

**INCOME AND EXPENDITURE OF PRIVATE HOUSEHOLDS  
IN THE CONTEXT OF A SAM**

**Concepts and First Results for Germany 2000**

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## 1. Introduction

Ageing society and intensifying international competition are two long-term developments that are likely to cause far reaching changes in the social and economic system in Germany and elsewhere within the next decades. Social and economic developments are, thereby, in many respects interrelated. Current political debates often merely focus on the future of the social welfare system, especially in terms of the burdens that the welfare state may represent for labour markets, economic growth and government budgets.

Yet, less attention is given to the impacts a changing ageing structure and a changing income distribution may have on the level and the structure of private consumption. The increasing necessity for an additional private coverage of social risks (e.g. health care, old age insurance) may also influence the level of consumption expenditures and saving, respectively. Private demand, in turn, effects production, labour demand and finally the distribution of income among different groups of households. The following scheme roughly illustrates how variations in the socio-demographic structure of the population initiate changes within the economic cycle.

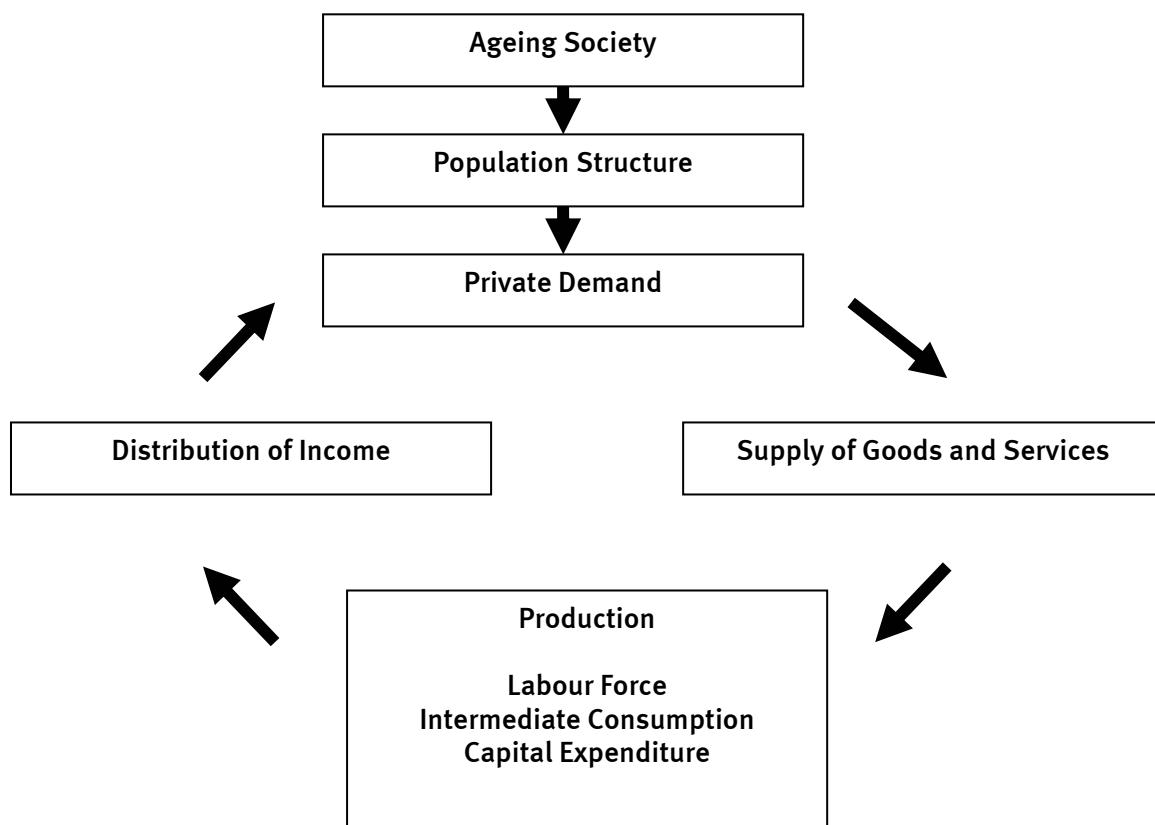


Figure 1. Interrelations between demographic change and private consumption within the economic cycle

However, an analysis of these interrelations requires a consistent framework that covers the circular flow of goods and services, as well as income on a meso-level. Concepts for such a framework are already developed and referred to as a Social Accounting Matrix (SAM). A SAM provides an organisational scheme for combining detailed information on private households (e.g. income by groups of households) with national accounts. The strength of a SAM arises from its consistency and its flexibility for extensions e.g. towards an integrated socio-economic and environmental accounting system. Ideas for the latter are outlined in Chapter 6 of the System for Integrating Environmental and Economic Accounting (SEEA). A SAM delivers a very condensed picture of the socio-economic (and possibly environmental) situation of a given year and can also be used as a data base for socio-economic modelling. Indicators derived from such a modelling framework are interrelated with each other and are thus suitable to describe consistent scenarios for a sustainable development.

A pilot-SAM for Germany with preliminary results for the year 2000 was published three months ago. The paper on hand centres on the SAM modules on private consumption, income and labour force. The following chapters cover compilation methods and first results related to these issues. The last chapter gives an overview on plans for the future and possible further extensions of the SAM.

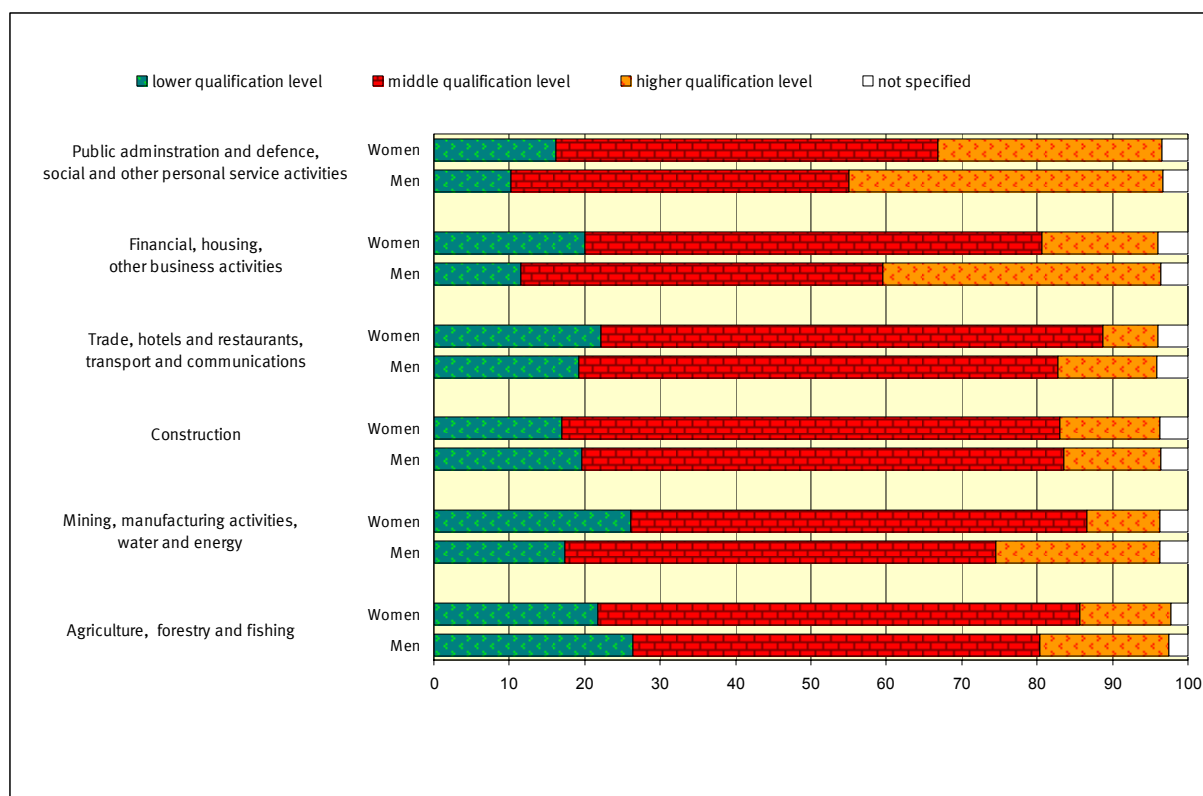
## **2. Some case studies**

### **2.1. Qualification of employees**

As mentioned in Chapter 1, changing socio-demographic structures will affect households' final consumption in future. This process is going to change the structure of the final demand and consequently the supply side in a market economy. Therefore, it will have a bearing on the production, and thus, on the demand for labour. In our view the structure of the labour force is one interesting aspect for economic analyses in the context of a SAM. Important structural factors are qualification, gender and age. With regard to the rapidly changing demand for labour, these factors also gain importance if viewed against the flexibility of employees to start a new occupation.

National and international discussion focuses increasingly on the qualification of the labour force. It is a generally accepted fact that qualification will become a key factor for economic success, especially in industrialised countries in future. With regard to international comparisons qualification should be classified based on the International Standard Classification of Education (ISCED). Consistency is equally important following up a SAM, which is conceptually based on national accounts.

A direct link is already given between generation of income (SAM) and labour force accounting in national accounts. In addition, the German Microcensus provides detailed structural information on the labour force every year. Figure 1 points out some differences in qualification between the branches. For example employees show the highest qualification level in the branches public administration and defence, social and other personal service activities. Qualification levels of men are still mostly higher than those of women across the branches, but changes are on the way.



**Figure 2. Qualification level of employees 2000 by industries**

For analyses data have to be as detailed as possible. Our most detailed level is the NACE<sup>1</sup> two digit level for activities. The data are available for women and men, and also for different age groups. Due to small absolute frequencies of data on some age groups in the Microcensus we are not able to show data for each age group, we have to summarise some cohorts.

## 2.2. Income of private household by household groups

In accordance with the European System of National Accounts (ESA 95) and the System of National Accounts (SNA 93) the Federal Statistical Office calculates income of private households by household groups regularly. Concepts and calculations are based on national accounts. Households are allocated to household groups according to the basic income source of the main economic supporter of the household. The calculation is made for the following types of households:

- Households overall
- Households of employers
- Households of employees
- Appointee households (white collar worker)
- Households of civil servants
- Households of blue collar workers
- Non-active households
- Households of unemployment benefit receivers

<sup>1</sup> Classification of Economic Activities in the European Community

- Retiree households
- Pensioner households (former civil servants)
- Households of welfare recipients
- Other households

Table 1 shows the average household income and the main constituent parts of household income for selected household groups. Compensation of employees along with property and entrepreneurial income add up to primary income. Received current transfer minus performed current transfer reflects secondary income distribution. Households of employers dispose of the highest disposable income (95 500 Euro per year), second rank households of civil servants (47 500 Euro per year) and third appointee households (37 700 Euro). It is important to keep in mind that in accordance with national accounts some imputed income and some cash in transit are part of disposable income. For example imputed income of owner occupied dwellings is part of disposable income, but in fact not available for households. Especially cash in transit is important regarding a comparison between household groups. Most of employer and civil servant households insure themselves with a private health insurance. They receive cash in transit from their insurance for consumption of health goods, which is part of their disposable income. In contrast, members of the compulsory health insurance obtain social benefits in kind which are not part of disposable income.

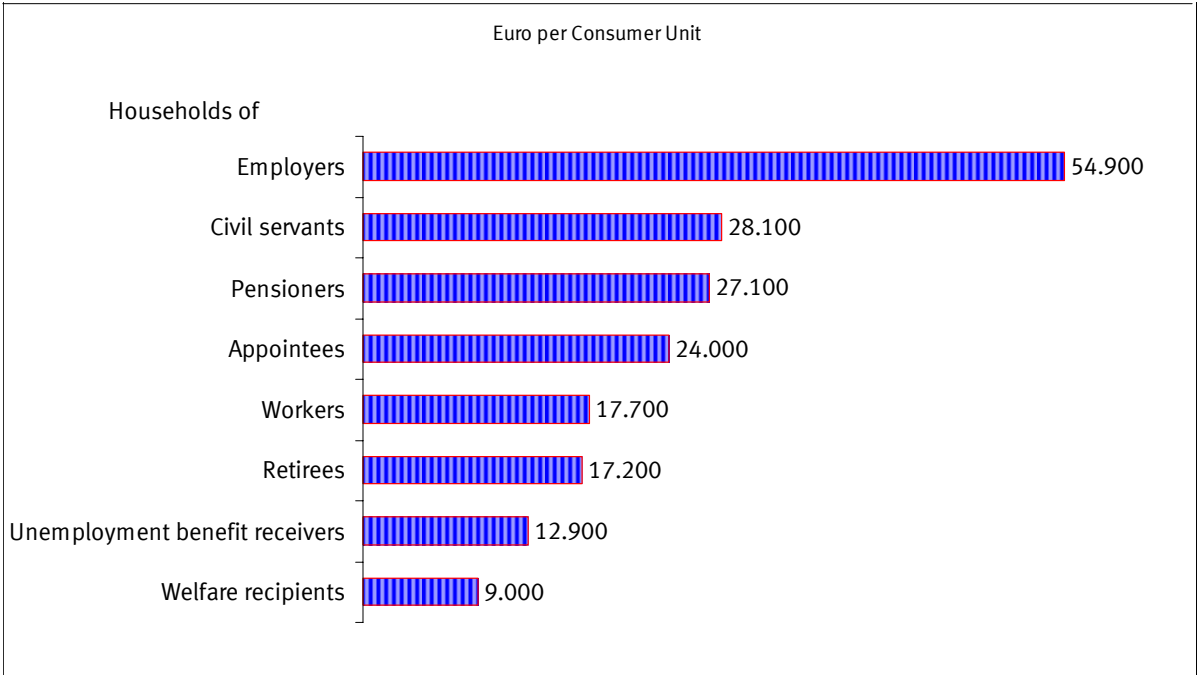
**Table 1. Income and current transfer by household groups in 2000**

Household group	Received income and transfer			Performed current transfer	Disposable income	
	Received income and transfer in total	thereof				
		Compensation of employees	Property and entrepreneurial income	Received current transfer		
	Euro per household					
Households total .....	53 100	29 100	11 500	12 500	19 300	33 800
among households of: <sup>1)</sup>						
Employers .....	127 600	12 900	107 100	7 600	32 100	95 500
Civil servants .....	83 300	68 100	5 400	9 700	35 800	47 500
Appointees .....	70 400	61 600	4 200	4 700	32 700	37 700
Workers .....	54 900	47 200	2 700	5 000	24 300	30 600
Unemployment benefit receivers .....	29 800	7 400	2 500	19 800	10 000	19 700
Retirees .....	28 800	3 500	4 900	20 300	6 000	22 700
			%			
Housholds total .....	100	55	22	23	36	64
among households of: <sup>1)</sup>						
Employers .....	100	10	84	6	25	75
Civil servants .....	100	82	6	12	43	57
Appointees .....	100	87	6	7	46	54
Workers .....	100	86	5	9	44	56
Unemployment benefit receivers.....	100	25	8	67	34	66
Retirees .....	100	12	17	71	21	79

1) Key income source of the main economic supporter.

Structure and size of households are important factors for socio economic analyses. Figure 2 covers both aspects. The new OECD equivalence scale assigns the first person a

weight of 1, every further person 15 years or older a weight of 0.5 and every person under 15 years living permanently in the household a weight of 0.3. In principle, there are only minor differences in the ranking order, but larger differences concerning the income level compared to household income.



**Figure 3. Equivalence weighted disposable income (new OECD-scale) 2000 by household groups**

In our view, income of private households by household groups is a central component for a SAM, as well as for a socio-economic reporting system. On the one hand, income is relevant for all kinds of wealth analyses and on the other, it is important for economic analyses in the context of consumption and demand. Different household groups (and types of families, respectively) and accordingly households with different income levels have different consumption needs. Demographic changes, as well as changes in the industrial structure, will have an influence on income distribution. Changes in the industrial structure will reduce households of workers and in an aging society the number of retired people (households) is going to increase. The unbroken trend towards smaller households can influence the income distribution among households, especially in terms of equivalence income and the consumption needs. For example smaller households have to pay a (relative) high amount of their income for housing (see Chapter 2.3).

Differentiated information concerning the income distribution would be helpful because of great differences within one household group. For example appointees comprise high paid managers, as well as low paid sales assistant in the retail industry. Unfortunately data are not available in a breakdown by income levels in national accounts for the time being. Only household budget surveys can provide income distribution data. Yet, this information does not show a complete picture because of methodological problems like voluntary participation. Besides, time series are important for trend analyses. Based on ESA 95 we do have data from 1991 to 2002 and are planning to update this time series next year.

## 2.3 Consumption of private households

In the course of this year, accounting by household groups as described above was extended by an analysis of the use of disposable income, that is to say a socio-economic breakdown of private consumption. A module on private consumption by household group is an important feature of the SAM, as it represents the link between detailed socio-economic information on the flow of income and disaggregated data on the flow of goods and services. This connection allows analysing the impacts of an assumed change in the structure of the population – say, a higher proportion of recipients of pensions - on consumption, production and generation of income within the economic system. A changing population structure can both affect levels and structures of private demand. As the latter implicates structural changes in production, a subdivision of consumption by type of expenditure is crucial for socio-economic analyses in connection with the SAM. For describing consumption patterns, the Classification of Individual Consumption According to Purpose (COICOP) is the most suitable tool. A transition matrix from COICOP to NACE can be applied subsequently to link this information with the input-output section of the SAM.

For the sector Private Households as a whole, private consumption by COICOP categories is already part of the national accounting framework. In order to show private consumption in a cross-classification by household groups and COICOP categories, additional information from household budget surveys is necessary. The most encompassing survey of this kind is the German Household Budget Survey (HBS) which is carried out every five years. However, this information is not directly compatible with national accounts data on private consumption. Apart from the fact that household budget surveys are affected by random and systematic errors, this has two reasons. Firstly, the sample of the HBS does not comprise high income households (net income higher than 17.900 EUR in 1998) and population living in institutions such as prisons or retirement homes. Secondly, concepts and definitions differ between HBS and national accounts, e.g. regarding net (ESA) or gross (HBS) estimation of private insurance services. Therefore, adjustments and estimations are necessary to attain results that are compatible with national accounts data. Remaining discrepancies in levels between HBS and national accounts were adjusted by a reconciliation technique. Finally, the results of the HBS for 1998 were applied to aggregate national accounts data for the year 2000. Combined with the already compiled data on disposable income by household group, the results for private consumption also comprise saving as a balancing item. Like in national accounts, saving could only be calculated as a residual.

Table 2 and 3 summarise the results on consumption and saving as percentage of disposable income by household group and by household size. Regarding consumption, housing including extra costs is the largest expenditure position irrespective of household group, whereas households with low average income like worker (22 %) and non-employed households (28 and 30 %) show the highest shares (see table 2). It can also be seen that average expenditure shares for housing decrease with rising household size from 26 % in case of single-person households down to 19 % in case of households with four, five or more members (table 3). In contrast, expenses for food, beverages and tobacco increase with the number of persons in the household, whereas household groups with low disposable income showing the highest shares (e.g. 21 % in case of unemployment benefit receivers). These examples on varying expenditure patterns suggest that long-term changes in forms of life (like the unbroken trend towards single-

person households) may lead to shifts in the demand for goods and services, and in turn, on production and demand for labour.

A look at the last row of table 2 and 3 shows that saving rates also vary strongly between different types of households. In principle, the results support the assumption that saving rates increase with rising disposable income, whereas employers save an exceptionally high share of their income (27 %) and unemployment benefit receivers and retirees show negative savings. Concerning employers we must consider that this group - different from employees - often have to cover old-age provisions by means of their disposable income. Average saving rates also increase with the number of persons in the household. This might, to some extent, be ascribed to rising household income resulting from additional potential income receivers, but also partly to falling consumption needs due to shared facilities. An analysis of saving rates by household types is, in our view, crucial, as saving determines the level of consumption and thus affects the aggregate level of domestic demand which is regarded as a key factor for economic growth. A re-allocation of income from low to high income households for instance could lower the overall level of consumption, as high income households tend to have higher marginal saving rates.

**Table 2. Uses of disposable income by household groups in 2000**

Use of income	Households total	among households of: <sup>1)</sup>					
		Employers	Civil servants	Appointees	Workers	Unemployment benefit receivers	Retirees
Disposable income .....	33 800	95 500	47 500	37 700	30 600	19 700	22 700
	Euro per household and year						
	Uses of disposal income in %						
Food, beverages and tobacco .....	14	10	12	13	17	21	17
Furniture, clothing and footwear .....	12	10	12	13	12	12	13
Housing, water, electricity, gas and other fuels .....	22	16	17	19	22	30	28
Health <sup>2)</sup> .....	3	3	8	2	2	2	4
Transport and communications .....	15	13	16	18	17	16	14
Leisure, entertainment and culture .....	9	7	9	9	9	10	10
Hotel and restaurant services .....	6	5	6	6	5	5	6
Miscellaneous goods and services <sup>3)</sup> .....	9	9	9	9	9	10	10
Saving .....	10	27	11	11	7	-6	-2

1) Key income source of the main economic supporter.

2) Without social benefit of the compulsory health insurance but inclusive private settled benefits of private insurances.

3) Inclusive Education.



**Table 3. Uses of disposable income by size of household in 2000**

Use of income	House holds total	Single-person household	Two-person household	Three-person household	Four-person household	Households with five or more persons
	Euro per household and year					
Disposable income .....	33 800	18 900	35 400	45 200	52 600	56 800
	Uses of disposal income in %					
Food, beverages and tobacco .....	14	12	14	15	15	16
Furniture, clothing and footwear .....	12	11	13	12	12	11
Housing, water, electricity, gas and other fuels .....	22	26	21	20	19	19
Health <sup>1)</sup> .....	3	4	4	3	3	3
Transport and communications .....	15	15	16	16	15	14
Leisure, entertainment and culture .....	9	10	9	8	8	8
Hotel and restaurant services .....	6	6	6	5	5	4
Miscellaneous goods and services <sup>2)</sup> .....	9	10	9	9	9	9
Saving .....	10	6	8	12	14	16

1) Without social benefit of the compulsory health insurance but inclusive private settled benefits of private insurances.

2) Inclusive Education.

### 3. Future plans

The first results described above can only represent a first step towards a more comprehensive analysis of consumption in the scope of the SAM. At present, further work is done to improve the quality of estimations and to obtain more detailed data for the year 2000. Results will be published by the end of this year.

However, analyses on the interrelation of demographic change, income and consumption should be based not on one reporting year but on a time series to comprise changes and trends in household market behaviour. Our plan for the next year is, therefore, to compile a time series on consumption that will cover the beginning of the 19nineties up to current years.

The data on consumption together with already existing time series on income by household group will also provide a basis for econometric models on the socio-economic impacts of demographic change in Germany. We started a collaboration with external institutions such as the Institute of Economic Structures Research (GWS) which is part of a newly established research network on socio-economic modelling at the University of Bielefeld. Within the intended division of work our project group will deliver important base data, whereas the modelling part will be taken over by experts of the research network. Corresponding co-operation projects are already planned for next year.

Concerning further extensions of our system our office works together with two research institutes to compile data on inputs and outputs related to private consumption in

physical units. When completed, this information can be linked to the SAM module on consumption in monetary units. This would allow introducing environmental aspects into socio-economic analyses.

Although this paper stresses the potentialities of the SAM we also see some clear limitations. Due to its complexity the SAM is, in our view, mainly a scientific tool with strong emphasis on modelling applications. It is less useful for supplying the public with concise information on current developments. We, therefore, see the need for delivering comprehensible information on specific topics in addition to the all-embracing picture of the SAM. Satellite accounts can be very helpful for the analyses of specific topics in the context of national accounts. The Federal Statistical Office has compiled a satellite system on household production for the second time last year and we are currently planning an additional satellite system on health accounts. We believe that the SAM approach and satellite accounts are complementary parts within an integrated socio-economic and environmental reporting system.