average secondary-school enrolment, which ranges from 86 per cent in Iceland to 94 per cent in Finland, is approximately inversely related to the primary export share. If natural resource abundance deters education, then this linkage may produce an inverse relationship also between primary exports and economic growth—through education. Even so, the causation may run the other way: primary production may be decreasing the level of education. Most probably, though, primary production inhibits education, and vice versa.

#### *18.2.4 Economic growth*

Let us now wrap up the argument by viewing the cross-sectional relationship between primary exports and economic growth since 1960. If natural resource abundance tends to hamper trade, investment, and education, it should also impede economic growth across countries, other things being the same. Figure 18.4 shows the relationship between the average annual rate of growth of per capita GNP from 1960 to 1997 and primary exports in 147 countries. The slope of the regression line is significantly negative ( $t = 7.2$ ,  $r = -0.30$ ). A 40-point increase in the primary export share from one country to another is associated with a reduction in per capita growth by one percentage point. This is not a small effect (if it is an effect, that is, as opposed to a mere correlation), because per

capita growth rates move in a narrow range compared with primary export shares. Even if the analysis is limited to the 57 high- and upper-middle-income countries in the sample, the pattern remains roughly the same as in Figure 18.4. The inverse relationship between primary exports and economic growth is not confined to poor countries.

[Insert Figure 18.4 here]

The pattern shown in Figure 18.4 comes fairly close to the quantitative results obtained from several recent multivariate regression analyses of economic growth across countries. A representative result from cross-sectional and panel studies is that an increase in the primary export share by 25-30 percentage points (e.g., from 50 per cent of merchandise exports to 75-80 per cent) reduces the rate of per capita growth from one country or period to another by one percentage point, *ceteris paribus*. Similar results obtain when natural resource abundance is measured by the share of primary production in the labour force.<sup>10</sup>

How do the Nordic countries fare in Figure 18.4? Denmark and Finland are quite close to the regression line. Sweden lies a bit below the line. Even so, it seems unlikely that the relatively low average shares of primary exports in merchandise exports in those three countries, ranging from 22 per cent in Sweden to 45 per cent in Denmark compared with 70 per cent on average for the sample as a whole, have had much to do with their growth performance over the years. The share of natural capital in their national wealth ranges from 4 per cent to 7 per cent (Table 18.2), compared with an average of 2 per cent in Western Europe, 5 per cent in North America, and 12.5 per cent for the world as a whole. The natural-resource-based industries in the three countries are

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<sup>10</sup> See Gylfason (1999a), Gylfason and Herbertsson (1996), and Gylfason, Herbertsson, and Zoega (1999).

thus relatively small compared with the world at large, even if they are large compared with those of other high-income countries. But what about Norway? Figure 18.4 shows that Norway has grown more rapidly than predicted by its primary export share alone, but this is not surprising. For one thing, economic growth obviously depends on a host of factors other than the primary export share. For another, the period covered by the figure, 1960-1997, starts a full decade and a half before Norway became a significant oil exporter. The next section compares Norway and Finland in more depth as examples of countries with some dependence on point and diffuse resources, respectively.

### 18.3 CONTRASTING NATURAL RESOURCE DEPENDENCE IN NORWAY AND FINLAND

#### *18.3.1 Norway*

Primary export dependence is one of the chief hindrances, real or imagined, to Norwegian accession to the European Union (EU) and the Economic and Monetary Union (EMU)<sup>11</sup>. There is, therefore, a need for Norway to deal with its natural-resource-based obstacles to EU membership if it is to be able to weigh the benefits and costs of membership on an equal footing with other prospective and present EU and EMU members. This requires the implementation of a market-friendly, fair, and property-rights-oriented solution to the problem of how best to regulate access to, and allocate the rents from, limited common-property natural resources. In fact, Norway has charted a long-run-oriented, tax-based, and reasonably market-friendly approach to the

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<sup>11</sup> This argument also applies to Iceland, see Gylfason (1999a).

management of its vast oil resources.<sup>12</sup> By law, the title to petroleum deposits on the Norwegian continental shelf is vested in the State. In principle, therefore, all the rent from oil and gas should accrue to the Norwegian people through their government.

Exploration and production licenses are awarded for a small fee to domestic and foreign oil companies alike. Why small? Because the Norwegian government has decided to expropriate the oil and gas rent through taxes and fees as well as direct involvement in the development of the resources rather than through sales or auctioning of exploration and production rights (OECD 1999, Ch. 3). The State has a direct interest in most offshore oil and gas fields and, like other licensees, receives a corresponding proportion of production and other revenues, roughly 40 per cent of the total. Through its direct partnership with other licensees as well as through various taxes and fees, the Norwegian State has managed to absorb about 80 per cent of the resource rent since 1980.<sup>13</sup> Thus, in 1997, revenues from petroleum activities accounted for more than a fifth of total government revenues and were equivalent to 9-10 per cent of Norway's mainland GNP, or 8-9 per cent of total GNP, including oil. The oil revenue is deposited in the Norwegian Petroleum Fund, which is being built up and invested mostly in foreign securities. Oil exports account for about a third of total exports of goods and services from Norway. The oil industry contributes about one-sixth of Norway's GDP (in 1997).

At the same time, however, a variable proportion of each year's net oil-tax revenue is transferred from the Government Petroleum Fund to the fiscal budget, essentially to cover the non-oil budget deficit. The proportion of net tax revenues from petroleum thus transferred to the government budget was about one-fourth in 1997 and almost 40 per

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<sup>12</sup> Estimates of Norway's oil wealth range from 50 per cent to 250 per cent of GNP (Thøgersen 1994).

<sup>13</sup> The main revenue items are corporate tax and a special resource surtax, but also royalty, area fee, and carbon-dioxide tax.

cent in 1998, but is envisaged to drop to less than 10 per cent in 1999. Even so, the Norwegians have not been tempted to expand their central government beyond reasonable limits as a result of the oil boom. Even 20 years after discovering their oil, the Norwegians continue to content themselves with smaller central government than Denmark, Finland, and especially Sweden.

The upshot of all this is, first, that the Norwegians are already preparing themselves with care for a (fairly distant) future without oil and, second, that 'sharing the oil with foreigners' and related concerns does not arise in connection with Norway's oil wealth in the discussion of the pros and cons of potential Norwegian EU membership. Thanks to the market-oriented approach to oil-resource management as well as to the legal status of Norway's oil reserves as a taxable common-property resource, oil does not stand in the way of Norway's entry into the EU, if this is where the Norwegian people want to go at the end of the day.

The Norwegians' management of their fish resources is rather different from their handling of their oil wealth. Norway's fishing industry is actually tiny, employing, like the oil sector, less than 1 per cent of the country's labour force. Agriculture, forestry, and fishing together account for about 2 per cent of GDP, and their share is declining. Of this small share, the fisheries account for less than a half. Government subsidies to the fishing industry increased successively from the 1950s onwards until they peaked at about 70 per cent of the incomes of fishermen and boat-owners in 1981 (Hannesson 1996: 23-24). Since then, however, the subsidies have been reduced in stages down to almost nothing. Even so, the government carries the cost of managing the fisheries and of enforcing fishery regulations; this cost is considered equivalent to about 10-15 per cent of the gross value of the catch (*ibid*: 30). Moreover, virtually all the resource rent from the fisheries, roughly estimated at 20-25 per cent of the gross value of the catch (*ibid*: 29), has been allowed to dissipate through excess capacity and overmanning. This matters because the fishing industry's vociferous protests were seemingly the single most important factor

contributing to the Norwegians' rejection of EU membership in the referendum of 1994 as well as in 1972.

Part of the problem is that the Norwegian fishing industry is perceived to be much larger than it actually is. This is partly because the fishing industry is quite important to individual coastal communities, even if it is unimportant in a macroeconomic sense to the Norwegian economy as a whole. A vocal fishing lobby also does its best to insure that this false perception does not fade from the public consciousness. Anyhow, it is inefficient to tie regional support to particular industries, such as fisheries or agriculture. It would be more efficient to aim subsidies or other regional-policy instruments at the regions concerned with no strings attached rather than at specific industries, and thus to allow the recipients themselves to decide whether they want to continue to fetch fish from the sea or do something else.

However, even if the expansion of oil exports from Norway since the mid-1970s seems to have left total exports essentially unchanged relative to GDP, the Norwegians have nonetheless been able to manage their oil resources in a way that has removed any oil-related hindrances from the road that could lead them into the EU, if that this is where they want to go. In view of their market-friendly management of their oil wealth, there is no economic reason why the Norwegians could not in the same manner improve the management of their fish resources through fishing fees or through the sale of transferable catch quotas so as to remove the chief remaining hindrance on their way to full membership of the EU.

### *18.3.2 Finland*

There have been concerns in Finland that the country's considerable and long-standing dependence on its forest resources, which account for two-thirds of its natural capital and about a third of its exports, might render Finland exposed to the Dutch disease. As before, let us organize the argument around trade, investment, and education. First, Finnish exports have expanded quite rapidly since 1960: they have almost doubled, from

22 per cent of GDP in 1960 to 38 per cent in 1997 (Figure 18.1). Export growth and the willingness to participate in and contribute to European integration thus do not seem to have been held back by an overwhelming emphasis on forestry-related exports at the expense of other exports. Even so, Finland, like Sweden, Denmark, and even Norway, is only an 'average' exporter in the sense that its exports are about the same relative to GDP as they are in other countries of the same size.

Second, the Finnish forestry sector is quite high-tech-intensive and seems to have stimulated other sectors through various technological spillovers. For example, Finland's share in forestry-related machinery and equipment in world markets is actually larger than its share in wood, paper, and pulp. Finland has a strong manufacturing sector whose share in total exports increased from 56 per cent in 1963 to 83 per cent in 1997 (Figure 18.2). Nokia grew out of an industrial firm that was partly, albeit only to a small extent, in the forestry business before.

Third, the capital intensity of forest resource products has understandably called for large investments in Finnish forestry, thereby attracting capital from other sectors. This seems to have changed not only the sectoral composition of capital accumulation, but may also have helped change its total amount, because investment in Finland has fallen quite dramatically since 1960 from just under 30 per cent of GDP to just over 16 per cent. This type of more than full crowding out of non-primary investment is, however, unlikely to be the sole explanation for Finland's low aggregate investment because, for one thing, the slump in investment in Finland coincided with the economic crisis in the 1990s and, therefore, seems likely to have other causes as well, including various structural flaws and policy problems that contributed to the crisis in addition to the collapse of the Soviet Union.<sup>14</sup> Some observers have argued that the rapid growth of the

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<sup>14</sup> See Honkapohja, Koskela, and Paunio (1996) and Jonung, Stymne, and Söderström (1996).

Finnish economy from 1960 to 1990 resulted in large measure from forestry-related, partly state-directed, investment projects which kept total investment at 25-30 per cent of GDP throughout this period (Tainio, Pohjola, and Lilja 1999). When financial markets in Finland were liberalized in the late 1980s, however, and real interest rates rose, the argument goes, some of these investments proved inefficient, and total investment plunged.

Fourth, there is no discernible sign of a lack of commitment to education in Finland. In 1995, the Finnish government spent 7.6 per cent of GNP on education compared with 4.8 per cent on average in the world as a whole.<sup>15</sup> Expenditure on education in Finland has increased in recent years from just under 5 per cent of GDP to around 7.5 per cent. Even so, Finnish outlays on education lag a bit behind those of Denmark, Norway and Sweden (Table 18.3), but the differences are small.

Fifth and last, forest ownership in Finland is fairly evenly distributed among the Finnish population, and has been that way for a long time. Forestry-related booms in the Finnish economy have not created a super-rich but small class of politically powerful rent seekers. Rather, the benefits that have emanated from the country's natural resources have been spread widely across the whole population without creating political or social tensions. There is, therefore, no discernible evidence of the recurrent economic policy failures that tend to characterize rent-seeking societies over long periods—including tendencies towards protectionism against trade and other forms of economic integration and towards thinking that natural resources are more important than human resources, and so on. True, like the fishing industry in Norway and Iceland (and, though to a much lesser extent, the oil industry in Norway), the forest industry in Finland has considerable political clout. This explains, in part, the repeated devaluation of the markka in the 1970s

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<sup>15</sup> This put Finland in 14<sup>th</sup> place among 170 countries in 1995, while Denmark landed 8<sup>th</sup> place, Norway 9<sup>th</sup>, Sweden 12<sup>th</sup>, and Iceland 76<sup>th</sup>.

and 1980s, which was aimed mainly at preserving the profitability of the forest industry. Government support of the forest industry has not, however, taken the form of direct subsidies or trade restrictions.

In sum, then, Finland passes the test for the Dutch disease on at least four scores out of five: (a) its exports have grown rapidly relative to GDP since 1960, even if they are only 'average' by world standards; (b) the share of primary exports in total exports has fallen sharply since 1963 as the natural-resource-based industry seems to have encouraged other industries through technological spillovers; (c) investment has fallen sharply relative to GDP in the 1990s, true, but it does not seem reasonable to ascribe but a part of the fall directly to Finland's dependence on forest resources; (d) education compares favourably with other OECD countries; and (e) the ownership of and access to the main natural resource are rather widely shared so that macro-economically counter-productive rent seeking is not a serious problem. It would seem that Sweden and Denmark also pass this five-pronged test (Gylfason 1999a).

Norway, however, passes the test only in part. Norwegian exports have been stagnant since 1960, albeit at a respectable level, primary exports still account for three-quarters of total exports, and investment has decreased over time. On the other hand, Norway shows no signs of having faltered in its commitment to education, nor has the natural resource rent been allowed to fall into too few hands.

#### 18.4 CONCLUSION

It has been argued that natural resource abundance may retard economic growth in three important ways: by reducing total exports and thereby, ultimately, also imports of goods, services, and capital relative to national income; by reducing investment in physical capital; and by reducing investment in human capital (education). Consistent with earlier findings in this book, however, this is not an inevitable outcome if appropriate

institutional safeguards are in place, whether the natural resource has diffuse or point socio-economic linkages.

Even so, an echo effect of resource dependence may be detected. Norway shows that the trade channel does not merely involve exports and imports, it may also operate through a political conflict between natural resource dependence and the propensity to participate in, and benefit from, international economic integration. This may help explain why the authorities in Norway still show no signs of wanting to join Denmark, Finland, and Sweden in the European Union, even as the Central and Eastern European countries are queuing up outside the gates. To those Norwegians (and Icelanders) who want their countries to be full participants in European integration, this factor alone is, perhaps, ample reason to fear that heavy natural resource dependence may be, at best, a mixed blessing in the long run.

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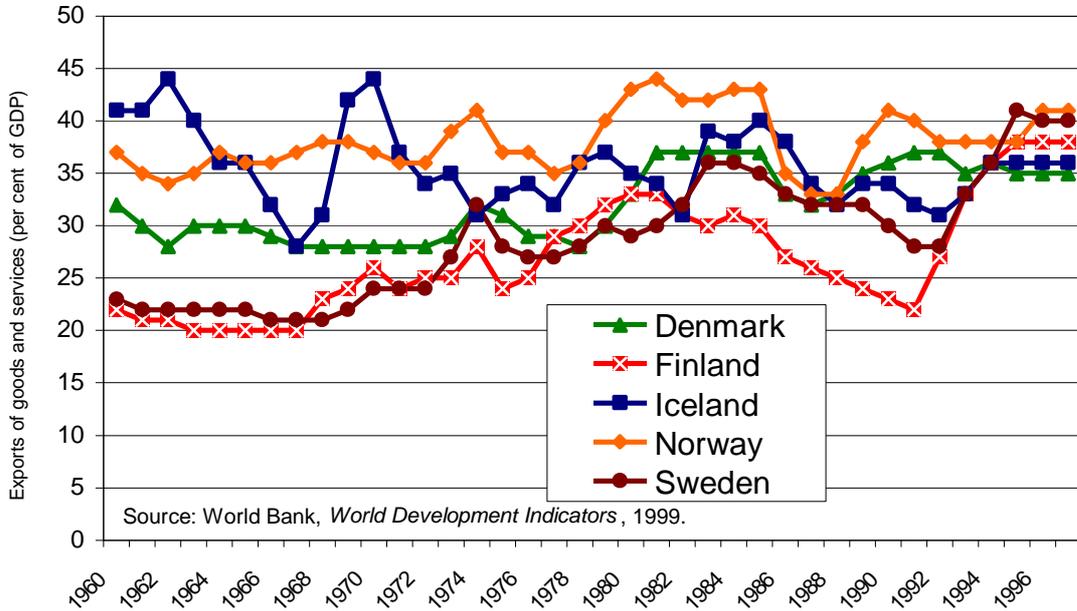
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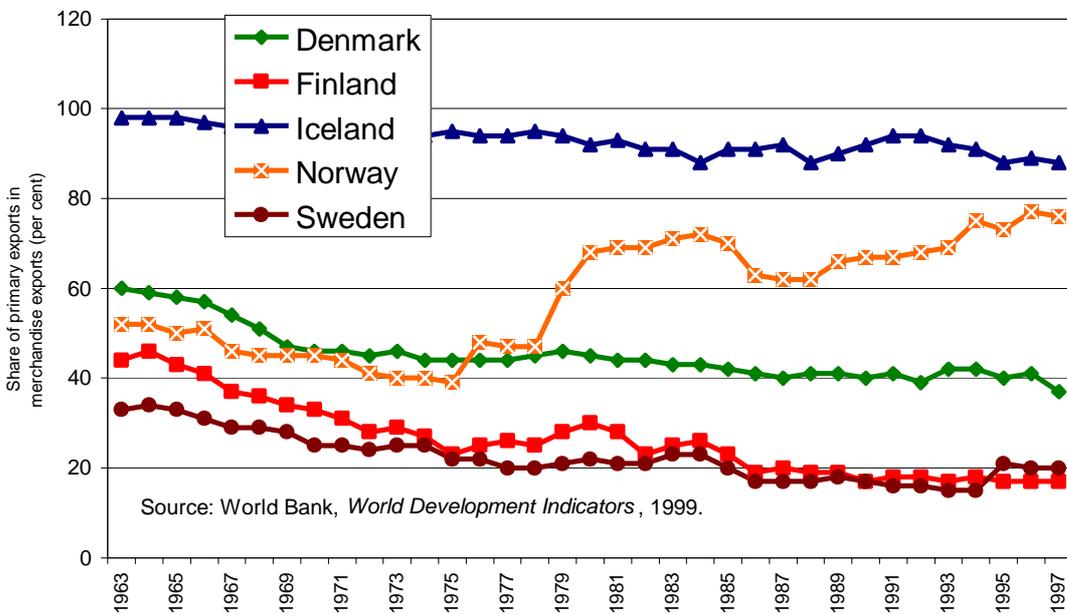
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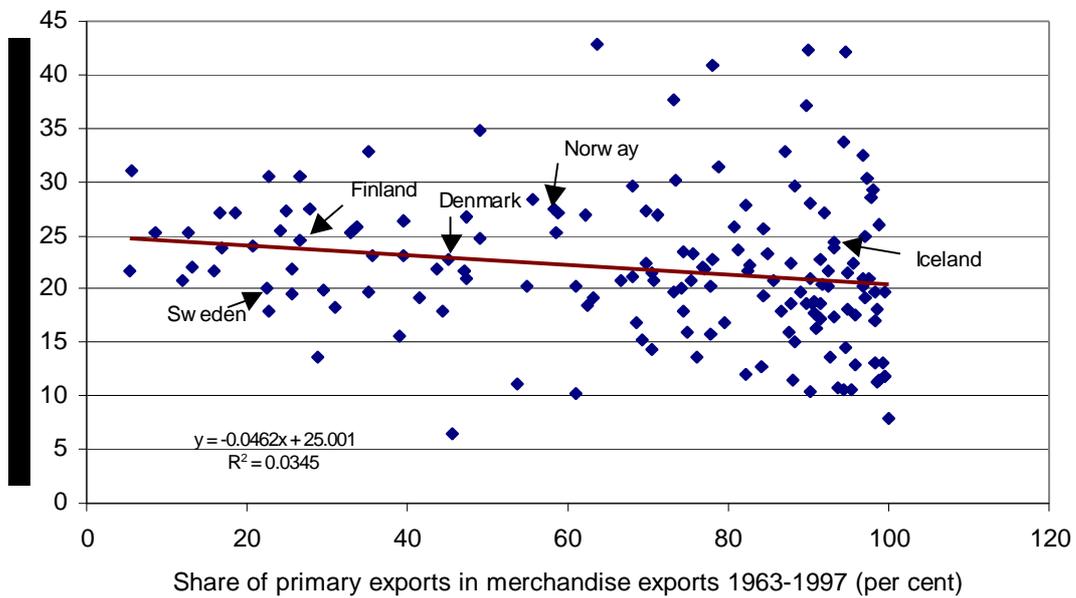
**Figure 18.1. Nordic exports, 1960-1997**



**Figure 18.2. Nordic primary exports, 1963-1997**



**Figure 18.3. Primary exports and domestic investment**



**Figure 18.4. Primary exports and economic growth, 1960-1997**

