Swedish economic growth in an international perspective

Assar Lindbeck *

Summary

■ This paper analyses the growth of production and income in Sweden in comparison to other OECD countries since 1970. It starts by discussing the nature of economic growth, its measurement and the problems associated with various measurements. While Sweden's economy was growing faster than nearly all other presently developed countries during the 1870-1970 period, the reverse has been the case after 1970. Measured in constant *domestic* prices, Sweden's annual GDP growth rate per capita was 1.3 per cent per year during the period 1970-98 as compared to the OECD average of 1.8 per cent. The lag is larger if we measure GDP in constant *international* prices (PPP-adjusted GDP). One reason is that Sweden experienced a successive term-of-trade deterioration of about 30 per cent during the 1970s and 1980s. As a result, Sweden fell from its position as the fourth richest nation among the OECD countries in 1970 to the bottom one-third of the group.

For real disposable household income, the lag has been even larger. The lag in real disposable household income is not compensated by a more rapid increase in (statistically recorded) public-sector consumption during the 1970-1998 period.

The paper also discusses alternative or complementary explanations for the relatively slow growth in Sweden after about 1970. I hypothesise that the poor growth record is related to the pronounced centralisation of the economic system in Sweden in the late 1960s and early 1970s. If this is a realistic explanation, the future growth prospects for Sweden should be considerably brighter due to recent liberalisation in the regulatory framework and reforms in the tax and welfare-state systems. ■

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This paper deals with economic growth in Sweden, primarily since 1970. I start by discussing what economic growth is, how it is measured and existing problems with growth measures. Section 1 presents Sweden's production and income growth data in comparison to other OECD countries. These figures to a considerable extent reflect changes in productivity (i.e. production per input of factors of production); accordingly section 2 is concerned with productivity growth. In conclusion, the paper briefly discusses why Sweden experienced relatively slow economic growth since about 1970.

As a rule, economic growth is measured as the rate of change in real GDP (i.e. GDP at constant prices) per person over a number of years (e.g. during the course of one or several decades). This measure has well-known limitations. The most obvious shortcomings are perhaps that unpaid work at home and voluntary work in civil society are not included. By contrast, the authorities responsible for the national accounts (in this case Statistics Sweden, SCB) try to account for black-market production by schematically including an additional 4 per cent in GDP.

When successive changes occur in a country's *terms of trade,*[1] the measurement of real GDP at constant domestic prices will give a misleading picture of production as a basis for its standard of living. The reason is that successive improvements (deteriorations) in a country's terms of trade allows it to exchange an ever larger (smaller) volume of goods and services for a given export volume via its foreign trade. Hence foreign trade may be seen as a production process in which exports function as *input* and imports as *output*. In country

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[1] The weighted average of a nation's export prices relative to its import prices.

comparisons, this statistical bias may be limited if each country's production is measured at current international prices: purchasing power parity, PPP, calculations. In general, such calculations remove statistical bias in situations when the exchange rate does not fully reflect differences in the general price trend between countries (including prices for domestic market goods). Here we usually refer to *purchasing-power-corrected GDP*.[2]

GDP is a production measure and not an income measure. Gross national product (GNP) is a somewhat better indicator of a country's income level since it includes net interest income from abroad and net remittances from work performed in other countries. Thus, GDP underestimates the income level of countries that have net claims against foreign countries or with relatively many guest workers in other countries. Net National Income (NNI) is an even better income measure because capital depreciation is deducted in this instance.

Switzerland is a good example that illustrates the importance of these factors. Purchasing power corrected GNP increased faster in Switzerland than GDP at domestic prices because of a successive improvement in terms-of-trade and growing capital incomes from abroad. Variations in the number of guest workers in Switzerland also created a difference between changes in GDP and GNP (as well as NNI).

From a welfare point of view, household disposable income is a narrower but possibly more relevant measure of income. However, if this measure is used, it should be complemented with data on public consumption, which is mainly provided to individual households as *income in kind*, for instance publicly financed and provided education and health care, child care and old age care.

GDP, GNP and NNI have additional limitations as measures of welfare, rather than income, since these measures do not include lei-

[2] The purchasing power parity (PPP) calculations within the OECD and EU are based on detailed (disaggregated) price data for about 300 product groups. An average of a country's prices in relationship to other countries is calculated for each product group. These price ratios make up the PPP for different product groups. The parities are then aggregated by assigning expenditure weights for the different product groups in each country. The aggregated price ratios may then be used to compare national aggregates of goods and services according to a common yardstick. See, for instance, Eurostat Theme 2 (1999).

sure.[3] Another well-known limitation in national accounts is that these types of measures do not include environmental factors that directly influence the well-being of households, for example, access to the countryside or air pollution. (In NNI accounts, which reflect capital depreciation, the depreciation of natural resources that can be used for future production is considered only to a limited extent.)

Naturally, GDP does not include any information about the distribution of income and economic welfare between citizens, but this is not the purpose of an aggregate production or income measure. Besides these general problems with the GDP, there are also well-known difficulties of statistical measurement. For example, it is sometimes difficult to determine if a certain expenditure in the business sector should be considered as an intermediary input in the production process, which should not be included in the GDP, or as an investment, which should be part of the investment portion of GDP.

However the biggest measurement problem is probably that it is difficult to achieve precision regarding distinctions between price and volume changes. The main reason is continuously changing product quality and continuous introduction of new products and services—at the same time as old ones disappear. Institutions that are responsible for national accounting put a lot of effort into solving this problem.[4] However in practice, these attempts are not always successful, especially in the service sector, which is becoming ever more important.

The usual judgement among national accounts specialists is that successive quality improvements for products and services result in a systematic underestimation of GDP (and national income) growth for the market sector, and that inflation is overestimated to a comparable degree. The size of the measurement error is debatable. In the US, it is considered to be several tenths of a per cent per year, perhaps as much as one-half per cent or more (according to the controversial

[3] But if we want to consider the value of leisure, then we must observe that high marginal taxes may cause citizens to choose more leisure than is reflected in their evaluation of leisure relative to consumption. If we want to consider leisure in conjunction with national accounts, then leisure should be evaluated by the after-tax rather than the before-tax wage. Moreover, when involuntary unemployment, possibly in the form of involuntary part-time work, is a reason why the number of working hours is low in a country, statistically recorded leisure is worth less than after-tax reward for work.

[4] For instance, there are attempts to measure how much more households are willing to pay for a new product, compared to an old one; measures of quality change thereby start from consumers' preferences.

Boskin Report). We do not know much about the comparable error in Sweden.

Special measurement problems exist in the public sector, where produced services are not subject to market tests against households' preferences. National accounts *assume* either that public-sector productivity is unchanged from year to year or that it increases by a certain factor (as a rule, by a few tenths of a per cent a year).[5] Sweden has selected the first alternative (zero productivity growth). Sometimes, it is asserted that real growth in Sweden's public sector is therefore underestimated. However, the best available estimates (Murray, 1997) indicate that public-sector productivity growth during the 1960-1990 period was negative at the same time as public-sector employment expanded exceptionally rapidly. In this case, the applied statistical conventions have *overestimated* GDP growth during this time period.[6] It may however also be argued that productivity growth within medical care might have been underestimated as a result of medical and surgical advances.

It is difficult to determine the size of comparable measurement errors for public sectors in other countries. Accordingly we do not know whether such measurement errors exaggerate or underestimate GDP growth in Sweden *in relation to other countries*. If "true" public-sector productivity growth was the same in Sweden as in other countries, the schematic productivity assumption for this sector naturally leads to a (weak) underestimation of Sweden's GDP growth in relation to a half dozen developed countries that assume some (slow) productivity improvements. However, we know that during the 1970-1985 period, a more rapid shift of resources occurred in Sweden—from unpaid labour in the home (unrecorded in the national accounts) to paid (and recorded) labour in the open market—than in many other countries. [7] And this specific feature tends to exaggerate

[5] National calculations sometimes attempt to find certain indicators of productivity growth, for example, changes in education levels for public-sector employees.

[6] The situation may have changed in the 1990s when widespread attempts at rationalisation were made in the public sector. Indeed the negative productivity trend in the public sector seems to have flattened out in the 1990s.

[7] This development is connected with the large increase in female labour-force participation rates in Sweden during the 1970-1990 period, from 58 per cent to 79 per cent. During the first half of the 1990s, this figure dropped to 69 per cent. In other Western European countries, the increase has been 5-10 percentage points lower. Canada and the US show about the same increases as Sweden regarding female employment.

actual GDP growth in Sweden compared to other countries during the same period.

Against this background of problems with GDP calculations, it is easy to understand why previous calculations are constantly revised. Take, for example, the SCB revision of Swedish GDP that was made in the spring of 1999, which raised the *level* of Sweden's recorded GDP by about 3 per cent during the years covered by the revision. This revision, however, had an insignificant effect on the annual GDP growth rate.

Despite these limitations, official GDP calculations form the basis of nearly all empirical economic-growth analysis. Consequently, I first present GDP data but complement it with statistics on household real disposable income and public consumption. I also present data on productivity growth. Throughout I refer to the latest OECD data, while at the same time, I am aware that future revisions are likely to occur in all countries.

Against the background of existing weaknesses in national accounts, which to a certain extent are unavoidable, we should not place a great deal of importance on small differences between countries. It should also be noted that ongoing national account revisions occur at different times in different countries, which creates a certain amount of instability in country comparisons at different points of time. However, there is currently no reason to believe that existing weaknesses in official calculations, taken together, should systematically distort the picture of production and income growth in Sweden in relation to other countries.

1. GDP growth and income growth

It is well known that Sweden's economy grew faster than nearly all other countries during the 1870-1970 period. Sweden's annual growth rate for *real GDP per capita* is estimated to have been 2.1 per cent, compared with the 1.7 per cent average for contemporary rich OECD countries (weighted and unweighted average). However, during the period 1950-1970, i.e. the last two decades of this 100-year period, Sweden's growth rate was about the same as the average for rich OECD countries: 3.5 per cent as compared with 3.4-3.5 per cent.[8] These figures are based on Maddison (1982). Excluding West Germany and Japan, countries that were affected by post-WWII re-

[8] The study includes 15 developed countries besides Sweden.

construction and not just a long-term growth process, Sweden's growth figures were, however, slightly higher than the average for rich OECD countries.

The most common explanations (Lindbeck, 1975; Myhrman, 1994) for Sweden's relatively fast growth between 1870 and 1970 are:

- The Swedish economy's openness to the world economy.
- Increased international demand for Swedish national resources (forest and iron ore) from the late 19th century due to technological advancements.
- Extensive freedom for private business.
- Stable regulations, well-adapted to the requirements of a market economy (including property rights and other contract legislation).
- Considerable infrastructure investments.
- A competent and honest public administration.
- Large, widespread investments in human capital and a vital civil society.

Competent public-sector purchases of newly developed products and systems from the private sector also played a constructive role (for example, products from ASEA, Ericsson, SAAB and a number of defence industries). The early phase of the construction of the welfare-state in the 1950s and 1960s proved to be compatible with relatively rapid economic growth during the 1960s; total public expenditure increased from 31 per cent of GDP in 1960 to 44 per cent in 1970. While the 1960 figure was about the same as the average for the OECD countries, the figure in 1970 was slightly higher than for the OECD.

Sweden's economic system changed substantially in the period after 1970. Some of these changes were:

- Rapidly rising public-sector expenditure—up to 60-70 per cent of GDP from the early 1980s, according to conventional measures and 53-60 per cent if transfers are calculated net rather than gross of taxes.[9]

[9] The reason for the difference between these measures is that transfer payments are taxed in Sweden—in contrast to most other countries. In addition, the public sector has considerable gross interest income, primarily via the public-sector pension (AP) fund. However even if transfers are recorded net of tax, total public-sector expen-

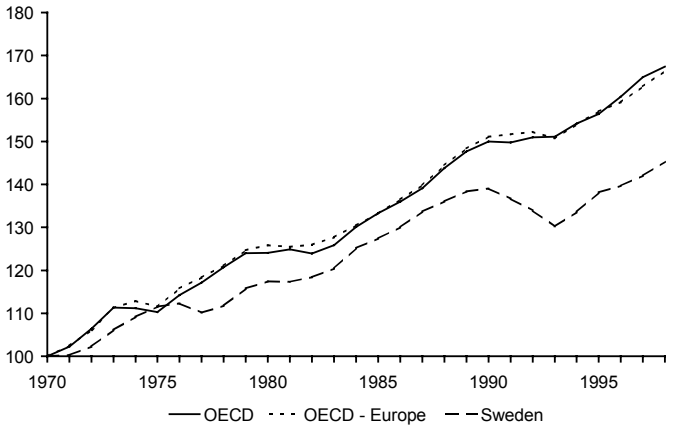
- Heavily increased marginal tax rates, up to the 60-80 per cent level for nearly all income groups (including the tax portion of general payroll fees, VAT and the reduction in income-related allowances).
- A drastic compression of wage differentials via central wage bargaining ("solidaristic wage policy").
- Increased labour market regulations.
- Substantial shifting of saving and credit supply from the private to the public sector.
- A general deterioration in the conditions for small- and medium sized firms, for example, though high and distortionary taxes and administrative red tape.

Figure 1 shows GDP growth per capita (index format) at constant *domestic* prices for 1970-1998. (Unfortunately, statistical revision by the OECD for the late 1990s makes it impossible to present a long statistical series that also covers 1999.) Compared to an accumulated 45 per cent increase in Sweden during the period as a whole, the entire OECD had a 67 per cent increase and the European OECD countries a 66 per cent increase. Thus Sweden lagged behind by about 13 per cent (145/167). Sweden's annual GDP growth rate per capita was 1.3 per cent per year; the OECD average was 1.8 per cent. Even though Sweden experienced a more pronounced boom (compared to other countries) in 1980, 1984 and 1987-1989, it failed to reach the OECD area's growth path at any time during this period.

It is sometimes suggested that Sweden's lag is only (or at least mainly) due to an unsuccessful stabilisation policy during the 1990s. This contention does not, however, concur with existing information. About half of the lag (8 out of 13 percentage points) occurred during the 1970-1990 period. The rest occurred during the shorter 1990-1998 period. So it is more correct to say that the main part of the long-term (trend-measured) lag occurred during the former period because the 1990 GDP level was considerably above the long-term trend (see Figure 2). At the end of the 1980s, Sweden's economy was highly overheated; unemployment was 1.3 per cent at its lowest, which is a precarious level in the long run.

ditures are relatively high in Sweden. During the 1980s and 1990s, only Denmark and the Netherlands have reported equally high figures.

Figure 1. GDP per person 1970-1998, index 1970=100 (constant domestic prices)



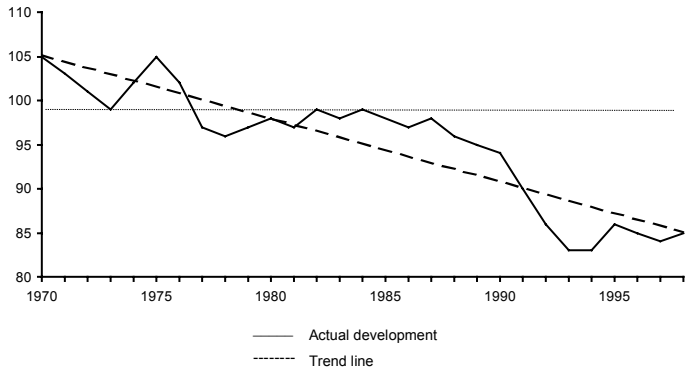
Sources: OECD, National Accounts Volume I, 1999; and OECD, Main Economic Indicators, February 2000.

The GDP lag is larger if we measure GDP in international prices (PPP-corrected GDP). The reason is that Sweden experienced a successive terms-of-trade deterioration of about 30 per cent during the 1970s and 1980s. Sweden was able to exchange ever fewer goods and services in the world market for each unit that it exported. (A 30 per cent terms-of-trade deterioration with a 20 per cent export share of GDP, expressed in value added, is equal to a 6 per cent reduction in international purchasing power for Sweden).

The weak PPP-corrected GDP growth is reflected in Sweden's position within the rich countries' "GDP league". This is illustrated in Table 1 where Sweden's GDP per capita for the years, 1970, 1980, 1990 and 1998—expressed as a percentage of the OECD average—is shown to have declined from a position 13 per cent above the weighted average of OECD countries to a position 4 per cent below this average. Excluding Mexico and Turkey, the two developing countries in this group, Sweden fell from a position 5 per cent above the average to a position 14 per cent below i.e. by about 18 per cent. This is a more reasonable comparison if one wishes to examine Sweden's growth in relation to developed OECD countries. As a result,

Sweden dropped from a 1970 position as the fourth richest nation among the OECD countries to the bottom one-third of the group. Figure 2 shows annual figures during the entire 1970-1998 period (where both Mexico and Turkey are again excluded).

Figure 2. Sweden's GDP per person 1970-1998, per cent of the OECD average (PPP-corrected figures)



Note: OECD refers to OECD excluding Mexico and Turkey.
Sources: OECD, National Accounts Volume I, 1999; and OECD, Main Economic Indicators, February 2000.

For *household real disposable income*, the lag has been considerably larger than for GDP, regardless of whether we measure growth at constant domestic prices or at international prices. Figure 3 illustrates the first measure, which should be compared with Figure 1 because both are calculated using constant domestic prices. While the accumulated per capita increase for household real disposable income was as little as 25 per cent (.8 per cent per year) in Sweden during the 1970-1992 period, it was 71 per cent (1.9 per cent per year) for OECD and 67 per cent (1.8 per cent per year) for European OECD countries. Hence in this case, we are talking about a lag of 25-27 per cent.[10]

[10] The long-term picture is about the same if we look instead at private consumption growth. However, short-term growth is different since it depends on annual variations in the saving rate. It should also be noted that since 1970, Sweden's relative hourly wage cost in the same currency fell by about 30 per cent as compared to its trading partners. Hence these various time series paint the same picture.

Table 1. GDP per person, per cent of the OECD average (PPP-corrected figures)

Position 1970	Index	Position 1980	Index
1. Switzerland	154	1. US	140
2. US	147	2. Switzerland	137
3. Luxembourg	119	3. Canada	118
4. Sweden	*113 (105[a])*	4. Luxembourg	115
5. Canada	111	5. Iceland	110
6. Denmark	109	6. France	109
7. France	106	7. Norway	107
8. Australia	103	*7. Sweden*	*107 (98[a])*
9. Netherlands	102	9. Denmark	105
10. New Zealand	100	10. Belgium	104
11. UK	96	11. Australia	101
12. Belgium	95	11. Austria	101
13. Germany	93	11. Netherlands	101
14. Austria	89	14. Germany	97
14. Italy	89	14. Italy	97
16. Norway	88	16. Japan	95
17. Japan	86	17. UK	93
18. Finland	85	18. Finland	92
19. Iceland	83	19. New Zealand	89
20. Spain	66	20. Spain	68
21. Ireland	55	21. Greece	61
22. Greece	53	21. Ireland	61
23. Portugal	46	23. Portugal	53
24. Mexico	40	24. Mexico	45
25. Turkey	28	25. Turkey	27

Note: a) Mexico and Turkey are excluded. b) 1998 figures are based on estimated population.
Sources: OECD, National Accounts Volume I, 1999; and OECD, Main Economic Indicators, February 2000.

Table 1. continued…

Position 1990	Index	Position 1998[b]	Index
1. Luxembourg	141	1. Luxembourg	162
2. US	137	2. US	139
3. Switzerland	131	3. Norway	124
4. Canada	114	4. Switzerland	123
5. Japan	110	5. Denmark	117
6. Norway	108	6. Iceland	115
7. France	107	7. Canada	111
7. Iceland	107	8. Austria	109
9. Denmark	105	8. Japan	109
9. Sweden	*105 (94[a])*	10. Belgium	107
11. Austria	103	11. Netherlands	106
11. Belgium	103	12. Germany	104
13. Finland	100	13. Australia	103
13. Italy	100	13. Ireland	103
15. Australia	99	15. France	98
15. Germany	99	16. Italy	97
17. Netherlands	98	16. UK	97
17. UK	98	18. Finland	96
19. New Zealand	82	*18. Sweden*	*96(86[a])*
20. Spain	73	20. New Zealand	81
21. Ireland	70	21. Spain	74
22. Portugal	59	22. Portugal	70
23. Greece	57	23. Greece	64
24. Mexico	36	24. Mexico	36
25. Turkey	29	25. Turkey	30

It is important to point out that the lag in household real disposable income is *not* compensated for by more rapid increases in (statistically recorded) public-sector consumption during the 1970-1998 period. In Sweden during 1970-1998, the statistically measured accumulated increase in public-sector consumption per person was 46 per cent (1.3 per cent per year) compared to 48 per cent (1.4 per cent per year) for OECD and 74 per cent (2.0 per cent per year) for European OECD countries.

The issue is further clarified by looking at the *sum* of private and public-sector consumption. As is seen in Figure 4, Sweden's lag is about as large using this measure as it is for household disposable income, namely about 25 per cent. It is not easy to explain why Sweden's lag is larger for household disposable income and total con-

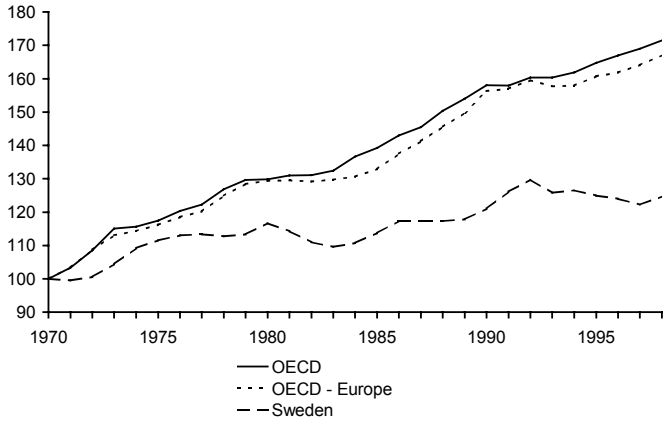
sumption than for GDP, when both are expressed in either domestic or in international prices.[11]

To be able to compare the *level*, and not just the rate of change, of household real disposable income in relation to other countries, it is important to do the calculations in international prices, i.e. PPP-corrected calculations. Unfortunately, this is only possible for a limited number of countries. In 1988, Sweden ranked next to last—after Finland and above Portugal—among the 16 countries for which these types of statistics are available. But here, it should be remembered that the level of Swedish household consumption of public services is higher than in other countries. Public-sector consumption in Sweden accounts for an additional 5 to 10 percentage points of GDP than in most other OECD countries. An "adjusted disposable income" that includes publicly provided services would definitely raise Sweden's standing in the OECD household-income league (in terms of levels) from a "second last" placement. If such a definition of adjusted disposable income is used, Sweden would probably land at about the same place as for the level of GDP per capita.

[11] It would be an interesting task to specify statistically the various components underlying the differences between GDP growth and household disposable income and consumption growth. However this falls outside the realm of this paper. The most important explanation is probably that the prices of consumer goods increased faster than prices for GDP as a whole compared to other countries. Another, relatively marginal explanation might be that insignificant net capital income from abroad in 1970 (.1 per cent of GDP) was successively replaced by net capital expenditure associated with net claims on other countries being replaced by net debt; in 1998, net foreign capital expenditures reached minus 2.4 per cent of GDP.

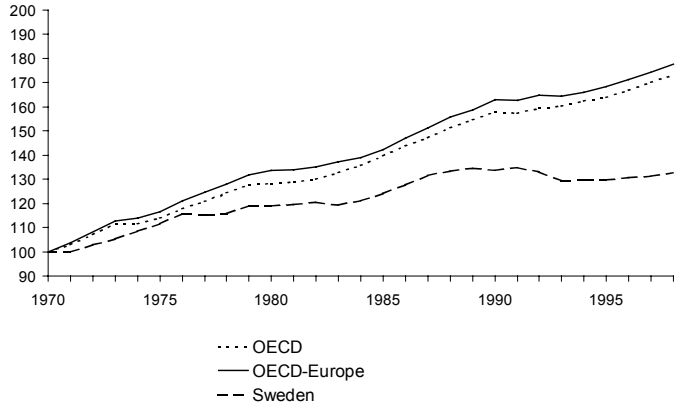
It can perhaps be tempting to explain the relatively low growth of household disposable income and consumption with reference to the increased tax burden. The tax share increased from 41 per cent to 56 per cent between 1970 and 1998. However here we are on the wrong track because increased tax payments are mainly balanced by increased public expenditures to the private sector – either as transfers or public-sector consumption. Nor is it possible to explain much of the difference between the growth of GDP and household disposable income and consumption by claiming that the government's budget position changed between 1970 and 1998. In fact, the budget surplus *fell* from 4.5 per cent of GDP to 2.2 per cent between 1970 and 1998, which helped to sustain household disposable income in 1998.

Figure 3. Household real disposable income per person 1970-1998, index 1970=100 (constant domestic prices)



Notes: OECD: Australia, Austria, Belgium, Canada, Finland, France, Germany, Italy, Japan, Netherlands, Portugal, Spain, Switzerland, Sweden, UK and the US. OECD-Europe: OECD excluding Australia, Canada, Japan and the US. Prior to 1991, only the Western part of Germany is included in the OECD aggregates.
Sources: OECD Economic Outlook 65, June 1999; and OECD, National Accounts Volume I, 1999.

Figure 4. Total consumption per person 1970-1998, index 1970=100 (constant domestic prices)



Source: OECD, Economic Outlook 65, June 1999.

2. Productivity growth

Even if GDP per person illustrates the economic base for material welfare, other measures may be more relevant if we are interested in productivity in the production sector, i.e. the ratio between production and inputs of factors of production. *GDP per employee* is perhaps the most common measure of labour productivity for the economy as a whole, partly because this measure is available for many countries. During the 1960s, the growth of GDP per employee in Sweden was at more or less the same rate as in other developed countries. However, as is shown in Table 2, during the 1970-1990 period, the rate of growth of labour productivity was lower than the average for the developed OECD countries. By contrast, in the 1990s, this measure of labour productivity indicated a more rapid rate of improvement in Sweden relative to the OECD average. One reason is that several low-productive production units disappeared, and that low-skilled workers lost their jobs during the severe crisis in the early 1990s, when employment fell by about 10 per cent. Another reason is that capacity utilisation in the remaining plants increased during the subsequent cyclical recovery after 1993. It is also clear that the reduced sick leave increased labour productivity per employee.[12] GDP *per hour worked* is an alternative measure of labour productivity. However, this measure is only available for a few countries. For Sweden, this productivity measure is more advantageous than data on GDP per employee when we examine the level of productivity rather than its rate of change. This is explained by the shorter annual working hours per employee in Sweden.[13]

[12] An accurate statistical breakdown of different factors behind the more rapid productivity growth during the 1990s would be interesting—but this is also outside the scope of this paper.

[13] The level in Sweden was lower than in Norway, France, Germany and Switzerland (all countries with short working hours) and in the US and Canada. The level was higher than in Finland, Spain, Japan, Australia, New Zealand and the UK.

Table 2. GDP per employed person, annual percentage change (constant domestic prices)

	1960-70	1970-80	1980-90	1990-98[c]
Ireland	4.2	3.8	3.7	4.1
Finland	4.7	2.5	2.5	2.7
Germany[a]	4.2	2.6	1.7	2.6
Portugal	6.4	3.0	1.8	2.6
Sweden	*4.0*	*1.0*	*1.4*	*2.6*
Norway	3.5	3.2	1.8	2.4
Luxembourg	2.9	1.4	2.7	2.4
Australia	2.7	1.9	.9	2.2
Denmark	3.5	1.8	1.5	2.1
Austria	5.2	3.0	2.1	1.8
Italy	6.2	2.9	2.1	1.7
UK	2.6	1.8	1.9	1.7
Belgium	4.2	3.2	1.7	1.5
Greece	8.5	4.0	.6	1.5
Iceland	2.8	3.6	1.1	1.4
Spain	6.6	4.1	2.3	1.4
France	-	2.6	1.9	1.4
Canada	1.8	1.1	1.0	.8
Japan	8.9	3.6	2.7	.8
Netherlands	-	2.6	1.3	.7
US	1.2	.6	1.5	.4
New Zealand	1.2	.6	1.5	.4
Switzerland	3.2	1.1	.2	.4
OECD unweighted[b]	**4.2**	**2.4**	**1.7**	**1.7**
OECD weighted[b]	**3.8**	**1.9**	**1.8**	**1.1**

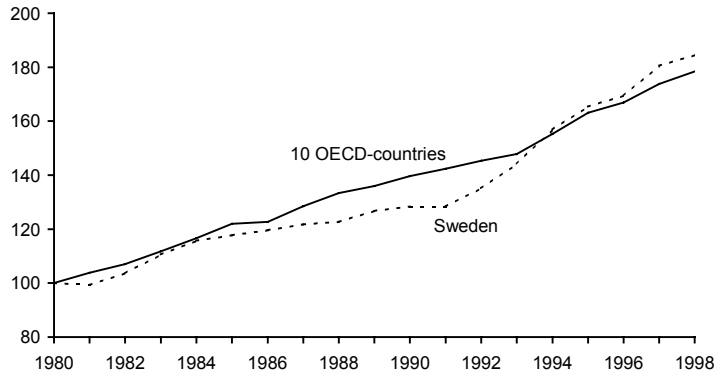
Notes: a) For 1960-90, the figures are for West Germany, and thereafter, for unified Germany. In the forth column, the German figures are for 1991-98. b) OECD refers to only those countries in the table. c) The 1998 figures are based on estimates of employment.
Sources: OECD, National Accounts Volume I, 1999; OECD, Main Economic Indicators, February 2000; OECD, Economic Outlook 61, June 1997; and OECD, Economic Outlook 65, June 1999.

Because the public service sector is especially large in Sweden (about 30 per cent of GDP), productivity growth in that sector is especially important for Sweden. Murray (1997) found that annual public-sector labour productivity decreased by 1.8 per cent per year during the 1970s. If we adjust the official GDP figures for the 1970s based on this information, GDP growth falls by about one-half per-

centage point per year. (Unfortunately, figures do not exist for public-sector labour productivity growth during the 1980s and 1990s. Nor do we have comparable figures for other countries.)

If we limit ourselves to manufacturing industry, where data are often considered to be better than within the service sector, the picture is about the same as for GDP as a whole, up to the early 1990s. This applies regardless of whether labour productivity is measured as production per employee (Table 3A) or as production per hour (Table 3B). For labour productivity per hour, the recovery during the 1990s was so strong within the manufacturing industry that in the 1994-1997 period, Sweden had recovered the productivity losses since 1980 in this sector; see Figure 5. However, these figures refer only to a small, diminishing part of the Swedish economy. Today, the manufacturing industry is about 20 per cent of the GDP in Sweden.

Figure 5. Productivity in the manufacturing industry 1980-1998, index 1980=100 (constant domestic prices)



Notes: The productivity is measured as production per hour. Weighted average of 10 countries: Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Norway, UK and the US.
Sources: US Department of Labour, Bureau of Labour Statistics and OECD, Economic Outlook 66, December 1999.

Table 3. Productivity growth within the manufacturing industry 1960-1998 (constant domestic prices)

	A. Production per employed, annual percentage change				B. Production per hour, annual percentage change			
	1960-70	1970-80	1980-90	1990-98	1960-70	1970-80	1980-90	1990-98
Sweden	*5.6*	*1.9*	*3.0*	*5.8*	*6.7*	*3.4*	*2.5*	*4.6*
France	6.6	3.5	2.8	3.8	7.1	4.5	3.4	4.0
Netherlands	5.7	4.9	3.3	3.7	7.0	6.1	3.6	3.8
US	-	-	3.4	3.6	-	-	3.1	3.3
Denmark	4.5	4.4	.5	3.2	5.8	5.5	.9	-
Belgium	5.4	5.5	4.1	2.9	6.2	7.1	4.0	3.0
Germany	5.0	3.0	1.7	2.7	5.9	4.0	2.5	3.2
Italy	5.8	4.8	4.1	2.5	6.5	5.7	3.7	2.6
Canada	3.7	2.1	2.6	2.3	3.8	2.4	2.4	2.0
UK	3.0	1.5	4.9	2.2	3.7	2.3	4.6	2.2
Japan	9.5	4.8	3.9	1.9	1.5	5.3	4.1	3.0
Norway	3.6	1.6	2.1	1.0	4.6	2.9	2.3	.9
Unweighted average	**5.3**	**3.4**	**3.0**	**3.0**	**6.2**	**4.5**	**3.1**	**3.0**
Weighted average	**6.3**	**3.7**	**3.4**	**3.0**	**7.1**	**4.5**	**3.3**	**3.1**

Notes: The number of employees was used rather than the number of employed for Belgium, Denmark, Italy, and the Netherlands. The weights used to calculate the averages are based on 1995 PPP-corrected GDP. Germany refers to West Germany for all time periods.
Sources: US Department of Labour, Bureau of Labour Statistics and OECD, Economic Outlook 66, December 1999.

From the perspective of the national economy as a whole, we can object to measuring labour productivity as production *per employee* or *per working hour*. Using these measures, we miss productivity losses for the economy as a whole when some workers land outside the workforce or are forced to work fewer hours than they would like to. In particular, fully able-bodied individuals who have landed outside the labour force should be recorded as having zero productivity, which is not the case with conventional productivity measures. The problem is illustrated by the previously mentioned loss of jobs in low-productivity plants during the first half of the 1990s. Another illustra-

tion is that high marginal tax rates tend to result in shorter working hours.[14]

For labour productivity within the national economy as a whole, it is therefore likely that GDP per person *of working age* is a better measure, albeit not a perfect one. In this way, we avoid that the expulsion of workers from low productivity plants into unemployment or early retirement, i.e. a reduction in the denominator in the ratio between production and labour input, is automatically registered as increased productivity. But unfortunately, it is difficult to obtain comparable data among countries, other than for the 15-64 age group. This means that both cross-country variations in the allocation of labour between the home and open market and changes in the number of students may distort the results.[15] According to this measure, Sweden lagged less behind other countries up to the end of the 1980s, than if we measure productivity by GDP per capita or hours of work. But Sweden lagged considerably during the 1990s with this measure: an increase by only .7 per cent per year compared to 1.4 to 1.6-1.8 per cent for OECD; see Table 4. In this respect, the picture looks rather different than for GDP per employee during the 1990s. Naturally, the explanation is the large reduction in employment of low-productivity workers during the first half of the 1990s.

[14] It is often incorrectly argued that the negative marginal effects (substitution effects) on labour supply of higher taxes are counteracted by the fact that households can afford less leisure when taxes increase (positive income effect on labour supply). But it is then forgotten that the money that the household pays in taxes returns to the household in the form of transfer payment or public consumption (income in kind). This means that the income effect of taxes is counteracted by the income effect in the opposite direction of increased government spending for the average household.

[15] From that point of view, it would have been better to use the age group 25-64.

Table 4. GDP per person age 15-64, annual percentage change (constant domestic prices)

	1960-70	1970-80	1980-90	1990-98
Ireland	3.9	3.1	2.9	5.8
Luxembourg	3.1	1.5	3.8	4.4
Norway	3.5	4.1	1.7	3.2
Denmark	3.7	1.8	1.5	2.4
Netherlands	3.5	1.5	1.2	2.3
Spain	6.6	2.4	2.0	2.1
Australia	2.9	1.6	1.4	2.1
US	2.2	1.1	1.7	2.1
Portugal	7.1	3.2	2.7	1.9
Belgium	4.6	2.7	1.5	1.6
UK	2.6	1.7	2.2	1.5
Iceland	2.8	4.5	1.3	1.5
Austria	4.8	3.1	1.6	1.5
Germany[a]	4.2	2.1	1.5	1.4
Greece	7.3	3.8	.7	1.3
France	4.4	2.4	1.3	1.2
Japan	8.4	3.5	3.1	1.2
Finland	3.8	2.8	2.7	1.1
Italy	5.1	3.0	1.5	1.0
New Zealand	1.5	.5	.6	.8
Sweden	*3.9*	*1.8*	*1.7*	*.7*
Canada	2.7	1.8	1.6	.6
Switzerland	3.4	.8	1.3	-.1
OECD unweighted[b]	**4.2**	**2.4**	**1.8**	**1.8**
OECD weighted[b]	**4.1**	**2.0**	**1.9**	**1.6**

Notes: a) For 1960-90, the figures are for West Germany, and thereafter, for unified Germany. In the fourth column, the German figures are for 1991-98. b) OECD refers to only those countries in the table.
Sources: OECD, National Accounts Volume I, 1999; OECD, Main Economic Indicators, February 2000; OECD, Economic Outlook 61, June 1997; and OECD, Economic Outlook 65, June 1999.

3. Why did Sweden lag behind?

Explaining weak GDP and household income growth in Sweden since 1970 is complicated and controversial. It is useful to base the discussion on a distinction between *proximate sources* and *background forces* of economic growth (Lindbeck, 1983). With proximate sources, we mean factors that directly affect production, or to be more exact,

factors that are included as explanatory variables within the economy's production function: labour, real capital, human capital and technology. Growth accounting tries to assign quantitative importance to each of these sources. But a deeper analysis must be able to explain what, in turn, lies behind these proximate sources, that is, what may be called for the sake of simplicity, background forces.

Changes in the age distribution of the population is a partial explanation of the weak growth of GDP per capita in Sweden, especially the rapid growth in the number of persons who are older than 64. Indeed, the population has been ageing earlier in Sweden than in most other developed countries. The role of this factor may be schematically illustrated by comparing GDP per capita with calculations of GDP per person of *working age*. As previously noted, while Sweden was 14 per cent below the average for developed OECD countries in terms of GDP per capita in 1998, the comparable figure is 12 per cent when the comparison is based on figures for GDP per person of working age (OECD and ILO statistics). According to these schematic calculations, changes in the number of elderly have contributed, to some extent, to Sweden's low level of GDP per capita relative to other countries. However, this does not seem to be a dominating factor. Systematic regression studies (Lind and Malmborg, 1999) also indicate that changes in the age structure help explain the productivity growth slow-down—in Sweden as well as in a number of other countries in Western Europe.[16] Their regressions also suggest that a rise in the share of individuals above the age of 64 reduces not only GDP growth per capita but also labour productivity growth.[17]

Another proximate source that is likely to have contributed to the relatively slow economic growth in Sweden is that real investment has fallen since the mid-1980s from a few percentage points above the OECD average to a few percentage points below (Lindbeck, 1998). According to Ragnar Bentzel's calculation, this might explain about one tenth of the fall in labour productivity growth in the business sector since the start of the 1970s (Lindbeck, 1997).

[16] Somewhat surprisingly, in this study labour productivity growth is negatively influenced by a fall in the population share in the age group 45-64, but not by a fall in the share of younger age groups.

[17] As conceivable reasons, they suggest that individuals in this age group contribute to a shift in the allocation of resources to services with slow productivity growth (health care and old-age) and that they dissave.

What role has human capital (education and training) played for Sweden's economic development during recent decades? Often-used rough measures of education level include the average number of school years for population above age 25, and average years of higher education. Using information of this type does not reveal substantial lags in access to human capital as compared to other OECD countries (Sohlman, 1999). However Sweden lost part of its previous leading rank for higher education within the 25-35 age group and to some extent, the 35-45 group. The proportion of the labour force that has a "normal" academic education (at least three years) stagnated from the mid-1980s (Edin, Fredriksson and Holmlund, 1993). This primarily applies to the number of persons with maths, technological, and science education in the business sector, especially at the Ph.D. level (see references in Lindbeck, 1997).

We know less about the quality and efficiency of education. In an international perspective, expenditure per student is relatively high in Sweden's compulsory schools but relatively low at the university level (Forslund, 1995). During the 1970s and 1980s, the number of teaching hours and homework preparation hours (important inputs in the education process) were low in Sweden's compulsory schools; see references in Lindbeck (1997). Regarding achievement, most direct knowledge measurements indicate about an average rank for the compulsory school, compared with other developed countries. Relative quality is less known for university education. On the basis of this type of fragmentary information, it is difficult to argue strongly that changes in educational investment help to explain Sweden's economic lag since 1970. However the stagnation in the number of individuals who have academic training in the business sector may have contributed.

Let us turn then to the third factor in growth accounting, in addition to labour and capital: technology. Most likely, the main explanation for Sweden's growth lag has to be found here. For instance, it is likely that other countries successively caught up with Sweden's technology during the 1970s and at the beginning of the 1980s—the *catch-up hypothesis*. This mechanism, which relies on import and imitation of technology and organisation in leading countries, often applies and is a normal finding in studies that compare growth among developed countries. For example, the catch-up factor is considered to be an important explanation as to why the US and Switzerland gradually lost part of their lead regarding GDP per capita during the 1950-1990

period. But this cannot explain why about twelve other OECD countries passed Sweden during the period 1970-1990, while Sweden did not pass one single country. It is one thing to lose part of the lead in a race (as did the US and Switzerland), and totally another to be surpassed by many other countries as Sweden was. It is also unrealistic to consider the catch-up factor as an iron law. During the 1990s, the relatively strong growth of Luxembourg and the US, the two wealthiest OECD countries, illustrate this (see Table 1).

Indeed, there are some indications that technology development proceeded more slowly during the 1970s and 1980s in Sweden than in other countries.[18] We get additional support for this hypothesis from available studies of the growth of *total factor productivity*, the ratio between production and total factor inputs (labour *plus* capital), which increased relatively slowly in the business sector during the 1970-1990 period.[19] For Sweden's business sector, Ragnar Bentzel's studies suggests that the rate of total factor productivity growth fell from 3.05 per cent per year during the 1950-1970 period to 1.24 per cent per year during the 1970-1993 period (Lindbeck, 1997).[20] According to OECD calculations, total productivity increased in the business sector by 0 per cent per year in Sweden during the 1973-1979 period and by .8 per cent per year during the 1979-1990 period, compared to .8 and 1.0 per cent per year for the OECD during the same periods. The lag is larger if we compare with European OECD countries in which the increase was 1.4 per cent and 1.3 per cent per year during these two periods (OECD, 1992). Because of the more rapid productivity growth during the 1990s, Sweden's figures for total factor productivity growth in the business sector look considerably better for the longer 1979-1997 period: 1.1 per cent per year in Sweden compared to .9 per cent for the OECD and 1.2 per cent for the EU (OECD, 1998).

Moreover available calculations (Murray, 1997) indicate that total factor productivity, and not just labour productivity, grew much more

[18] See Lindbeck (1997).

[19] It is well known that total factor productivity is a shaky productivity measurement, not least due to difficulties in measuring the input of capital services in the production process.

[20] Total factor productivity growth (as a percentage) means production increase minus what can be explained through increased inputs of labour and capital. In Bentzel's analysis, changes in this residual are divided into two components: reallocation gains and "unexplained" residual; the sum of these components yields total factor productivity growth.

slowly in the public-sector services than in the private-sector services, with the previously noted reservation that productivity growth in the health-care sector is probably underestimated in these calculations. According to available calculations, total factor productivity should have fallen by no less than 4 per cent per year during the 1960s, by 1.3 per cent during the 1970s and by .5 per cent per year during the 1980s.[21] Incomplete data indicate improved, and in some years even non-negative, figures during the first half of the 1990s, especially in municipalities (information by private correspondence with Murray).

How do we then identify "background forces" behind the "proximate sources" of slower GDP growth? The fall in returns on higher education can partly explain the stagnation of investments in human capital at the university level from the early 1970s—two sets of figures that have closely followed each other in Sweden. But political decisions to ration the commencement of such studies is another reason. According to Edin, Fredriksson and Holmlund (1993), after tax and without accounting for subsidised student financial aid, the return for men fell from 10 per cent in the 1960s to 1-3 per cent in the early 1980s—based on traditional ("static") calculations of income for different age groups with and without academic studies (compared to high school studies). If account is taken of student financial aid, the measured return is distinctly higher at both points of time—in the early 1970s about 3 percentage points higher. In the 1970s, the compression of wage differentials, after tax, among different professions also reduced economic incentives for professional training and development outside academic groups, which should have had negative effects on human capital investments for workers. Good data are, however, unavailable for this area.

To explain the fall in the investment ratio (real investment as a share of the GDP), it is natural to refer to the reduction in the return to capital in the business sector in the 1980s and the early 1990s (Lindbeck, 1997). Country comparisons also indicate that the return has been lower in Sweden than in most other OECD countries for a long time—at least up to the middle of the 1990s. This was no accident and at least partly the result of intentional actions. The governments and unions (primarily the blue-collar unions) wanted to squeeze profits between rising wage costs and a fixed exchange rate,

[21] The national accounts still do not consider these calculations and continue to accept the assumption of unchanged productivity year after year in the public sector.

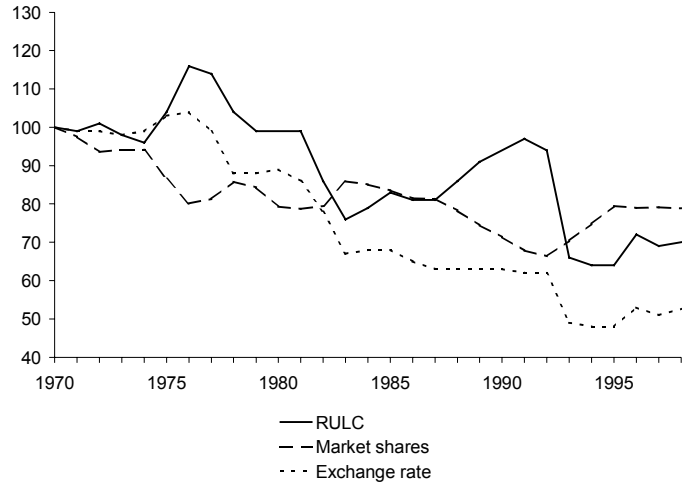
according to the *Rehn-Meidner model,* named after two leading labour-union economists.

The slowdown in the growth of total factor productivity, including technological and organisational improvements and reallocations of resources, remains to be explained. One possibility is to refer to insufficient business-sector competition, for example, as a result of regulations and a weak competition policy (McKinsey, 1995). In fact, the Swedish government has traditionally shown a very relaxed attitude towards weak competition, for instance, as a result of cartels, government regulations and public-sector monopolies in the service sector. General business conditions have for a long time been unfavourable for small and medium-sized firms, due, for example, to tax and regulation systems. Low private saving, especially in the household sector, has also been unfavourable for such firms, including the entry of new ones. This helps to explain the slow growth among small- and medium-sized firms. Traditionally, the government has not been very worried about this poor growth performance among small and medium-sized companies, presumably because of its ideology that large corporations represent "the future" and that such firms are easier for the government to negotiate with—at least before the internationalisation of these firms in the 1980s and 1990s.

The slow total factor productivity growth and reallocation of resources may also be reflected in the development of competitiveness in foreign trade. *Relative unit labour costs* (RULC), i.e. labour costs per unit of output as compared to other countries, fell by about 30 per cent within the manufacturing sector between 1970 and the early 1990s (Figure 6). This means that the (effective) depreciation of the crown since 1970 (by about 50 per cent) has been considerably larger than can be explained by stronger wage inflation and slower productivity growth. We might have expected that a country with such a favourable movement of relative unit labour costs would have seen an increase in its market share in other OECD countries' imports. Up to the early 1990s, however, Sweden experienced falling market shares that were only partly recaptured during the latter part of the 1990s. [22]

[22] The falling market share for Sweden can only to a small extent be accounted for by the fact that new industrial countries have increased their exports to developed countries.

Figure 6. Relative unit labour costs (RULC), exchange rates and market shares, Sweden 1970-98 (index 1970=100)



Sources: The Swedish Ministry of Finance, the Swedish National Institute of Economic Research and Statistics Sweden.

It is not exactly clear how this should be interpreted. One explanation can be that labour and capital in Sweden have been tied up in sectors with falling terms-of-trade in world markets and that Swedish wages have thus been forced to make a comparable downward adjustment. This interpretation agrees with Bentzel's growth accounting in which resource reallocation among sectors contributed only .2 percentage points to annual production growth in 1970-1993, compared with 1.0 percentage points during the 1950-1970 period (see Lindbeck, 1997). This means that the limited ability of the Swedish economy to reallocate resources helps explain the relatively slow productivity growth in Sweden.

A complementary explanation could be that the quality of Swedish industrial products did not improve equally fast as the quality of products that were manufactured in other countries (another aspect of technological catch-up by others). This has forced Swedish firms to lower their export prices and consequently wages (in the same currency) in comparison with other countries. For example, in the 1960s Swedish ball bearings may have been the best in the world, but not in the 1990s, which means that Swedish ball bearings producers had to

lower their relative prices and wages. This interpretation agrees well with the previously described terms-of-trade deterioration for Sweden. We can also say that Sweden succeeded in maintaining industrial production volume to some extent by dumping industrial products in the world market in connection with recurring devaluations. In terms of *volume*, Swedish industrial production did not lag so much behind, but instead we had to accept lowered export prices and domestic wages in relation to other countries. This observation is consistent with the fact that Sweden's lag is greater in terms of PPP-calculations than in terms of constant domestic prices.

Massive reallocation of resources, up to the end of the 1980s, into the public sector with its slow (reported and apparently actual) productivity growth also contributed to Sweden's productivity slowdown.[23] While 10 per cent of the employment existed in the public sector in 1950 and 21 per cent in 1970, comparable figures in 1990 were about 32 per cent. (In 1998 the figure fell to about 30 per cent).

Observers of Sweden's economy usually also claim that high marginal taxes damaged productivity growth via negative effects on work intensity, human capital investment, reallocation of labour to high-productivity sectors, saving and so on—a view that I find reasonable. Large asymmetries in taxing different types of assets also intensified the negative effect (distortions) of broad tax wedges on saving and investment allocations. The background to the gradually increased marginal tax rates after the World War II, especially after 1970, is that during recent decades, a large portion of the population went from being market financed to being tax financed—either as public-sector employees or as recipients of public-sector transfers. Today, about two thirds of the population is tax financed rather than market financed—more than four million adult people out of a total of 6.5

[23] Production of personal services in Sweden occurs to a great extent in the public sector and not in the private sector, which also exaggerates measured productivity growth in Sweden's *business sector*—compared with other countries. The reason is that productivity growth is slower in the service sector than in industry. Nevertheless, registered productivity growth per hour in the business sector during the 1970-90 period was .2 percentage points slower per year than the OECD average and .8 percentage points slower than for European OECD countries. A slightly larger difference occurred in the 1970s than in the 1980s (OECD data; see also Lindbeck, 1998).

million. So for every market financed person, there is about 1.6 tax financed, as compared with .6 in 1960.[24]

To generalise: several background forces underlying the growth slowdown in Sweden seem to be related to changes within Sweden's economic system from around 1970 toward centralisation, regulation (in particular, in the labour market), and the reduced role of economic incentives for both households and firms (Lindbeck, 1997). Deficiencies in short-term stabilisation policy (demand management) may also have contributed to retard economic growth, in Sweden as well as in other countries. In particular, there has often been expansionary demand management in cyclical upswings and restrictive policies during cyclical downswings, rather than the reverse as recommended by textbooks. Obvious examples are expansionary policies in the upswings of 1969-1970, 1979 and 1986-1990 and restrictive policies in the downswings of 1971-1972, and 1991-1992. There is no reason, however, to assume that the deficiencies in stabilisation policy have been greater in Sweden than in other countries.

But it is important to remember that weak economic development during three decades does not necessarily mean that growth must be equally weak during the coming decades. Several factors, presented in this paper as explanations of the weak growth in the years following 1970, have been modified or totally dismissed in recent years. Marginal tax wedges and asymmetries in the tax system have been reduced, partly through tax reforms (especially in 1990-1991), and partly as the result of lower inflation. Human capital returns have increased due to wider wage differences and lowered marginal tax rates. Human capital investments have been facilitated via the expansion of the number of available places for students in colleges and universities. The consolidation of public-sector finances and low inflation have also reduced the risk for highly restrictive economic policies during coming years. Regulations have been largely removed in the capital and foreign exchange markets and within energy and telecommunication.

Other asserted forces behind Sweden's poor growth performance after 1970, however, still operate. Not a lot has been done about the

[24] These types of calculations build on certain approximations, for example, regarding how absence from work because of health problems is distributed between employees in the public and the private sector. This is one reason why published calculations differ somewhat. But the general pattern is the same regardless of how these approximations have been made.

inadequate competition in the business sector, especially in the public sector. There has not been much improvement in working conditions for small firms, and rigid institutions and regulations in the labour market have hardly been touched. As a result of the large public-sector expenditures and egalitarian ambitions in income distribution policy, the tax wedges are still very wide, partly because the 1990-1991 tax reforms have been nipped in the bud.

Naturally, we must remember that other countries have also made tax reforms and deregulations. Even if actions that have been taken in Sweden would have positive effects on domestic growth, it is thus not obvious that growth will increase *in relation to other countries*. What is possibly advantageous for Sweden is that the country is on the leading edge in important production areas such as medicine and IT. Young people in Sweden are also quite knowledgeable in the language (English) that dominates in the use of these technologies. Moreover, so far the new firms in the IT sector have not been much harmed by the tax system and labour market regulations in Sweden, since many of these firms do not yet make any profits and labour market regulations are avoided by partnership, option programs and contract work. Moreover, as one of the least affluent countries in Western Europe today, Sweden will have the catch-up factor in its sails.

Only the future can reveal whether Sweden will succeed in turning around the relatively weak growth trend since the start of the 1970s. While productivity growth has recovered within the manufacturing industry, Sweden has a long way to go to return to its relative position three decades ago in terms of GDP and household income (per person); see Figure 1. Only three percentage points of the 18 per cent relative fall in GDP per capita since 1970, compared to the OECD, have been recovered so far (by late 2000). Even if GDP per capita were to increase one percentage point faster per year than in the other rich OECD countries, it would take 15 years before Sweden had returned to its relative position in 1970. It is an open question as to whether the political system in Sweden would allow an incentive structure that would be conducive to this more rapid improvement in economic performance compared to other developed countries. The development during the last years (1998-2000), however, looks promising.

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