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THE ALLOCATION OF TIME IN THE NETHERLANDS IN THE CONTEXT OF THE SNA; A MODULE*)

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Abstract

This paper presents a module on informal production, supplementing the national accounts. Its purpose is to incorporate informal production into the concepts of the SNA. The relation between formal and informal production is shown in the framework of a Social Accounting Matrix. To avoid a controversial valuation of informal production, the module consists of two social accounting matrices, one expressed in actual prices with informal labour valued zero, and one which expresses the embedded informal labour input measured in terms of hours worked. To visualize the relative magnitude of informal labour, both matrices are supplemented by a table of total labour input, broken down by type of (in)formal labour and type of (in)formal industry.

Contents

1. Introduction

The System of National Accounts (United Nations, 1968) is the most comprehensive statistical implementation of the rather abstract term 'the economy'. It provides a coherent framework for recording and presenting the main flows relating to production, consumption, accumulation and external trade. Emphasis is laid on the 'industrial' production of goods and services. Informal production plays a limited role. In the current system of national accounts (SNA), households hardly act as producers, except for self-employed producers for the market, and the imputed services of owner occupied dwellings. Nevertheless the size of informal production is very large, see for example Bruijn-Hundt (1976), Fitzgerald and Wicks (1990), Hawrylyshyn (1976), Homan, Hagenaars and Van Praag (1987), Kendrick (1989) and Murphy (1982).

In this paper an attempt is made to incorporate informal production within the concepts of the SNA. We therefore extend the current production boundary and adopt a slightly modified "third party" criterion (Hawrylyshyn, 1977). In contrast with Eisner (1988) we do not introduce total accounts, but add the informal sector to a social accounting matrix (SAM) of the formal economy. This extended SAM can be considered as a prototype for a SNA-module on total production.

The module on total production can serve many purposes. For example, it can be used to study the effects of increased female labourforce participation on consumption and national income. Another use of the module is a study of the effects of decreasing working time and the study of prosperity differences between two periods or two countries.

Section 2 of this paper describes the conceptual framework. In order to separate the structure of the module from the controversial issue of valuation of informal production, the current module consists of two SAMs: one in which the input of unpaid labour is valued zero, and another which shows the (embedded) informal labour input, measured in terms of hours worked. Relevant information which is not included in those SAMs is presented in one or more supplementing tables. Section 3 presents an implementation of the second SAM, which can be considered as a SAM of informal production. The paper ends in section 4 with some concluding remarks.

2. The Conceptual Framework

To incorporate informal production within the concepts of the National Accounts it is necessary to modify the definition of the term 'production' that is, to change the production boundary (Begeer and Van Tuinen, 1985). An often used production boundary in this context, is the 'third party criterion' of Hawrylyshyn (1977). Here, the 'third party' criterion is interpreted as: ***Productive activities are activities which can also be done by others to obtain the same results.*** This definition includes household work, do-it-yourself and voluntary work, but excludes activities like recreation, personal care and study. In future extensions of the module, the latter may be classified as informal labour used for the production of knowledge, which can be considered as informal fixed capital.

According to the Dutch National Accounts only part of all these productive activities adds to the national income (CBS, 1990a). They include:

- all production of goods and services for the purpose of selling them against payment of money;
- the own-account production of some specific goods and services with a market equivalent: own-account capital formation, services of owner occupied dwellings and self consumed production of farmers;
- the production of government;
- goods and services of non-profit organizations with paid employees.

Here, the activities above will be called 'formal activities'. Goods and services produced through these activities are labeled 'formal goods'.

Productive activities which are not included in the National Accounts will be called 'informal activities', here. We limit ourself to those informal activities in which unpaid labour is involved. This leads to the next operational definition: ***Informal activities are productive activities which do not contribute to the national income as currently defined, and in which unpaid labour is involved.*** Goods and services produced through informal activities are are labeled 'informal goods'.

Often, formal and informal activities differ substantially. To a large extent, informal activities take place within the sector households, while formal activities take place outside the sector households in corporated firms.

A second difference is the relation between producer and consumer. In general, formal goods and services are meant for sale on the market. Most informal goods and services, however, are produced and consumed by the same institutional unit (household). Exceptions are help to other households (neighbourhelp) and voluntary work, which are also informal activities, although producer and consumer belong to different households. Finally, and probably most importantly, informal labour is not paid for (in money), and therefore informal activities do not add to free disposable income. For these reasons, a strict distinction should be made between formal activities (and everything linked up with it) and informal activities.

We have decided to show the relation between the formal and informal production within the framework of a Social Accounting Matrix (SAM). A SAM is a consistent representation of both the production processes and the income distribution and income spending process (see e.g. Juster and Stafford, 1991, and Keuning, 1991a, 1991b). For our purpose, this is a very useful feature. Table 1 shows an aggregate SAM of the formal and the informal economy. The columns and rows which apply to the informal economy are shaded.

The upper-left entries of the SAM (rows and columns 1A to 2B) represent the formal and informal production processes. The matrices of intermediate consumption describe the composition of goods and services used in the production process of each industry; the output matrices describe which goods and services are produced by each industry. Consequently, the columns of the use-tables give an indication of the production technology per industry, whereas the rows of the make-tables give some picture of the product-mix per industry.

Entry [1A,2B] forms the main link between formal and informal production. It represents the formal goods and services used as intermediate input for the production of informal goods and services. In a SAM of the formal economy this intermediate consumption is considered as final consumption and added to entry [1A,6]. But here it is shown separately. Other links between the formal and informal economy are found in entries [3B,2A] and [5A,5B].

Table 1. An Aggregate Social Accounting Matrix of the Formal and Informal Economy

			Goods & Services		Production		Income Generation		Income Distribution and Use: National: Income Appropriation		Income Distribution and Use: National: Income Re-distribution		Income Distribution and Use: National: Income Use	Capital, national	Produced Capacity	Financial	Rest of the World: Current	Rest of the World: Capital	Total	
			Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal								
			1A.	1B.	2A.	2B.	3A.	3B.	4A.	4B.	5A.	5B.	6.	7.	8.	9.	10.	11.		
Goods and Services (Products)		Formal 1A.	Trade & Transport Margins		Intermediate Consumption	Intermediate Consumption							Final Consumption	Change in Stocks	Fixed Capital Formation		Exports		Formal	Commodity Use (mp)
		Informal 1B.											Final Consumption						Informal	
Production (Industries)		Formal 2A.	Output (bp)																Formal	Output (bp)
		Informal 2B.		Output (bp)															Informal	
Income Generation (Value-added categories)		Formal 3A.			GDP (bp)												Wages from ROW		Formal	Generated Income
		Informal 3B.			Voluntary work	Informal GDP (bp)													Informal	
Income Distribution & Use (Sectors)	Income Appropriation	Formal 4A.	Net Taxes on Products				NGI (bp)		Property Income Flows								Property Income Flows from ROW		Formal	Net Primary Income
		Informal 4B						Informal NGI (bp)											Informal	
	Income Re-distribution	Formal 5A.							NNI (mp)		Current Transfer Flows	Voluntary work					Current Tranfer Flows from ROW		Formal	Secondary Income
		Informal 5B.								Informal NNI (mp)		Neighbour-help							Informal	
	Income Use	6.									Net Disposable Income	Net Disposable Inf. Income							Net Disposable Income	
Capital, national (Sectors)		7.											Net Savings	Capital Transfers		Borrowing		Capital Transfers from ROW	Finance of Net. Worth Accumulation	
Produced Capacity (Industries)		8.					Consumption of Fixed Capital							Production Assets Net Investment					Gross Capacity Expansion	
Financial (Assets)		9.												Lending				Borrowing from ROW	Increase in Assets	
Rest of the World (Sectors)	Current	10.	Imports				Wages to ROW		Property Income Flows to ROW		Current Transfers to ROW								Current Payments to ROW	
	Capital	11.												Capital Transfers to ROW		Lending to ROW	Balance of Payments Curr. Acc. Deficit		Capital Payments to ROW	
			Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal	Expenditures	Net Worth Accumu-lation	Gross Capacity Expansion	Increase in Liabilities	Current Receipts from ROW	Capital Receipts from ROW		
			Commodity Supply		Input (bp)		Generated Income Allocation		Primary Income Destination		Secondary Income Destination									

Note: bp = Basic Prices; mp = Market Prices; NGI = Net Generated Income; ROW = Rest of the world.

It is assumed that formal industries do not produce informal goods and services. Consequently, entry [2A,1B] is empty. The reverse is not necessarily true. The informal sector can produce formal goods, (self-raised) vegetables, for example. Therefore, entry [2B,1A] need not be empty. However, we have chosen for a strict distinction between formally and informally produced goods and services: self-raised vegetables differ from farmer-raised vegetables. Ergo, in our implementation of a SAM on total production, entry [2B,1A] remains empty as well.

Whereas the intermediate consumption of the formal industries [1A,2A] only consists of formal goods and services, the informal industries may also use informal products. The above mentioned self-raised vegetables, for example, can be part of a self-prepared meal. Here, for matter of simplicity, all informal production is assumed to be for final consumption: entry [1B,2B] remains empty.

To visualize the effects of the informal sector on income generation and income distribution we also distinguish between formal and informal income generation, income appropriation and income re-distribution. As can be seen from table 1, the formal and informal income generation and (re)distribution are almost mutually independent. Except for voluntary work, the formal income distribution does not affect the informal income distribution and vice versa.

In the current module on total production we abstract from the existence of informal fixed capital like knowledge or a network of acquaintances. Also, consumer durables like refrigerators, electric cleaners and personal computers, are not yet considered as fixed capital in use for informal production. That feature will be introduced in a future extension of the module, as entry [1A,8B]. The corresponding consumption of fixed capital will then be entry [8B,3B]. Entry [1B,8A], formal fixed capital formation of informally produced goods and services, will be empty by convention. According to the SNA, this kind of fixed capital formation is already included in [1A,8A].

Just like most presentations of economic data, the entries in a SAM are expressed in terms of money. But, goods and services in the informal sector have no price. Except for neighbourhelp and voluntary work, informal goods are produced and consumed by the same household. Therefore, similar as for the sector government, the value of informal goods and services may be assumed to

be equal to the sum of the value of its inputs. However, part of the inputs, namely informal labour, can not simply be valued. Moreover, the valuation of informal labour is highly controversial. Estimates of the value of household work in Canada, for example, range from 17 percent to 48 percent of GDP in 1986 (OECD, 1991), depending on the valuation approach.

Because of this still unsolved methodological problem, we do not try to estimate the value of informal production at this stage.[1] In stead, we split up the SAM into two parts, making the module independent from the valuation of informal labour. In a first SAM, we show all transactions of the original SAM, expressed in actual values. The value of informal labour becomes zero. The same applies to informal GDP. The values of informal output and informal final consumption equal the sum of the values of the relevant intermediate inputs. In a second SAM we show all informal transactions, expressed in (embedded) informal labour equivalents. These SAMs are supplemented by two tables. A first table presents the informal intermediate consumption of formal goods and services (entry [1A,2B] in table 1). The second table presents data on total labour input, broken down by type of (in)formal labour and (in)formal industry, showing the relative magnitude of informal production, in terms of working-years. The next section presents the latter table and an implementation of a SAM of the informal economy. A SAM expressed in actual values is not yet available. The same applies to the table of informal intermediate consumption.

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1. A subsequent *multiplier* analysis does not require a uniform valuation of all entries in a SAM. As long as all entries in the same row have the same dimension, this type of analysis can still be done. Therefore, some rows may be expressed in (embedded) labour equivalents, while others may be expressed in money values.

3. *A SAM of the Informal Economy*

Data on informal activities are obtained from Time Use Surveys (TUS), conducted in 1987 (CBS, 1989). About 9000 randomly selected households were visited, evenly distributed over the year: circa 350 households per 2 weeks. Each member of a household (except children less than 12 years old) was interviewed and asked to fill in a diary for two days. This diary was a bookkeeping of the main (productive) activity per 15 minutes.[2] Almost 50 percent of the selected households responded. Although the number of diaries returned is rather high, this number does not allow for a similar detail as is common for statistics on the formal sector. The results of the TUS have been weighted for a-selectivity of the response with respect to the background characteristics of the respondents and the period of the year. In addition, they were scaled, such that the estimate of total formal labour input of employees equals the National Accounts estimates. One working-year (excluding absenteeism) in 1987 equals about 1750 working-hours.

In general, the classification of industries is a more or less institutional classification. If a similar classification is used for the informal sector, there is only one informal industry: the household industry, possibly split up into several household types. However, in that case, the module would add only limited information to the National Accounts. Therefore, a more functional classification of informal production is used, showing the very different production processes within the sector households. The informal industries are 'household work', 'shopping', '(child)care', 'do-it-yourself' and 'transport services to and from work' (see below). The classification of informal goods and services is presented in table 2.

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2. Part of the reported productive activities may have lasted less than the full interval of 15 minutes. Therefore, total informal production is probably slightly overestimated. On the other hand, if two productive activities were carried out within the same interval (simultaneously or one after each other), only the main activity was reported. This caused a slightly underestimate of informal production. Because the time interval is very short, both effects are assumed to be neglectable.

Table 2. The Classification of Informal Goods and Services

a. Meals and restaurant services
b. Cleaning
c. Clothes, repair of clothes
d. Administration
e. Daily purchases and purchases for do-it-yourself
f. Incidental purchases (clothes, furniture, etc.); visits to a bank, post-office, town-hall etc.; visits because of other (in)formal services
g. Baby- and child care; medical care of children; care of aged, disabled or sick persons
h. Maintenance of vehicles
i. Repair of domestic utensils, furniture, toys etc.; construction and other do-it-yourself products; art-objects
j. Farmer's products, care of animals
k. Transport services to and from work

Transport services to and from work are a special item. Is travelling a productive activity? If so, should it be considered as an independent activity or should time spent on travelling be imputed to the activity on which behalf was travelled? According to the definitions in the previous section, driving oneself by car from A to B is an informal activity. It is productive, because one can also have someone else drive your car and bring you from A to B. On the other hand, you can not have someone else travel for you. For the time being all travelling to and from formal or informal work is considered productive, but it is treated in a special way: an informal service 'transport to and from work' is produced by a special informal industry 'transport services to and from work' and is consumed by the same households who deliver the special informal labour input 'travelling'. Other informal value added categories are 'neighbourhelp' and 'work for own household'.

The classifications of household types were taken from the socio-economic accounts (CBS, 1992). Two classifications are used, based on the composition of households and on the main source of income respectively. The total number of households in 1987 in the Netherlands was 5712 thousand.

Table 3. Formal and Informal Income Generation and Appropriation in Terms of (Embedded) Labour in the Netherlands, 1987 (x 1000 working-years)

			Production													Income Generation													Total	Number of households x 1000
			Formal									Informal				Formal						Informal								
																Male			Female			Male				Female				
			2Aa	2Ab	2Ac	2Ad	2Ae	2Af	2Ag	2Ah	2Ai	2Ba	2Bb	2Bc	2Bd	2Be	3Aa	3Ab	3Ac	3Ad	3Ae	3Af	3Ba	3Bb	3Bc	3Bd	3Be	3Bf	3Bg	3Bh		
Income Generation	Formal, male																														
	- Employees	3Aa	66	11	726	38	258	433	277	544	499																				2674	
	- Self employed	3Ab	136	0	29	0	11	67	29	104	0																				375	
	- Unpaid family workers	3Ac	96	0	12	0	21	26	0	0	0																				156	
	Formal, female																														
	- Employees	3Ad	8	0	116	6	17	267	43	602	210																				1269	
	- Self employed	3Ae	18	0	3	0	0	17	0	35	0																				74	
	- Unpaid family workers	3Af	54	0	31	0	1	62	0	13	0																				160	
	Informal, male																														
	- Voluntary work	3Ba	0	0	0	0	0	0	0	224	0																				224	
	- Neighbourhelp	3Bb										19	12	37	60																128	
	- Own household	3Bc										958	400	99	643																2099	
	- Travelling	3Bd														480															480	
	Informal, female																														
	- Voluntary work	3Be	0	0	0	0	0	0	0	157	0																				157	
	- Neighbourhelp	3Bf										91	22	83	23																219	
	- Own household	3Bg										3623	703	370	285																4981	
	- Travelling	3Bh														243															243	
Income Appropriation	Composition of households																														
	- one person households	4a															382	39	8	268	12	4	44	20	314	76	39	73	819	48	2145	1605
	- 0 members younger than 18 year	4b															1189	165	95	697	22	88	90	64	1030	194	45	100	2101	119	5977	2170
	- 1 member younger than 18 year	4c															525	100	7	155	10	35	32	21	307	60	17	22	799	32	2144	760
	- 2+ members younger than 18 year	4d															797	71	45	149	29	33	59	28	446	131	57	25	1262	47	3175	1177
	Main source of income																														
	- wages	4a'															2830	14	44	1003	43	34	126	87	1143	394	89	90	2666	161	8546	3210
	- entrepreneurial income	4b'															23	297	88	57	27	95	12	4	100	31	10	14	368	18	1144	394
	- transfers in view of old age	4c'															98	15	8	42	1	7	38	27	428	24	32	53	1209	18	2001	1160
	- other transfers	4d'															123	48	16	167	2	24	48	80	427	31	27	62	717	27	1751	948
Total			399	11	926	44	306	871	349	1679	709	4690	1135	588	1011	724	2874	375	156	1269	74	160	224	188	2099	460	157	219	4981	243		5712

2Aa Agriculture and fishery
2Ab Mining and quarrying
2Ac Industry
2Ad Utilities
2Ae Construction
2Af Trade, hotels, repairs of cons. goods
2Ag Transport, storage and communications
2Ah Other services and n.e.c. (excl. 3I)
2Ai Government and education
2Ba Household work
2Bb Shopping
2Bc (Child)care
2Bd Do-it-yourself
2Be Travelling

Note: One working-year (excluding absenteeism) equals about 1750 working-hours in 1987.

The allocation of total labour input in the Netherlands in 1987 is presented in table 3, which is the expanded submatrix (3-4,2-3) of table 1. The most significant difference between the estimates in table 3 and the National Accounts occurs in agriculture and fishing. According to the survey results, the labour inputs of self-employed and the unpaid family workers in agriculture equal 304 working-years. The corresponding figure in the National Accounts is 192 working-years. The main reason for this difference is the definition of a working-year. In table 3, a working-year equals about 1750 working-hours. Therefore, a farmer who works 75 hours a week counts for over two working-years. In the National Accounts it is assumed that a self-employed person can never work more than one working-year per year. Other figures that can be compared with similar figures in the National Accounts show relatively small differences, which in general can be explained. A more detailed comparison of TUS-estimates and NA-estimates of formal labour input is presented in CBS (1990b).

The magnitude of informal production is quite large. Expressed in working-years, the size of informal production is about 1½ times the size of formal production. If the informal labour input, excluding travelling, is valued at 1000 guilders per month (which is less than the net minimum monthly wage rate in the Netherlands), its size would be about 90,000 million guilders. This is almost 25 percent of net national income (market prices) in 1987. A further conclusion is that the contribution of unpaid family workers is quite important: 6 percent of all time spent on formal production, equally distributed over men and women. In households with mainly entrepreneurial income, its share is even over 30 percent.

Table 4, which is derived from the bottom right quadrant of table 3, clearly depicts the different roles of men and women in the Netherlands. Men are less involved in informal production: circa 18/47 = 40 percent of all time spent on productive activities is on informal activities (except travelling). For women, this percentage is 75. In general, the larger the household, the larger the share of informal production in the total production of women. The reverse applies to men: the larger the household, the less the share of informal production in total production. In general, women are more involved in productive activities than men. This is especially the case for pensioners and households where transfer income is the main source of income. Perhaps it is

more surprising that men work a little more in households which primarily depend on wage income (52% versus 48% of total hurs worked).

Table 4. Income Appropriation per Household Type by Gender and Type of Labour

		Formal		Informal (Excl. Travel.)		Travelling		Total	
		Male	Female	Male	Female	Male	Female	Male	Female
		row percentages of total hours worked							
Composition of households									
- one person households	4a	20	13	18	43	4	2	41	59
- 0 members younger then 18 year	4b	24	13	20	38	3	2	47	53
- 1 member younger than 18 year	4c	30	9	17	39	4	1	50	50
- 2+ members younger than 18 year	4d	29	7	17	42	4	1	50	50
Main source of income									
- wages	4a'	31	13	16	34	5	2	52	48
- entrepreneurial income	4b'	36	16	10	34	3	2	49	51
- transfers in view of old age	4c'	6	3	25	65	1	1	32	68
- other transfers	4d'	11	11	29	46	2	2	41	59
Total		25	11	18	40	4	2	47	53

Although the Time Use Surveys give information on the destination of neighbourhelp, this information lacks the necessary detail to deduce a reliable income re-distribution. Therefore it is assumed that the income re-distribution is not affected by neighbourhelp and equals income appropriation. In table 5, a SAM of the informal economy in the Netherlands, this assumption shows up as a diagonal matrix in quadrant [5B,4B] and an empty matrix in quadrant [5B,5B]. In future research, the assumption can probably be dropped and a real informal income re-distribution can be arrived at.

Over 55 percent of all time spent on informal production, is spent on household work: preparing meals, cleaning, sewing or repairing clothes and so on (row 2Ba). Shopping takes about 15 percent. The rest is spent on (child)care, do-it-yourself and travelling. Over 20 percent of (child)care can be classified as neighbourhelp. To a large extent, this consists of (unpaid) baby-sitting. Except for maintenance of vehicles, repair, construction and farmer's products, which are do-it-yourself products, most informal goods and services are produced by women.

Table 5. Social Accounting Matrix of the Informal Economy of the Netherlands, 1987 (x 1000 Working-years)

				Goods and Services											Production					Income Generation					
				1Ba	1Bb	1Bc	1Bd	1Be	1Bf	1Bg	1Bh	1Bi	1Bj	1Bk	2Ba	2Bb	2Bc	2Bd	2Be	3Bb	3Bc	3Bd	3Bf	3Bg	3Bh
Goods and Services		Meals and restaurant services	1Ba																						
		Cleaning	1Bb																						
		Clothing, repair of clothes	1Bc																						
		Administration	1Bd																						
		Purchases (daily and do-it-yourself)	1Be																						
		Incidental purchases	1Bf																						
		(Child)care	1Bg																						
		Maintenance of vehicles	1Bh																						
		Repair, construction, art-objects	1Bi																						
		Farmer's products, care of animals	1Bj																						
		Transport to and from work	1Bk																						
Production		Household work	2Ba	2244	1589	405	96	0	0	0	0	0	357	0											
		Shopping	2Bb	0	0	0	0	753	384	0	0	0	0	0											
		(Child)care	2Bc	0	0	0	0	0	0	588	0	0	0	0											
		Do-it-yourself	2Bd	0	0	0	0	0	0	0	126	563	322	0											
		Transport services to and from work	2Be	0	0	0	0	0	0	0	0	0	0	724											
Income Generation		Male																							
		- Neighbourhelp	3Bb												19	12	37	60							
		- Own household	3Bc												958	400	99	643							
		- Travelling	3Bd																480						
		Female:																							
		- Neighbourhelp	3Bf												91	22	83	23							
		- Own household	3Bg												3623	703	370	285							
		- Travelling	3Bh																243						
	Income Appro-priation	Composition of households																							
		- one person households	4Ba																	20	314	76	73	819	46
		- 0 members younger than 18 year	4Bb																	64	1030	194	100	2101	119
		- 1 member younger than 18 year	4Bc																	21	307	80	22	799	32
		- 2+ members younger than 18 year	4Bd																	22	448	131	25	1262	47
		Main source of income																							
		- wages	4Ba'																	67	1143	394	90	2686	181
		- entrepreneurial income	4Bb'																	4	100	31	14	368	18
		- transfers in view of old age	4Bc'																	27	428	24	53	1209	18
		- other transfers	4Bd'																	30	427	31	62	717	27
Income Distri-bution & Use	Income Re-distri bution	Composition of households																							
		- one person households	5Ba																						
		- 0 members younger than 18 year	5Bb																						
		- 1 member younger than 18 year	5Bc																						
		- 2+ members younger than 18 year	5Bd																						
		Main source of income																							
		- wages	5Ba'																						
		- entrepreneurial income	5Bb'																						
		- transfers in view of old age	5Bc'																						
		- other transfers	5Bd'																						
	Income Use	Composition of households																							
		- one person households	6a																						
		- 0 members younger than 18 year	6b																						
		- 1 member younger than 18 year	6c																						
		- 2+ members younger than 18 year	6d																						
		Main source of income																							
		- wages	6a'																						
		- entrepreneurial income	6b'																						
		- transfers in view of old age	6c'																						
		- other transfers	6d'																						
Total				2244	1589	405	96	753	384	588	126	563	679	724	4690	1138	588	1011	724	128	2099	480	219	4981	243

Note: One working-year (excluding absenteeism) equals about 1750 working-hours in 1987.

Table 5. (Cont.)

Income Distribution and Use																					Total	
Income Appropriation									Income Re-distribution								Income Use									
4Ba	4Bb	4Bc	4Bd	4Ba'	4Bb'	4Bc'	4Bd'		5Ba	5Bb	5Bc	5Bd	5Ba'	5Bb'	5Bc'	5Bd'	6a	6b	6c	6d	6a'	6b'	6c'	6d'		
																	413	1044	304	483	1130	150	594	370	2244	1Ba
																	268	705	241	375	849	104	376	260	1589	1Bb
																	71	201	53	81	200	23	120	62	405	1Bc
																	24	43	11	17	54	6	23	13	96	1Bd
																	148	348	104	153	389	44	191	129	753	1Be
																	68	177	62	77	222	24	65	74	384	1Bf
																	27	89	175	296	420	50	37	81	588	1Bg
																	11	58	29	30	81	5	17	24	126	1Bh
																	83	280	79	121	308	33	131	92	563	1Bi
																	111	349	93	126	334	47	164	134	679	1Bj
																	122	312	112	177	575	49	42	58	724	1Bk
																									4690	2Ba
																									1138	2Bb
																									588	2Bc
																									1011	2Bd
																									724	2Be
																									128	3Bb
																									2099	3Bc
																									480	3Bd
																									219	3Bf
																									4981	3Bg
																									243	3Bh
																									1348	4Ba
																									3607	4Bb
																									1261	4Bc
																									1935	4Bd
																									4562	4Ba'
																									535	4Bb'
																									1760	4Bc'
																									1295	4Bd'
1348																									1348	5Ba
	3607																								3607	5Bb
		1261																							1261	5Bc
			1935																						1935	5Bd
				4562																					4562	5Ba'
					535																				535	5Bb'
						1760																			1760	5Bc'
							1295																		1295	5Bd'
									1348																1348	6a
										3607															3607	6b
											1261														1261	6c
												1935													1935	6d
													4562												4562	6a'
														535											535	6b'
															1760										1760	6c'
																1295									1295	6d'
1348	3607	1261	1935	4562	535	1760	1295		1348	3607	1261	1935	4562	535	1760	1295	1348	3607	1261	1935	4562	535	1760	1295		

It may not come as a surprise that households with young children spend relatively much on (child)care, see table 6. Compared to singles and households without young children, the share of time spent on meals and restaurant services, clothes and repair of clothes, daily purchases and informal farmer's products is relatively small.

Table 6. Income Use per Household Type

		Composition of households				Main source of income				Total
		1-person househ. (6a)	0 memb. < 18 y. (6b)	1 memb. < 18 y. (6c)	2+ memb. < 18 y. (6d)	wages (6a')	entrepre-neurial (6b')	transf. old age (6c')	other transf. (6d')	
		column percentages								
Meals and rest. services	1Ba	31	29	24	25	25	28	34	29	28
Cleaning	1Bb	20	20	19	19	19	19	21	20	19
Clothing, rep. od clothes	1Bc	5	6	4	4	4	4	7	5	5
Administration	1Bd	2	1	1	1	1	1	1	1	1
Purchases	1Be	11	10	8	8	9	8	11	10	9
Incidental purchases	1Bf	5	5	5	4	5	4	4	6	5
(Child)care	1Bg	2	2	14	15	9	9	2	6	7
Maintenance of vehicles	1Bh	1	2	2	2	2	1	1	2	2
Repair, construction	1Bi	6	8	6	6	7	6	7	7	7
Farmers's products	1Bj	8	10	7	6	7	9	9	10	8
Transport	1Bk	9	9	9	9	13	9	2	4	9
Total		100	100	100	100	100	100	100	100	100

Wage earners spend a lot on travelling and relatively little on meals and restaurant services. On the other hand, pensioners spend a large part of their productive time on preparing meals, cleaning the house, sewing or repairing clothes, and daily purchases, but just little time on transport to and from work, and on (child)care. Households with mainly other types of transfer income, and entrepreneurs show an average consumption pattern of informal goods and services.

4. *Conclusions*

This paper presents a NA-framework (SAM), in which formal and informal labour are merged, without disturbing the consistency in valuation. If one wants to experiment with various sets of prices, adjusted balancing items can be directly derived from this framework. The framework lends itself to all kinds of (multiplier) analyses, whereby pricing is not a pre-requisite. In addition, it might be interesting to construct this double-SAM for several periods, so that changes over time can be traced.

To implement the framework, it was necessary to assume that the informal income re-distribution equals the informal income appropriation. In future research, this assumption can probably be dropped and the effects of neighbourhelp on the income distribution be estimated. Future extensions of the framework are the inclusion of informal fixed capital formation and a further disaggregation of labour by type, for example by education or position within household.

Literature

Begeer W. and H.K. van Tuinen, 1985, The Statistical Representation of the Informal Economy. Netherlands Official Statistics (CBS, Voorburg).

Bruijn-Hundt M., 1983, De waarde van onzichtbare arbeid gemeten *[Measurement of the Value of Invisible Labour]*. Economisch *Statistische Berichten 27-7*-1983, pp. 666-669.

CBS, 1989, De tijdsbesteding van de Nederlandse bevolking; Kerncijfers, 1987 *[A Survey on Time Use in the Netherlands; General Results, 1987]*. (CBS, Voorburg/Heerlen).

CBS, 1990a, Nationale rekeningen 1989 *[National Accounts, 1989]*. (SDU-uitgeverij, 's-Gravenhage).

CBS, 1990b, Tijdsbesteding aan formele arbeid *[Time spent on Formal Labour]*. Sociaal-culturele berichten 1990-4 (CBS, Voorburg).

CBS, 1992, Sociaal-economische rekeningen 1987 *[Socio-Economic Accounts 1987]* . (SDU-uitgeverij, 's-Gravenhage).

Eisner, R., 1988, Extended Accounts for National Income and Product. Journal of Economic Literature XXVi, pp. 1611-1684.

Fitzgerald J. and J. Wicks, 1990, Measuring the Value of Household output: A Comparison of Direct and Indirect Approaches. Review of Income and Wealth 36(2), pp. 129-141.

Hawrylyshyn O., 1976, The Value of Household Services: A Survey of Emperical Estimates. Review of Income and Wealth 22, pp. 101-131.

Hawrylyshyn O., 1977, Towards a Definition of Non-market Activities. Review of Income and Wealth 23 (1), pp. 79-96.

Homan, M.E., A.J.M. Hagenaars and B.M.S. Van Praag, 1987, A Comparison of Six Methods to Estimate the Monetary Value of Home Production (Report 8763/A, Erasmus Universiteit Rotterdam).

Juster, F.T. and F.P. Stafford, 1991, The Allocation of Time: Empirical Findings, Behavioral Models, and Problems of Measurement. Journal of Economic Literature 39, pp. 471-522.

Kendrick, J.W., 1989, Concept and Measures of Full Income and Product (IARIW-conferentie, 20-25 augustus 1989 te Lahnstein, Duitsland).

Keuning, S.J., 1991a, Social Accounting Matrices. Draft Chapter XX for the Revised SNA (CBS, Voorburg)

Keuning, S.J., 1991b, A Proposal for a SAM Which Fits Into the Next System of National Accounts. Economic Systems Research (3), pp. 233-248.

Murphy, M. 1982, Comparative Estimates of the Value of Household Work in the United States for 1976. Review of Income and Wealth 28, pp. 29-43.

OECD, 1991, Estimating the Value of Household Work in Canada. ESD/STAT/SNA/RD (91)3 (OECD, Paris).

United Nations, 1968, System of National Accounts (New York).

Netherlands Central Bureau of Statistics
National Accounts Occasional Papers

NA/01 Flexibility in the system of National Accounts, Van Eck, R., C.N. Gorter and H.K. van Tuinen (1983).
This paper sets out some of the main ideas of what gradually developed into the Dutch view on the fourth revision of the SNA. In particular it focuses on the validity and even desirability of the inclusion of a number of carefully chosen alternative definitions in the "Blue Book", and the organization of a flexible system starting from a core that is easier to understand than the 1968 SNA.

NA/02 The unobserved economy and the National Accounts in the Netherlands, a sensitivity analysis, Broesterhuizen, G.A.A.M. (1983).
This paper studies the influence of fraud on macro-economic statistics, especially GDP. The term "fraud" is used as meaning unreporting or underreporting income (e.g. to the tax authorities). The conclusion of the analysis of growth figures is that a bias in the growth of GDP of more than 0.5% is very unlikely.

NA/03 Secondary activities and the National Accounts: Aspects of the Dutch measurement practice and its effects on the unofficial economy, Van Eck, R. (1985).
In the process of estimating national product and other variables in the National Accounts a number of methods is used to obtain initial estimates for each economic activity. These methods are described and for each method various possibilities for distortion are considered.

NA/04 Comparability of input-output tables in time, Al, P.G. and G.A.A.M. Broesterhuizen (1985).
It is argued that the comparability in time of statistics, and input-output tables in particular, can be filled in in various ways. The way in which it is filled depends on the structure and object of the statistics concerned. In this respect it is important to differentiate between coordinated input-output tables, in which groups of units (industries) are divided into rows and columns, and analytical input-output tables, in which the rows and columns refer to homogeneous activities.

NA/05 The use of chain indices for deflating the National Accounts, Al, P.G., B.M. Balk, S. de Boer and G.P. den Bakker (1985).
This paper is devoted to the problem of deflating National Accounts and input-output tables. This problem is approached from the theoretical as well as from the practical side. Although the theoretical argument favors the use of chained Vartia-I indices, the current practice of compilating National Accounts restricts to using chained Paasche and Laspeyres indices. Various possible objections to the use of chained indices are discussed and rejected.

NA/06 Revision of the system of National Accounts: the case for flexibility, Van Bochove, C.A. and H.K. van Tuinen (1985).
It is argued that the structure of the SNA should be made more flexible. This can be achieved by means of a system of a general purpose core supplemented with special modules. This core is a fully fledged, detailed system of National Accounts with a greater institutional content than the present SNA and a more elaborate description of the economy at the meso-level. The modules are more analytic and reflect special purposes and specific theoretical views.

NA/07 Integration of input-output tables and sector accounts; a possible solution, Van den Bos, C. (1985).
The establishment-enterprise problem is tackled by taking the institutional sectors to which the establishments belong into account during the construction of input-output tables. The extra burden on the construction of input-output tables resulting from this approach is examined for the Dutch situation. An adapted sectoring of institutional units is proposed for the construction of input-output tables.

NA/08 A note on Dutch National Accounting data 1900-1984, Van Bochove, C.A. (1985).
This note provides a brief survey of Dutch national accounting data for 1900-1984, concentrating on national income. It indicates where these data can be found and what the major discontinuities are. The note concludes that estimates of the level of national income may contain inaccuracies; that its growth rate is measured accurately for the period since 1948; and that the real income growth rate series for 1900-1984 may contain a systematic bias.

NA/09 **The structure of the next SNA: review of the basic options**, Van Bochove, C.A. and A.M. Bloem (1985).
There are two basic issues with respect to the structure of the next version of the UN System of National Accounts. The first is its 'size': reviewing this issue, it can be concluded that the next SNA should contain an integrated meso-economic statistical system. It is essential that the next SNA contains an institutional system without the imputations and attributions that pollute the present SNA. This can be achieved by distinguishing, in the central system of the next SNA, a core (the institutional system), a standard module for non-market production and a standard module describing attributed income and consumption of the household sector.

NA/10 **Dual sectoring in National Accounts**, Al, P.G. (1985).
Following a conceptual explanation of dual sectoring, an outline is given of a statistical system with complete dual sectoring in which the linkages are also defined and worked out. It is shown that the SNA 1968 is incomplete and obscure with respect to the links between the two sub-processes.

NA/11 **Backward and forward linkages with an application to the Dutch agro-industrial complex**, Harthoorn, R. (1985).
Some industries induce production in other industries. An elegant method is developed for calculating forward and backward linkages avoiding double counting. For 1981 these methods have been applied to determine the influence of Dutch agriculture in the Dutch economy in terms of value added and labour force.

NA/12 **Production chains**, Harthoorn, R. (1986).
This paper introduces the notion of production chains as a measure of the hierarchy of industries in the production process. Production chains are sequences of transformation of products by successive industries. It is possible to calculate forward transformations as well as backward ones.

NA/13 **The simultaneous compilation of current price and deflated input-output tables**, De Boer, S. and G.A.A.M. Broesterhuizen (1986).
A few years ago the method of compiling input-output tables underwent in the Netherlands an essential revision. The most significant improvement is that during the entire statistical process, from the processing and analysis of the basic data up to and including the phase of balancing the tables, data in current prices and deflated data are obtained simultaneously and in consistency with each other.

NA/14 **A proposal for the synoptic structure of the next SNA**, Al, P.G. and C.A. van Bochove (1986).

NA/15 **Features of the hidden economy in the Netherlands**, Van Eck, R. and B. Kazemier (1986).
This paper presents survey results on the size and structure of the hidden labour market in the Netherlands.

NA/16 **Uncovering hidden income distributions: the Dutch approach**, Van Bochove, C.A. (1987).

NA/17 **Main national accounting series 1900-1986**, Van Bochove, C.A. and T.A. Huitker (1987).
The main national accounting series for the Netherlands, 1900-1986, are provided, along with a brief explanation.

NA/18 **The Dutch economy, 1921-1939 and 1969-1985. A comparison based on revised macro-economic data for the interwar period**, Den Bakker, G.P., T.A. Huitker and C.A. van Bochove (1987).
A set of macro-economic time series for the Netherlands 1921-1939 is presented. The new series differ considerably from the data that had been published before. They are also more comprehensive, more detailed, and conceptually consistent with the modern National Accounts. The macro-economic developments that are shown by the new series are discussed. It turns out that the traditional economic-historical view of the Dutch economy has to be reversed.

NA/19 **Constant wealth national income: accounting for war damage with an application to the Netherlands, 1940-1945**, Van Bochove, C.A. and W. van Sorge (1987).

NA/20 **The micro-meso-macro linkage for business in an SNA-compatible system of economic statistics**, Van Bochove, C.A. (1987).

NA/21 **Micro-macro link for government**, Bloem, A.M. (1987).
This paper describes the way the link between the statistics on government finance and national accounts is provided for in the Dutch government finance statistics.

NA/22 **Some extensions of the static open Leontief model**, Harthoorn, R.(1987).
The results of input-output analysis are invariant for a transformation of the system of units. Such transformation can be used to derive the Leontief price model, for forecasting input-output tables and for the calculation of cumulative factor costs. Finally the series expansion of the Leontief inverse is used to describe how certain economic processes are spread out over time.

NA/23 **Compilation of household sector accounts in the Netherlands National Accounts**, Van der Laan, P. (1987).
This paper provides a concise description of the way in which household sector accounts are compiled within the Netherlands National Accounts. Special attention is paid to differences with the recommendations in the United Nations System of National Accounts (SNA).

NA/24 **On the adjustment of tables with Lagrange multipliers**, Harthoorn, R. and J. van Dalen (1987).
An efficient variant of the Lagrange method is given, which uses no more computer time and central memory then the widely used RAS method. Also some special cases are discussed: the adjustment of row sums and column sums, additional restraints, mutual connections between tables and three dimensional tables.

NA/25 **The methodology of the Dutch system of quarterly accounts**, Janssen, R.J.A. and S.B. Algera (1988).
In this paper a description is given of the Dutch system of quarterly national accounts. The backbone of the method is the compilation of a quarterly input-output table by integrating short-term economic statistics.

NA/26 **Imputations and re-routeings in the National Accounts**, Gorter, Cor N. (1988).
Starting out from a definition of 'actual' transactions an inventory of all imputations and re-routeings in the SNA is made. It is discussed which of those should be retained in the core of a flexible system of National Accounts. Conceptual and practical questions of presentation are brought up. Numerical examples are given.

NA/27 **Registration of trade in services and market valuation of imports and exports in the National Accounts**, Bos, Frits (1988).
The registration of external trade transactions in the main tables of the National Accounts should be based on invoice value; this is not only conceptually very attractive, but also suitable for data collection purposes.

NA/28 **The institutional sector classification**, Van den Bos, C. (1988).
A background paper on the conceptual side of the grouping of financing units. A limited number of criteria are formulated.

NA/29 **The concept of (transactor-)units in the National Accounts and in the basic system of economic statistics**, Bloem, Adriaan M. (1989).
Units in legal-administrative reality are often not suitable as statistical units in describing economic processes. Some transformation of legal-administrative units into economic statistical units is needed. This paper examines this transformation and furnishes definitions of economic statistical units. Proper definitions are especially important because of the forthcoming revision of the SNA.

NA/30 **Regional income concepts**, Bloem, Adriaan M. and Bas De Vet (1989).
In this paper, the conceptual and statistical problems involved in the regionalization of national accounting variables are discussed. Examples are the regionalization of Gross Domestic Product, Gross National Income, Disposable National Income and Total Income of the Population.

NA/31 **The use of tendency surveys in extrapolating National Accounts**, Oudde-ken, Frank and Gerrit Zijlmans (1989).
This paper discusses the feasibility of the use of tendency survey data in the compilation of very timely Quarterly Accounts. Some preliminary estimates of relations between tendency survey data and regular Quarterly Accounts-indicators are also presented.

NA/32 **An economic core system and the socio-economic accounts module for the Netherlands**, Gorter, Cor N. and Paul van der Laan (1989).
A discussion of the core and various types of modules in an overall system of economy related statistics. Special attention is paid to the Dutch Socio-economic Accounts. Tables and figures for the Netherlands are added.

NA/33 **A systems view on concepts of income in the National Accounts**, Bos, Frits (1989).
In this paper, concepts of income are explicitly linked to the purposes of use and to actual circumstances. Main choices in defining income are presented in a general system. The National Accounts is a multi-purpose framework. It should therefore contain several concepts of income, e.g. differing with respect to the production boundary. Furthermore, concepts of national income do not necessarily constitute an aggregation of income at a micro-level.

NA/34 **How to treat borrowing and leasing in the next SNA**, Keuning, Steven J. (1990).
The use of services related to borrowing money, leasing capital goods, and renting land should not be considered as intermediate inputs into specific production processes. It is argued that the way of recording the use of financial services in the present SNA should remain largely intact.

NA/35 **A summary description of sources and methods used in compiling the final estimates of Dutch National Income 1986**, Gorter, Cor N. and others (1990).
Translation of the inventory report submitted to the GNP Management Committee of the European Communities.

NA/36 **The registration of processing in make and use tables and input-output tables**, Bloem, Adriaan M., Sake De Boer and Pieter Wind (1990, forthcoming).
The registration of processing is discussed primarily with regard to its effects on input-output-type tables and input-output quotes. Links between National Accounts and basic statistics, user demands and international guidelines are examined.

NA/37 **A proposal for a SAM which fits into the next System of National Accounts**, Keuning, Steven J. (1990).
This paper shows that all flow accounts which may become part of the next System of National Accounts can be embedded easily in a Social Accounting Matrix (SAM). In fact, for many purposes a SAM format may be preferred to the traditional T-accounts for the institutional sectors, since it allows for more flexibility in selecting relevant classifications and valuation principles.

NA/38 **Net versus gross National Income**, Bos, Frits (1990).
In practice, gross figures of Domestic Product, National Product and National Income are most often preferred to net figures. In this paper, this practice is challenged. Conceptual issues and the reliability of capital consumption estimates are discussed.

NA/39 **Concealed interest income of households in the Netherlands; 1977, 1979 and 1981**, Kazemier, Brugt (1990).
The major problem in estimating the size of hidden income is that total income, reported plus unreported, is unknown. However, this is not the case with total interest income of households in the Netherlands. This makes it possible to estimate at least the order of magnitude of this part of hidden income. In this paper it will be shown that in 1977, 1979 and 1981 almost 50% of total interest received by households was concealed.

NA/40 **Who came off worst: Structural change of Dutch value added and employ-- ment during the interwar period**, Den Bakker, Gert P. and Jan de Gijt (1990).
In this paper new data for the interwar period are presented. The distribution of value added over industries and a break-down of value added into components is given. Employment by industry is estimated as well. Moreover, structural changes during the interwar years and in the more recent past are juxtaposed.

NA/41 **The supply of hidden labour in the Netherlands: a model**, Kazemier, Brugt and Rob van Eck (1990).
This paper presents a model of the supply of hidden labour in the Netherlands. Model simulations show that the supply of hidden labour is not very sensitive to cyclical fluctuations. A tax exempt of 1500 guilders for second jobs and a higher probability of detection, however, may substantially decrease the magnitude of the hidden labour market.

NA/42 **Benefits from productivity growth and the distribution of income**, Keuning, Steven J. (1990).
This paper contains a discussion on the measurement of multifactor productivity and sketches a framework for analyzing the relation between productivity changes and changes in the average factor remuneration rate by industry. Subsequently, the effects on the average wage rate by labour category and the household primary income distribution are studied.

NA/43 **Valuation principles in supply and use tables and in the sectoral accounts**, Keuning, Steven J. (1991).
In many instances, the valuation of transactions in goods and services in the national accounts poses a problem. The main reason is that the price paid by the purchaser deviates from the price received by the producers. The paper discusses these problems and demonstrates that different valuations should be used in the supply and use tables and in the sectoral accounts.

NA/44 **The choice of index number formulae and weights in the National Accounts. A sensitivity analysis based on macro-economic data for the interwar period**, Bakker, Gert P. den (1991).
The sensitivity of growth estimates to variations in index number formulae and weighting procedures is discussed. The calculations concern the macro-economic variables for the interwar period in the Netherlands. It appears, that the use of different formulae and weights yields large differences in growth rates. Comparisons of Gross Domestic Product growth rates among countries are presently obscured by the use of different deflation methods. There exists an urgent need for standardization of deflation methods at the international level.

NA/45 **Volume measurement of government output in the Netherlands; some alternatives**, Kazemier, Brugt (1991).
This paper discusses three alternative methods for the measurement of the production volume of government. All methods yield almost similar results: the average annual increase in the last two decades of government labour productivity is about 0.7 percent per full-time worker equivalent. The implementation of either one of these methods would have led to circa 0.1 percentage points higher estimates of economic growth in the Netherlands.

NA/46 **An environmental module and the complete system of national accounts**, Boo, Abram J. De, Peter R. Bosch, Cor N. Gorter and Steven J. Keuning (1991).
A linkage between environmental data and the National Accounts is often limited to the production accounts. This paper argues that the consequences of economic actions on ecosystems and vice versa should be considered in terms of the complete System of National Accounts (SNA). One should begin with relating volume flows of environmental matter to the standard economic accounts. For this purpose, a so-called National Accounting Matrix including Environmental Accounts (NAMEA) is proposed. This is illustrated with an example.

NA/47 **Deregulation and economic statistics: Europe 1992**, Bos, Frits (1992).
The consequences of deregulation for economic statistics are discussed with a view to Europe 1992. In particular, the effects of the introduction of the Intrastat-system for statistics on international trade are investigated. It is argued that if the Statistical Offices of the EC-countries do not respond adequately, Europe 1992 will lead to a deterioration of economic statistics: they will become less reliable, less cost effective and less balanced.

NA/48 **The history of national accounting**, Bos, Frits (1992).
At present, the national accounts in most countries are compiled on the basis of concepts and classifications recommended in the 1968-UN-guidelines. In this paper, we trace the historical roots of these guidelines (e.g. the work by King, Petty, Kuznets, Keynes, Leontief, Frisch, Tinbergen and Stone), compare the subsequent guidelines and discuss also alternative accounting systems like extended accounts and SAMs.

NA/49 **Quality assessment of macroeconomic figures: The Dutch Quarterly Flash**, Reininga, Ted, Gerrit Zijlmans and Ron Janssen (1992).
Since 1989-IV, the Dutch Central Bureau of Statistics has made preliminary estimates of quarterly macroeconomic figures at about 8 weeks after the end of the reference quarter. Since 1991-II, a preliminary or "Flash" estimate of GDP has been published. The decision to do so was based on a study comparing the Flash estimates and the regular Quarterly Accounts figures, which have a 17-week delay. This paper reports on a similar study with figures through 1991-III.

NA/50 **Quality improvement ofthe Dutch Quarterly Flash: A Time Series Analysis of some Service Industries**, Reininga, Ted and Gerrit Zijlmans (1992).
The Dutch Quarterly Flash (QF) is, just like the regular Quarterly Accounts (QA), a fully integrated statistic based on a quarterly updated input-output table. Not all short term statistics used to update the QA's IO-table are timely enough to be of use for the QF, so other sources have to be found or forecasts have to be made. In large parts of the service industry the latter is the only possibility. This paper reports on the use of econometric techniques (viz. series decomposition and ARIMA modelling) to improve the quality of the forecasts in five parts of the service industry.

NA/51 **A Research and Development Module supplementing the National Accounts**, Bos, Frits, Hugo Hollanders and Steven Keuning (1992).
This paper presents a modified national accounting system tailored to a description of the role of Research and Development (R&D) in the national economy. The main differences with the standard National Accounts are some changes in basic concepts (e.g. own-account production of R&D is considered as capital formation) and the introducton of additional, more detailed, classifications (e.g. new subsectors).

NA/52 **The allocation of time in the Netherlands in the context of the SNA; a module**, Kazemier, Brugt and Jeanet Exel (1992).
This paper presents a module on informal production, supplementing the National Accounts. Its purpose is to incorporate informal production into the concepts of the SNA. The relation between formal and informal production is shown in the framework of a Social Accounting Matrix (SAM). To avoid a controversial valuation of informal production, the module constists of two SAMs. One expressed in actual prices with informal labour valued zero, and one which expresses the embedded informal labour input measured in terms of hours worked.

NA/53 **National Accounts and the environment, the case for a system's approach**, Keuning, Steven J. (1992).
The present set of main economic indicators should be extended with one or a few indicators on the state of the environment. This paper lists various reasons why a so-called Green Domestic Product is not suitable for this purpose. Instead, a system's approach should be followed. A National Accounting Matrix including Environmental Accounts (NAMEA) is presented and the way to derive one or more separate indicators on the environment from this information system is outlined.

NA/54 **How to treat multi-regional units and the extra-territorial region in the Regional Accounts?**, De Vet, Bas (1992, forthcoming).
This paper discusses the regionalization of production and capital formation by multi-regional kind-of-activity units. It also examines the circumstances in which a unit may be said to have a local kind-of-activity unit in the extra-territorial region and what should be attributed to this "region".

NA/55 **A historical Social Accounting Matrix for the Netherlands (1938)**, Den Bakker, Gert P., Jan de Gijt and Steven J. Keuning (1992).
This paper presents a Social Accounting Matrix (SAM) for the Netherlands in 1938, including related, non-monetary tables on demographic characteristics, employment, etc. The distribution of income and expenditure among household subgroups in the 1938 SAM is compared with concomittant data for 1987.

NA/56 **Origin and development of the Dutch National Accounts**, Den Bakker, Gert P. (1992).
This paper describes the history of national accounting in the Netherlands. After two early estimates in the beginning of the nineteenth century, modern national accounting started in the 1930s on behalf of the Tinbergen model for the Dutch economy. The development spurred up after World War II to provide data to the government for economic planning purposes. In the 1980s, the development was towards a flexible and institutional approach.

NA/57 **Compiling Dutch Gross National Product (GNP); summary report on the final estimates after the revision in 1992**, Bos, Frits (1992).
This summary report describes the sources and methods used for compiling the final estimate of Dutch Gross National Product after the revision of the Dutch National Accounts in 1992. Attention is focused on the estimation procedures for 1988.

NA/58 **Major changes and results of the revision of the Dutch National Accounts in 1992**, Department of National Accounts (1992, forthcoming).
The revision in 1992 has improved the Dutch National Accounts in three ways. First, new and other data sources have been used, like Production statistics of service industries, the Budget Survey and Statistics on fixed capital formation. Secondly, the integration process has been improved by the use of detailed make- and use-tables instead of more aggregate input-output tables. Thirdly, several changes in bookkeeping conventions have been introduced, like a net instead of a gross registration of processing to order.

NA/59 **A National Accounting Matrix for the Netherlands**, Keuning, Steven and Jan de Gijt (1992).
Currently, the national accounts typically use two formats for presentation: matrices for the Input-Output tables and T-accounts for the transactions of institutional sectors. This paper demonstrates that presently available national accounts can easily be transformed into a National Accounting Matrix (NAM). This may improve both the transparency and analytic usefulness of the complete set of accounts.

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