

NATIONAL WEALTH AND STOCKS OF FIXED ASSETS IN SWEDEN 1981-90

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This paper gives an overall description of sources and methods for a System of National and Sectoral Balance Sheets which recently has been added to and integrated with the System of Swedish National Accounts. The main results of the new estimates are also summarized.

INTRODUCTION

The System of National Accounts in Sweden has now been extended and includes an integrated set of Accounts and Balances, covering not only Flows but also Balances of various types of real and financial assets and liabilities. The definitions are made in accordance with the 1968 version of the UN System of National Accounts (SNA) and the Provisional Guidelines on the National and Sectoral Balance Sheets (M60) of 1977. Some aspects included in the Drafts of the Revised SNA, which are now available, have also been taken into account.

The new information on National Wealth and National and Sectoral Balance Sheets is presented in the attached tables.

Stocks of Fixed Assets have also formerly been included in the System and they were presented i.a. in the *Review of Income and Wealth*, Series 22, Number 4, 1976, but these figures have now been revised and updated. In addition estimates have been also made for other components of the National Wealth. The description below summarizes the sources and methods for the new estimates. The main results of the new estimates are also presented.

SOURCES AND METHODS FOR ESTIMATING THE NATIONAL WEALTH IN SWEDEN

In the Swedish System of National Accounts the National Wealth is subdivided into four main categories, i.e. Tangible Fixed Produced Assets, Inventories, Tangible Non-Produced Assets and Financial Assets and Liabilities. There is no homogeneous set of statistics which covers all categories and the description below is therefore specific for each category. It should be noted that Intangible Produced and Non-Produced Assets are not yet included in the System due to lack of data.

Note: In the National Wealth Project at Statistics Sweden, I participated as coordinator and I was also responsible for the estimates of Non-Produced Assets. I am very grateful to my colleagues at the National Accounts Division for their valuable work on the various other parts of the System—Mrs. Christina Liwendahl and Mr. Michael Wolf on Fixed Produced Assets, Mrs. Anita Salång on Inventories and Mr. Bo Bergman on Financial Assets and Liabilities.

Tangible Fixed Produced Assets

About 50 percent of the Swedish estimates on the stock of tangible fixed produced assets rely on Perpetual Inventory of data in constant prices on fixed capital formation, included in the National Accounts. For a number of capital objects these figures have been projected backwards to account adequately for the full length of service lives. The remaining 50 percent of the estimates have been calculated on the basis of census-type information or registration records on the stock value of the assets.

The gross value of the stock of fixed assets has been calculated in accordance with the Perpetual Inventory Method by using the formula

$$K(t) = \sum_{\tau=t-\lambda(\max)}^{t-1} I(\tau) * \varphi(t-\tau)$$

where $K(t)$ is the gross replacement value of fixed assets in the beginning of year (t) , $I(\tau)$ the fixed capital formation in constant prices in the year τ and $\varphi(t-\tau)$ the proportion of assets of vintage τ still existing in the year t . φ denotes a survival curve with a distribution of service lives around an average value and with a maximum value of $\lambda(\max)$ and $t-\tau$ denotes the number of service years for each vintage of assets.

The net value of the stock of fixed assets has been derived using the formula

$$N(t) = \sum_{\tau=t-\lambda(\max)}^{t-1} I(\tau) * \varphi(t-\tau) * \left(1 - \frac{t-\tau}{\lambda(t-\tau)}\right).$$

$\lambda(t-\tau)$ denotes the average service life of assets of vintage τ still in use in year t .

So far there is only scarce information directly available in Sweden on the average service life of fixed assets. However, in the fixed capital stock estimates made in the 1960s it was possible to calculate service life data indirectly from a number of sources, sometimes by checking against stock data directly available from insurance or book values, sometimes referring to expert judgments. These earlier data have now been thoroughly revised. They have also been given a test of reasonability by comparing with figures from other countries, notably Canada.

The survival curves which are used in the estimates are of the Winfrey-type. For capital objects such as building and construction right-skew curves have been used—reflecting the noted fact that more than 50 percent of such objects tend to be withdrawn later than the year of their average life. For objects such as machinery, transport equipment etc., symmetrical curves have been used. This reflects an assumed procedure of scrapping with 50-50 proportions on each side of the average life.

The Perpetual Inventory estimates contain a breakdown by industry, sufficiently detailed to enable a regrouping into institutional sectors. This is the case for a number of important industries, such as mining and manufacturing, electricity, gas and water supply, construction and large parts of the service industries, private as well as producers of government services. For a number of capital objects, capital stock estimates have been based on census-type information or registration records. This is the case for residential and owner-occupied

dwellings and also for aircraft, vessels for fishing, merchant ships, motorcars, buses and lorries.

The estimates have been set up as a system of identities, primarily given in constant prices as

$$N(t) + FC(t) - CC(t) = N(t+1),$$

where $FC(t)$ denotes gross fixed capital formation and $CC(t)$ consumption of fixed capital. Since the Perpetual Inventory method gives data both on opening and closing stocks, $CC(t)$ has usually been calculated as a residual. The sets of identities have then been reflatd using indexes referring either to prices in the beginning or to prices in the average of each year. Doing so necessitates the introduction of a price valuation discrepancy P , giving the identity in current prices as

$$N(t) + FC(t) - CC(t) + P(t) = N(t+1).$$

$P(t)$ is equal to the so-called nominal holding gain, and it has been further subdivided into neutral and real holding gains.

Inventories

The estimates of inventories have also been made with an industrial breakdown, consisting of agriculture, forestry, mining and manufacturing, electricity and water supply and wholesale and retail trade. Each industry has also been further subdivided into institutional sectors.

Using statistics of inventories compiled for the National Accounts, opening balances for 1986 have been calculated for each industry. These data have been recalculated into the average prices of 1985. Using national accounts data on changes in inventories sets of identities

$$S(t) + C(t) = S(t+1)$$

have been calculated in constant prices. $S(t)$ and $S(t+1)$ denotes opening and closing balances respectively and $C(t)$ refers to change in inventories. The sets of identities have been revalued into current prices and balanced by the introduction of a valuation adjustment $P(t)$, as described in the section above.

Tangible Non-produced Assets

Data have been calculated separately for three categories, viz. *agricultural and other land (including land underlying buildings), timber tracts and subsoil assets.*

For *agricultural and other land* the estimates have been based on annual information given in the statistics of assessment of real estate, with a detailed breakdown into various types of real estate. General Assessments (GA) have taken place for 1981 and 1988 and Special Assessments (SA) have been made annually in the intervening years. In the GA each unit of real estate of a given type has been assessed and valued on the basis of the market value observed for transactions of similar types. The values are subdivided so that land value is separated from value relating to building and construction. In the SA assessments are added for units which are new, and units which have been subject to substantial

change are revalued. These new values and/or revaluations are still given in the market price level used for similar units according to the currently available GA. Annual data in constant prices can consequently be obtained.

There is also a system of price statistics covering units which have been transacted. For these units the ratio between the current market value and the market value from the base year of the GA can be obtained. It has therefore been possible to calculate annual figures valued at current as well as 1985 prices. Furthermore, it has also been possible to obtain a subdivision into institutional sectors.

The Assessments do not cover non-commercial buildings, most of which are owned by the central or local government sector. For such non-assessed units there is information on the land areas in physical terms. As this is available also for assessed units, it has been possible to calculate m²-prices for assessed units in various types of real estate and impute these prices to non-assessed land areas for similar types of real estate.

The sum of areas of assessed and non-assessed land should in principle be constant in physical terms, as sales between sectors should cancel out at the national level. Due to statistical imperfections the anomaly of variations—usually increases—in the national totals are obtained. These increases are magnified when land is valued in money terms and annually increased values are obtained not only in current but also in constant prices. In principle the latter should solely reflect a shift of land from non-economic to economic uses, as well as an upgrading of land value when land is transferred from less valuable to more valuable uses. Increases due to expenditures on land improvement should in principle be excluded and recorded as fixed capital formation. This has not been possible in practice so the influence of such expenditures to at least some degree explains the increase obtained in the recorded volume change in land.

Also the prices and price-indexes obtained in the referred price statistics are subject to some unreliability which causes problems in reconciling the SA for 1987 with the GA of 1988. These problems have been formally solved by inserting an unfortunately rather large statistical discrepancy between these two years.

The GA and SA also covers *timber tracts* and data in current prices on the growing stock can be calculated using the same methods as for agricultural and other land. It is not possible however to obtain useful volume figures with these methods due to the fact that the Assessments do not properly reflect changes due to natural growth less fellings.

In the National Forest Inventories data are given on the levels and changes in the growing stock in terms of standing volume, and balances can also be obtained showing the natural growth and annual fellings. These data are available in physical units. It is also possible to obtain a breakdown into institutional sectors. Implicit prices have been calculated for 1985 by comparing with values on the growing stock obtained from the SA reflatd by use of the price statistics for the same year. A set of annual balances in 1985 prices showing opening stocks, natural growth, fellings and closing stocks is thus available. Balance data in current prices have then been obtained by using prices which can be calculated implicitly by comparing with the growing stock in current prices based on the GA and SA.

The data on *sub-soil assets* available in the GA and SA only cover non-metallic mineral reserves such as gravel and peat digging land and these assets can be calculated using the same methods as for agricultural and other land. For metallic mineral reserves, which have been sub-divided into iron ore and metal ore reserves, data on the assets in physical terms (metric tons) have been available from the National Geological Survey, and it has been possible to obtain data also on new finds and depletion.

Natural resource rents have been calculated annually from the National Accounts data on net operating surplus in the iron ore and other metal mining industries. Deductions have been made to provide for a 7 percent interest on the stock of fixed capital assets used in the mining industry. This was also the rate that was observed for all industries in the period 1981-88. Three-year averages have been calculated to lessen the effect of large annual fluctuations and negative values, which occur in the first half of the 1980s for iron ore mining. These negative values, which would imply an anomaly in the wealth estimates, have been set to zero. The stock values of the reserves have been calculated as the discounted present value of resource rents assumed to be available at the current levels and also in future years for the duration of the reserve. The real rate of discount has by convention been set to be 2 percent annually.

Given the wealth value of the reserves calculated as described, it has been possible to establish implicitly the corresponding prices per metric ton of the reserves, and these prices have also been used to calculate the value of new finds and depletions.

Financial Assets and Liabilities

Data on flows and balances of financial assets and liabilities are recorded in the Financial Accounts, which are calculated as a system parallel to the Real Accounts. These Systems are related to one another in respect to data on net lending, which in principle should be identical within each institutional sector. In practice the identity is only obtained in a formal way by inserting statistical discrepancies.

The data on transactions of financial assets and liabilities have in many cases been obtained as the difference between closing and opening balance for each financial object and institutional sector. Time-series data on opening and closing balances by object and sector are therefore an integral part of the Financial Accounts. There are often difficulties, however, of reconciling closing balances for one year with opening balances for the ensuing year. In the data presented here this also causes statistical discrepancies.

The balances of financial assets and liabilities are calculated from annual statistics from banks and other financial institutions as well as from non-financial corporations, and central and local government. The individual accounts of bank loans and deposits are given a centrally established identification number, which enables a classification to the relevant institutional debtor/creditor-sector; data for households can thus be obtained. In many cases the debtor/creditor-sector is obvious from the type of financial object. Financial balances are given in nominal values or to some extent book values, except for corporate equities quoted on the stock exchange, which have been valued at current market values.

TABLE A
NATIONAL BALANCE SHEETS BY TYPE OF CAPITAL
(Million kronor current prices)

ALL SECTORS	1981	1982	1983	1984	1985	1986	1987	1988	1989
Tangible Fixed Produced Assets									
Opening balance	1,360,797	1,507,945	1,664,098	1,830,952	1,994,118	2,122,710	2,271,854	2,502,750	2,868,208
Gross fixed cap. formation	106,967	115,761	129,625	114,580	163,776	171,556	192,969	219,146	263,413
less Cons. of fixed capital	71,373	80,042	91,162	99,453	109,087	117,398	127,389	141,212	158,146
Nominal holding gains	104,770	112,640	118,780	110,928	62,301	84,282	149,410	268,381	239,975
of which neutral	138,686	154,657	145,053	132,240	116,628	103,398	112,296	198,707	265,112
of which real	-33,916	-42,017	-26,273	-21,312	-54,327	-19,116	37,114	69,674	-25,137
Discrepancies	6,784	7,794	9,611	7,111	11,602	10,704	15,906	19,143	21,735
Closing balance	1,507,945	1,664,098	1,830,952	1,994,118	2,122,710	2,271,854	2,502,750	2,868,208	3,235,185
Inventories									
Opening balance	154,593	167,781	183,815	187,389	191,922	196,455	188,713	189,092	197,365
Change in stocks	-4,073	-6,286	-10,263	-7,757	-484	-5,840	-4,503	-3,090	179
Nominal holding gains	17,261	22,320	13,837	12,290	5,017	-1,902	4,882	11,363	11,426
of which neutral	15,585	17,142	15,406	13,113	11,003	9,062	8,886	14,298	17,650
of which real	1,676	5,178	-1,569	-823	-5,986	-10,964	-4,004	-2,935	-6,224
Discrepancies	0	0	0	0	0	0	0	0	0
Closing balance	167,781	183,815	187,389	191,922	196,455	188,713	189,092	197,365	208,970
Tangible Non-produced Assets									
Opening balance	533,327	573,815	577,178	622,182	679,561	748,679	832,973	1,063,554	1,263,080
Transactions	0	0	0	0	0	0	0	0	0
Other volume effects	6,751	2,913	3,322	2,540	3,413	4,672	7,912	6,512	8,149
timber tracts, net	903	818	928	1,082	1,202	1,035	1,237	1,439	1,858
sub soil ass. new finds	38	16	176	67	81	81	58	67	320
sub soil depletion	-130	-204	-349	-382	-386	-293	-241	-337	-559
land reserve, qual. eff.	5,939	2,282	2,567	1,772	2,515	3,849	6,858	5,343	6,531

Nominal holding gains	33,740	464	41,725	54,895	65,730	79,626	173,037	193,053	256,562
of which neutral	53,523	56,118	49,776	45,004	40,461	37,214	44,611	86,077	121,225
of which real	-19,784	-55,654	-8,052	9,891	25,268	42,412	128,426	106,976	135,336
Discrepancies	-3	-14	-43	-54	-25	-4	49,863	-40	-24
Closing balance	573,815	577,178	622,182	679,561	748,679	832,973	1,063,785	1,263,080	1,527,766
Financial Assets									
Opening balance	2,054,586	2,379,443	2,727,634	3,171,863	3,541,672	3,945,430	4,778,457	5,294,928	6,374,624
Transactions	266,553	278,821	327,293	369,799	333,768	597,301	457,307	774,787	814,409
Nominal holding gains	55,181	64,745	108,468	-12,507	63,743	218,941	23,301	250,608	192,907
of which neutral	214,358	249,002	244,843	232,100	212,107	205,262	236,921	431,733	597,114
of which real	-159,177	-184,257	-136,375	-244,607	-148,364	13,679	-212,620	-181,125	-404,207
Discrepancies	3,123	4,625	8,468	12,517	6,247	16,785	34,863	54,301	-9,840
Closing balance	2,379,443	2,727,634	3,171,863	3,541,672	3,945,430	4,778,457	5,294,928	6,374,624	7,372,100
Financial Liabilities									
Opening balance	2,091,610	2,447,639	2,845,484	3,321,850	3,712,932	4,114,327	4,950,771	5,479,917	6,594,252
Transactions	280,221	298,616	338,821	376,148	346,008	604,636	470,824	790,457	875,774
Nominal holding gains	72,200	95,344	121,839	3,361	42,862	213,113	24,118	275,104	193,155
of which neutral	219,445	258,072	255,959	243,206	221,743	213,290	245,324	446,702	618,588
of which real	-147,245	-162,728	-134,120	-239,845	-178,881	-177	-221,206	-171,598	-425,433
Discrepancies	3,608	3,885	15,706	11,573	12,525	18,695	34,204	48,774	-16,326
Closing balance	2,447,639	2,845,484	3,321,850	3,712,932	4,114,327	4,950,771	5,479,917	6,594,252	7,646,855
National Wealth									
Opening balance	2,011,693	2,181,345	2,307,241	2,490,536	2,694,341	2,898,947	3,121,226	3,570,407	4,109,025
Savings net	16,055	6,925	20,050	39,220	39,555	48,737	54,168	62,469	72,713
Discr. Fin. vs Real Acc.	1,798	2,713	-3,378	-8,199	2,410	-7,754	-6,608	-3,295	-28,632
Capital transfers net									
Other volume effects	6,751	2,913	3,322	2,540	3,413	4,672	7,912	6,512	8,149
Nominal holding gains	138,752	104,825	160,971	162,245	153,929	167,834	306,298	448,301	507,715
of which neutral	202,707	218,846	199,119	179,251	158,456	141,647	157,389	284,112	382,513
of which real	-63,956	-114,021	-38,148	-17,006	-4,527	26,188	170,123	164,189	125,202
Discrepancies	6,296	8,520	2,330	8,001	5,299	8,790	66,428	24,630	28,197
Closing balance	2,181,345	2,307,241	2,490,536	2,694,341	2,898,947	3,121,226	3,570,638	4,109,025	4,697,166

TABLE B
NATIONAL WEALTH 1990 BY TYPE OF CAPITAL AND SECTOR
(Million kronor current prices)

Sector Matrix 1990	Total	Non fin. Corpor.	Financial Corpor.	Central Gov.	Local Gov.	Social Sec. Fund.	House- holds
Fixed Produced Assets	3,235,185	1,393,707	55,667	241,271	639,513	766	904,261
Build. and Construction	2,637,678	914,500	34,494	228,667	629,951	663	829,403
Machinery and equipment	597,507	494,623	6,196	15,945	24,522	103	56,118
Adj. for trans. of buildings	0	-15,416	14,977	-3,341	-14,960	0	18,740
Inventories	208,970	194,186	0	3,681	854	0	10,249
Non-produced Assets	1,527,766	487,423	0	53,884	391,941	0	594,518
Agricultural land	71,847	5,215	0	0	4,871	0	61,761
Timber tracts	170,468	58,634	0	0	14,521	0	97,314
Iron & metal ore reserves	12,969	12,696	0	0	0	0	0
Other sub-soil assets	1,837	787	0	0	118	0	932
Other land	1,270,917	410,091	0	53,884	372,432	0	434,511
Financial Assets	7,372,100	1,653,147	3,461,317	268,720	69,986	403,329	1,515,601
Gold, SDR	3,312	0	3,312	0	0	0	0
Currency	68,308	9,872	8,030	0	82	0	50,324
Bank deposits	617,726	117,330	123,359	10,319	11,020	589	355,109
Gen publ. savings scheme	66,734	0	0	0	0	0	66,734
Certificates of deposits	10,395	-385	9,957	80	743	0	0
Other certificates	84,843	33,045	43,847	1,903	1,993	4,055	0
Treasury bills	117,497	13,918	97,023	1,323	575	658	4,000
Bonds	982,876	118,284	473,353	9,704	3,436	292,897	85,202
of which own sector			288,353				

Corporate equity quoted	724,636	146,431	263,077	32,889	7,978	41,404	232,857
Other equity and shares	622,299	293,120	78,779	8,368	8,622	922	232,488
Tenants oversight rights	169,000						169,000
Loans	2,536,228	483,754	1,821,358	168,925	15,576	15,554	31,061
of which own sector			27,943				
Trade credits and adv.	246,705	244,037	0	0	0	0	2,668
Net eq. on life ins. res.	128,642	0	0	0	0	0	128,642
Deposits in Central bank	26,530	26,295	235	0	0	0	0
Avista loans on fin. sect.	495,469	0	460,682	2,987	0	31,800	0
Other assets	470,900	167,446	78,305	32,222	19,961	15,450	157,516
Financial Liabilities	7,646,855	3,083,732	3,055,543	585,420	102,465	153	819,542
Currency	68,308	0	68,308	0	0	0	0
Bank deposits	577,520	0	577,520	0	0	0	0
Gen publ. savings scheme	66,734	0	0	66,734	0	0	0
Certificates of deposits	18,951	0	18,951	0	0	0	0
Other certificates	84,843	19,592	59,698	0	5,553	0	0
Treasury bills	73,182	0	0	73,182	0	0	0
Bonds	1,164,161	74,082	693,849	387,468	8,762	0	0
Corporate equity quoted	776,944	604,837	172,107	0	0	0	0
Other equity and shares	475,753	291,874	183,879	0	0	0	0
Tenants ownership rights	169,000	169,000					
Loans	2,813,407	1,409,403	511,901	27,176	51,315	65	813,547
Trade credits and adv.	236,511	230,516	0	0	0	0	5,995
Net eq. on life ins. res.	128,642	0	128,642	0	0	0	0
Deposits in Central bank	26,530	0	26,530	0	0	0	0
Avista loans on fin. sect.	495,469	0	464,609	30,860	0	0	0
Other liabilities	470,900	284,428	149,549	0	36,835	88	0
National Wealth/Net Worth	4,697,166	644,731	461,441	-17,864	999,829	403,942	2,205,087

Nominal, Neutral and Real Holding Gains

For each type of real and financial asset and liability described above, figures are given also on nominal, neutral and real holding gains. The existence of nominal holding gains can be explained as an effect of a change in the actual prices used annually for revaluating opening and closing balances, respectively. The neutral holding gains have been calculated by using an index reflecting the change in the general price level during each year. The real holding gains have been obtained residually and these therefore reflect the changes in real net worth due to changes in relative prices.

The indexes reflecting the changes in the general price level have been constructed implicitly from data in the quarterly National Accounts which are available in both current and constant prices. The indexes used to deflate opening balances were calculated using the averages for the fourth and first quarters of data on Final Consumption of Households and Government and Gross Fixed Capital Formation.

MAIN RESULTS OF THE NEW ESTIMATES OF NATIONAL WEALTH IN SWEDEN

The System of National Wealth estimates in Sweden has been constructed to show National Wealth sub-divided by capital type as well as by institutional sector. For each year the various factors behind the change between opening and closing balances are also shown. The attached Table A shows data for all sectors for the period 1981-89. Table B gives a sector matrix for 1990, with a detailed breakdown by type for each one of the institutional sectors.

The description below relates first to the size and composition of the National Wealth. This is followed by an analysis of the factors explaining the changes of the National Wealth. Finally comments are made regarding the structure and financing of the National Wealth.

The Size and Composition of the National Wealth

As shown in Table 1, the National Wealth in Sweden amounted to 2,012 billion Kronor (Bkr) at the beginning of 1981 and it increased to 4,697 Bkr in 1990.

TABLE 1
NATIONAL WEALTH SUBDIVIDED BY TYPE OF CAPITAL; BILLION KR. AND PERCENT

Year	1981	1985	1990			
Fixed prod. assets	1,361	67.6	1,994	74.0	3,235	68.9
bldg. and constr.	1,094	54.5	1,610	59.8	2,638	56.2
other	267	13.3	384	14.3	597	12.7
Stocks	155	7.7	192	7.1	209	4.4
Non-produced assets	533	26.5	680	25.2	1,528	32.5
Fin. assets net	-37	-1.8	-171	-6.4	-275	-5.8
bonds and loans	-103	-5.1	-275	-10.2	-458	-9.8
deposits, treasury bills and trade credits	53	2.6	82	3.0	95	2.0
corp. equities	13	0.6	21	0.8	94	2.0
National Wealth	2,012	100.0	2,694	100.0	4,697	100.0

Source: Statistics Sweden, National Accounts and Balance Sheets.

In 1981 67.6 percent of the National Wealth consisted of fixed produced assets. The share of inventories and nonproduced assets was 7.7 and 26.5 percent respectively. There was also a negative entry in the National Wealth composition due to a long period of net borrowing from abroad. In 1981 these net financial liabilities to the rest of the world amounted to -1.8 percent of the National Wealth.

The share of fixed produced assets increased to nearly 74 percent in the middle of the 1980s, followed by a decrease to 69 percent in 1990. The increase related to building and construction, while other fixed assets—machinery and equipment—decreased its share moderately. The proportion of stocks fell successively during the period and amounted to 4.4 percent of the National Wealth in 1990. On the contrary there was a substantial increase for non-produced assets to a share of 32.5 percent in 1990. The increase referred solely to other land, while agricultural land, timber tracts and mineral reserves only changed their shares of the National Wealth insignificantly.

Net financial liabilities to the rest of the world increased substantially till 1985 and the share of the National Wealth then was -6.4 percent. In 1990 the share was -5.8 percent. The detailed data given in the system on the net position of the various types of financial objects show that the share of liabilities to abroad in the form of bonds and loans increased from 5.1 percent to 9.8 percent. The share of net financial assets in the form of deposits, treasury bills and trade credits decreased modestly. A substantial amount of portfolio investments during the period implies that net assets of corporate equity in companies and subsidiaries abroad has increased its share of the National Wealth from 0.6 percent in 1981 to 2 percent in 1990.

Table 2 shows the sectoral distribution of the National Wealth. The largest owner-sector is households, with a share that increased from 38.5 percent in 1981 to nearly 47 percent in 1990. The share of non-financial corporations fell from 24.2 percent in 1981 to 13.7 percent in 1990. There was an increase for financial

TABLE 2

NATIONAL WEALTH SUBDIVIDED BY INSTITUTIONAL SECTOR; BILLION KR. AND PERCENT

Year	1981		1985		1990	
Non-fin. corporations	487	24.2	658	24.4	642	13.7
Financial corp.	135	6.7	250	9.3	464	9.8
Central government	28	1.4	-193	-7.1	-18	-3.4
Local government	420	20.9	618	23.0	1,000	21.3
Social security funds	168	8.3	251	9.3	404	8.6
Households	774	38.5	1,110	41.2	2,205	46.9
National Wealth	2,012	100.0	2,694	100.0	4,697	100.0

Source: Statistics Sweden, National Accounts and Balance Sheets.

corporations from 6.7 percent 1981 to 9.8 percent 1990. The shares of local government and social security funds have been subject to only minor changes and amount to between 21-23 percent and around 9 percent, respectively. The Net Worth of central government has been negative for most years in the period, notably so for 1985, but in 1990 it was close to zero.

Table 3 shows the composition and sectoral distribution of the National Wealth and how it has changed from 1981 till 1990. The increased share of households, noted above, has only to some extent been caused by accumulation of fixed produced assets. The major factor has instead been large increases of financial assets, which are only partly offset by increases of financial liabilities. For non-financial corporations there has been some increase for fixed produced assets, a large increase for non-produced assets and a decrease for stocks. The decreased share in the National Wealth of Net Worth of non-financial corporations has been caused by substantial net borrowing, so that the shares of liabilities less claims has increased from 18.9 to 30.5 percent of the National Wealth.

TABLE 3
NATIONAL WEALTH SUB-DIVIDED BY TYPE OF CAPITAL AND SECTOR 1981 AND 1990
(Percent of the National Wealth each year)

	Non-fin. corp.	Finacial corp.	Centr. gov.	Local gov.	Social sec. f.	House- holds
1981						
Fixed prod. assets	28.7	0.8	5.3	15.4	0.0	17.4
Inventories	7.0	0.0	0.2	0.1	0.0	0.3
Non-produced assets	7.4	0.0	0.9	6.2	0.0	12.0
Financial claims	19.7	42.6	6.2	2.2	8.3	23.0
Financial liabilities	-38.6	-36.7	-11.3	-3.0	-0.0	-14.3
Net Worth	24.2	6.7	1.4	20.9	8.3	8.5
1990						
Fixed prod. assets	29.7	1.2	5.1	13.6	0.0	19.3
Inventories	4.1	0.0	0.1	0.0	0.0	0.2
Non-produced assets	10.4	0.0	1.1	8.3	0.0	12.7
Financial claims	35.2	73.7	5.7	1.5	8.6	46.9
Financial liabilities	-65.7	-65.1	-12.5	-2.2	-0.0	-17.4
Net Worth	13.7	9.8	-0.4	21.3	8.6	46.9

Source: Statistics Sweden, National Accounts and Balance Sheets.

For financial corporations the demands for credit from other sectors, chiefly non-financial corporations, have implied that financial claims as well as liabilities have increased their proportions and the share of Net Worth of financial corporations in the National Wealth has also increased from 6.7 to 9.8 percent.

The composition of Net Worth of the various sub-sectors of General Government has changed very little between the years shown in Table 3. However, the years in between implied heavy net borrowing from central government, culminating in 1986 and 1987 in a net liability share of more than 14 percent of the National Wealth. As can be seen in the table, this share in 1990 was just below 7 percent.

The Changes of National Wealth

The System of National and Sectoral Balance Sheets is shown only in current prices but there is information to also enable analysis of the changes in volume terms of the National Wealth and of the Net Worth for the different institutional

sectors. This is possible by the sub-division of all nominal holding gains into neutral vs. real holding gains. It has been described above that the neutral holding gains reflect the effect on capital values of inflation as measured by an index based chiefly on prices for consumption and fixed capital formation. By deducting these, the volume changes in National Wealth and Net Worth can be established and these changes can in turn be sub-divided into the various components shown in the system, cf. Table A. For individual years the figures unfortunately may be subject to statistical errors and in the system there are still sometimes quite large discrepancies. Therefore, it is so far advisable only to analyse the average changes for the entire period. This is done in Table 4 below.

TABLE 4
VOLUME CHANGES IN NATIONAL WEALTH 1981-90
(Average annual change in percent)

	Total	Non-fin. corp.	Fin. corp.	Centr. gov.	Loc. gov.	Social sec. f.	House- holds
All components	2.26	-0.89	0.62	-0.31	0.53	0.24	2.08
Savings	1.33	-0.09	1.47	-1.09	0.19	0.84	0.01
Capital transf.			-0.05	0.05			
Volume effects	0.18	0.07			0.04		0.07
Real hold. gains	0.34	-0.74	-0.70	0.65	0.31	0.60	1.42
Discrepancies	0.41	-0.13	-0.10	0.09	-0.01		0.57
All capital types	2.26	-0.89	0.62	-0.31	0.53	0.24	2.08
Fixed prod. ass.	1.74	0.76	0.09	0.10	0.12		0.67
Inventories	-0.27	-0.24		-0.02			-0.01
Non-prod. assets	1.39	0.58		0.05	0.42		0.35
Fin. assets net	-0.60	-1.99	0.53	-0.44		0.24	1.07
Fin. claims		2.62	5.26	0.07	-0.05	0.24	1.84
Fin. liabilities		-4.60	4.73	-0.51	0.04		-0.78

Source: Statistics Sweden, National Accounts and Balance Sheets.

The table shows as percentages the average annual volume change in National Wealth and sectoral Net Worth sub-divided into component and type of capital. The average annual increase during the 1980s for National Wealth in real terms was 2.26 percent. This is a remarkably high figure, since the change in GDP during the period only amounted to around 2 percent annually. Savings increased slowly compared to GDP, with a savings ratio as low as in average 4 percent av GDP.

The main and analytically most interesting component in the formation of Wealth is savings. As is shown in Table 4 the contribution to the changes in National Wealth of savings amounted to 1.33 percent per year. The other components with a contribution of 0.34 and 0.18 percent respectively were real holding gains and other volume effects. The remaining change, which unfortunately was as high as 0.41 percent, is due to unallocated statistical discrepancies.

As can be seen in Table A, real holding gains occurred mainly in the years 1987 and 1988. To a large extent these related to non-produced assets—in 1988 also to fixed real capital. By definition the volume-effects only relate to non-produced assets. In the system they are further sub-divided so that the effects of

net growth of timber tracts, new finds less depletion of sub-soil assets and other volume-effects—mainly land quality effects—can be shown separately. The net growth of timber tracts only amounts to 0.04 percent of the change in the National Wealth and the effect of net depletion of sub-soil assets has been even less significant, merely 0.01 percent per year. Land quality effects and transfer from land reserves amounted to as much as 0.15 percent per year. Large figures are obtained notably for the years 1981 and 1987–89. It should be pointed out that large reassessments of land and estates were made in those years and that it has been very difficult to separate volume and price effects.

The unfortunately rather large effect of statistical discrepancies as an element of the change in the National Wealth can in part be explained by the difficulties in reconciling data on net lending in the Real vs. the Financial Accounts, which have been notable in later years, especially in 1989. This implies that savings according to the Financial Accounts contributes 0.16 percent less to the change of the National Wealth than according to the Real Accounts used here. This in part offsets the effect of other types of discrepancies, which in total are as high as 0.57 percent. In turn, these are mainly due to large revisions of land values which was made in the General Assessment 1988 for residential and industrial estates and which it was not possible to fully allocate as price or volume effects.

Table 4 also shows how the various components of change in the National Wealth can be allocated to institutional sectors. The positive effect of savings can be referred mainly to financial corporations and social security funds, while the effect of savings of central government has made a negative contribution as high as –1.09 percent. It is important to note that the contribution of savings of households was insignificant—only 0.01 percent. This low figure can be attributed to savings behaviour in the later years and it was influenced by the impression of large though not always realized capital gains. For the period 1981–86 the average annual increase for the savings of households was at a more normal level of 0.32 percent.

The effects of real holding gains have been distributed differently than savings. Corporations—non-financial as well as financial—and social security funds have made large losses with corresponding negative effects on the formation of Wealth in these sectors. Substantial real holding gains have been made in the household sectors and in the central and local government sectors. For households the real holding gains, which compensates for the dissaving of households in the later 1980s, mainly refer to financial assets, where corporate equities and tenants ownership rights dominate. This is the case especially for 1986, but the later years in the 1980s also show real holding gains on fixed real capital and land. For central government, its financial assets as well as its liabilities, have been subject to decreases in relative prices and real holding gains have been made due to the fact that financial liabilities have been much larger than financial assets.

The change in National Wealth is also shown for different types of capital. The major effects on the change relate to fixed produced assets and non-produced assets—the average change of these types of capital were 1.74 and 1.39 percent respectively. The accumulation of wealth in these assets has to some extent been financed by net borrowing from the rest of the world and therefore net claims from abroad have decreased by 0.60 percent annually. The accumulation of fixed

produced assets largely refers to non-financial corporations and households. This is also the case for the accumulation of non-produced assets. The latter type of accumulation also explains a large part of the change in wealth of local government. The increases of both financial claims and liabilities were the largest ones for financial corporations, but net financial assets contributed only to 0.53 percent on average of the change in National Wealth. Large increases for net financial assets were also obtained for households and significant decreases are shown for non-financial corporations.

The Structure and Financing of the National Wealth

The information in the System of National Balance Sheets can as was done by Goldsmith and Lipsey in the beginning of the 1960s also be used to calculate a number of interesting ratios; to show the structural changes in the composition of National Wealth and also to analyse the financing of wealth accumulation.

One of these ratios showing the financial structure is the ratio between financial and material assets, the latter defined as the sum of fixed produced assets, stocks and non-produced assets. This ratio is also referred to as the financial interrelations ratio (FIR). FIR can also be expressed as the sum of twice the ratio for financial corporations, excluding intra-sectoral claims, and the ratio for all other sectors (where the numerator consequently refers only to financial assets not related to financial corporations). Taking twice the ratio for financial corporations is necessitated by the fact that credit channelled through financial intermediaries is registered as assets both by original lenders and by financial corporations. FIR therefore measures the volume of credit made directly available in relation to material assets as well as the double volume of credit made available through financial intermediation of funds from original lenders to ultimate borrowers.

Row 1 in Table 5 shows the ratio between total financial assets and material assets for the entire economy, cf. Table A. Row 2 refers to funds channelled through financial corporations and it has been calculated by excluding not only intra-sectoral assets in the form of bonds and loans, but also assets mainly intended for current transactions, such as gold, SDRs, currency, deposits, bank-certificates, deposits in the Central Bank and avista loans to financial intermediaries (cf. Table B with data for 1990). Since the funds are channelled, the ratio is taken twice. Row 3 has been obtained as a residual and row 4 refers to

TABLE 5
THE FINANCIAL INTERRELATIONS RATIO AND ITS COMPOSITION

Year	1981	1983	1985	1987	1988	1989	1990
Fin. assets/mat. assets	1.00	1.12	1.24	1.45	1.41	1.47	1.48
Channel. thru. fin. corp.	0.65	0.76	0.86	0.98	0.94	0.98	1.02
Directly channelled	0.35	0.36	0.38	0.47	0.47	0.49	0.46
of which equity	0.10	0.12	0.14	0.20	0.19	0.22	0.24
of which other assets	0.25	0.24	0.23	0.27	0.28	0.27	0.22

Source: Statistics Sweden, National Accounts and Balance Sheets.

the ratio of corporate equities, other capital participations and tenants ownership rights for sectors other than financial corporations to the total of material assets for the entire economy. Row 5 has been calculated as a residual.

The development of FIR in Sweden during the 1980s was influenced strongly by the credit market deregulation which took place during the latter part of the decade. As the table shows, FIR has increased successively, from 1.00 in 1981 to a high level of 1.45 in 1987. It is interesting to note the extent that this has been brought about by expansion of credit channelled through financial intermediaries. The table also shows that funds channelled directly have increased in importance, but then with reference only to corporate equity and similar types of capital participations.

For the entire economy the ratio between material and total assets can be derived from FIR and therefore does not give additional information. However, in Table 6 this ratio is shown separately for each sector, where it is an important indicator of the financial situation.

TABLE 6
THE RATIO BETWEEN MATERIAL ASSETS AND TOTAL ASSETS

Year	1981	1983	1985	1987	1988	1989	1990
Non-financial corp.	0.69	0.66	0.61	0.58	0.58	0.56	0.56
Financial corp.	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Central government	0.51	0.52	0.51	0.51	0.50	0.52	0.53
Local government	0.91	0.90	0.91	0.92	0.92	0.93	0.94
Social security funds	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Households	0.56	0.54	0.53	0.47	0.49	0.49	0.50
All sectors	0.50	0.47	0.45	0.41	0.41	0.40	0.40

Source: Statistics Sweden, National Accounts and Balance Sheets.

The ratio is extremely high for local government and there it has increased from 0.91 in 1981 to 0.94 in 1990. Consequently, for this sector the wealth structure is dominated by material assets, while financial assets are small. This domination has increased successively during the period, as the ratio indicates. Also for non-financial corporations there is a high share of material assets but the ratio has decreased from 0.69 in 1981 to 0.56 in 1990. The types of financial assets which have had an increased importance for these corporations are loans, corporate equity and capital participations and bonds. These types accounted for 70 percent of the total change. For households the share of material assets has been subject to a small decline. The increased importance of financial assets relates to a large extent to corporate equity and tenants ownership rights. For central government the ratio has been fairly constant at the level around 0.50.

The ratio between liabilities and total assets is often considered to be one of the most interesting ratios in the balance sheet of a company, since it reveals how large a proportion of the total assets is represented by liabilities and net worth, respectively—the latter proportion being derived residually. Even then the ratio cannot be interpreted as an exact measure of the original financing of assets—by borrowing or by savings. This would be the case only if historic values were used and revaluations and price changes could be disregarded. In the

National Balance Sheets, where current market valuations are applied, the ratio is even less informative than for a company. It is nonetheless interesting to compare levels and changes for the different sectors.

TABLE 7
THE RATIO BETWEEN LIABILITIES AND TOTAL ASSETS

Year	1981	1983	1985	1987	1988	1989	1990
Non-financial corp.	0.61	0.64	0.66	0.75	0.76	0.80	0.83
Financial corp.	0.85	0.84	0.84	0.85	0.85	0.86	0.87
Central government	0.89	1.30	1.54	1.66	1.49	1.20	1.03
Local government	0.13	0.12	0.11	0.11	0.10	0.09	0.09
Social security funds	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Households	0.27	0.28	0.28	0.28	0.28	0.28	0.27
All sectors	0.51	0.55	0.58	0.61	0.61	0.62	0.62

Source: Statistics Sweden, National Accounts and Balance Sheets.

For the entire economy the liability/total asset-ratio increased significantly during the first part of the 1980s, but a value around 0.60 was established in the second part. Table 7 shows that this can be largely explained by the development of public debt—the ratio for central government rose steadily until 1987 but later it fell rapidly. For non-financial corporations there was a steady increase during the period. For households the ratio implied that liabilities were incurred in a fairly constant relation to the acquisition of assets throughout the period. A low and decreasing level was obtained for local government.