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ABSTRACT

In Norway, one of the world's most developed nations, a considerable proportion of households still obtain income from more than one source. From the time rural North Norway was settled, households have combined production for sale with production for their own consumption and have exploited various resources to do so. The household's requirements determine how its resources are to be allocated and the relative amounts of income it obtains in cash and kind from each source. Household priorities are thus translated into a pattern of consumption, defined broadly to include free time. The strategy adopted for obtaining an income of not only the required size, but also of the required composition, is determined by this desired consumption pattern. In an economic system such as this, concepts such as job or occupation are limited in their usefulness. The activities performed in order to earn a living cannot be defined as jobs, or even part-time jobs. Of greater importance for the composition of the income spectrum is the "Technological and Administrative Task Environment" (TATE) which is defined as "a social constellation within which any household decision-maker technically acts". A household which exploits more than one income source has the advantage of not being entirely constrained by the section of the TATE associated with any one of them. Generally it has enough flexibility to alter the balance of its activities if circumstances change. (Author/NQ)

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The structure of the household economy in rural North Norway

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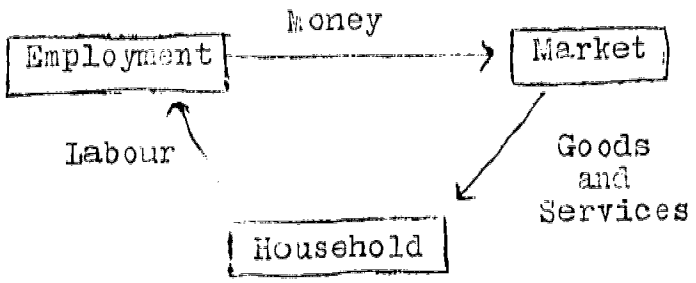
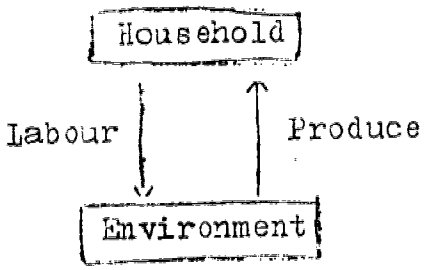
It is common to associate with the process of development changes in occupational structure which involve increasing specialisation into clearly defined occupational categories. Work is separated in both space and time from non-work activities, income is obtained primarily from one source, employment, and is paid in cash. The individual household obtains most of the goods and services it requires through the market and pays for them with the cash earned by its members. Income obtained by other means and the activities members of a household engage in to obtain it tend to be ignored. Their value in money terms is not only difficult to quantify, but in a cash orientated economy is assumed to be of little importance. The structure of this type of household economy is shown in figure 1. (1)

Figure 1.



The direct opposite of a household economy based on employment and a cash income which must be converted into goods and services through intermediaries is the purely subsistence household economy. Such a household supplies its needs by a simple exchange of products and labour between the household and the natural resources of its immediate environment.

Figure 2.

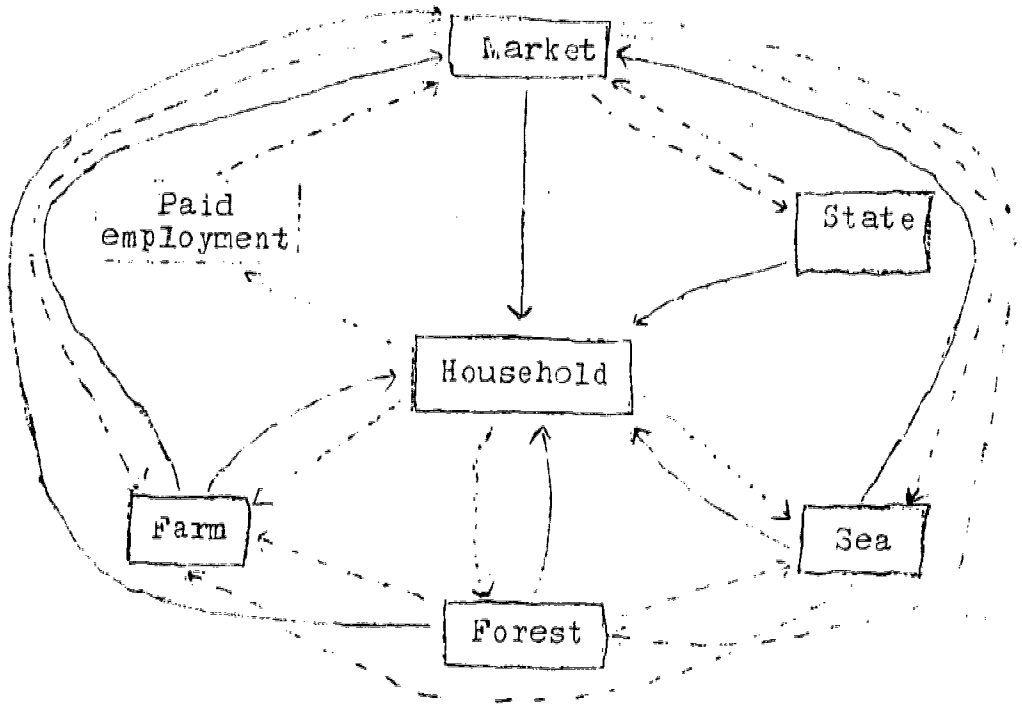


Within the environment there might be a number of different resources, such as cultivable land, pasture, forest, sea, lake, river. Each of these will be exploited to a greater or lesser degree so as to provide the household with as many as possible of its wants, priority being given to the most important ones, with the resources available to it.

The different resources will not be exploited in isolation, but products of one will be used to further the exploitation of others. For example timber from the forest might be used to build fishing boats and fish offal might be used as animal fodder (c.f. Brox, 1963, pp 11-13). Dividing lines between time used in different activities and in productive and non-productive pursuits are likely to be blurred. The total economic organisation might be quite complex.

Such a purely subsistence household organisation hardly exists, but some of its characteristics are retained in other types of household economic structure. A household which participates in a market economy, but which utilizes more than one of the sources of money income available, and in addition obtains income in kind from one or more of its activities, has a similar but still more complex form of organization to that of the subsistence household. The sources of income available, which might be termed the income spectrum, are more numerous, but the range of constraints which must be taken into account is also greater.

An example of such a household economy is that which is found in rural North Norway. From the time the area was settled, households have combined production for sale with production fortheir own consumption and have exploited a variety of resources to do so. A schematic representation of one variant of a household economy of this type is shown in figure 3.



- - - - → Cash ——— → Goods and services for consumption

· · · · → Labour - - - - - → Inputs used in production

This particular household utilises five sources of income. Each source provides income in cash in return for sale of produce, use of amenities or work done by a member, or members, of the household. The money obtained is converted through the market into those goods and services which the household does not provide for itself, or used to fulfil obligations, such as payment of taxes and social contributions, which cannot be paid in kind. Four of the five sources provide income in kind, the land and the sea provide food and the forest fuel. The fourth source of income in kind is the state, which provides services in, for example, education and health. As these services are paid for by taxes and social contributions, they are not obtained directly in return for work, as is the case with other subsistence products, but neither, in a welfare statesuch as the one in this example, are they obtained in return for specific money payments, but are available according to need.

The requirements of the household determine how its resources are to be allocated and the relative amounts of income it obtains in cash and kind and from each source. The priorities of the household are thus translated into a pattern of consumption, defined broadly so as to include, for example, free time. The strategy adopted for obtaining an income of not only the required size, but also of the required composition, is determined by this desired consumption pattern. Income would also be obtained as a result of past investments and a portion of current income might be used for further investment, but consideration of this will be left aside for the present.

In an economic system such as this, concepts such as job or occupation are limited in their usefulness. Unlike the type of household economy illustrated in figure 1, the activities performed in order to earn a living cannot be separated from activities performed for other ends, neither can the various activities be defined as jobs, or even part-time jobs.

It might seem an anomaly that in one of the worlds most developed nations, Norway ranked seventh in terms of gross domestic product in 1971 (U.N., 1972, Table 188, pp 627-629), a considerable proportion of households still obtain income from more than one source (even if one ignores the importance of welfare payments to some groups). In a developed economy which has experienced full employment, and occasionally labour shortages, for many years, one might have expected such practices to die out, yet they persist. From the point of view of the household, therefore, there must be strong reasons, under certain circumstances, for maintaining this form of economic organisation. I would suggest that it is because they consider that, in their situation, it enables them to attain the standard and way of life they prefer to a greater extent than would be possible in any other way. The response to economic development does not necessarily have to be a change in the nature of household economic organisation, it can also be an adaptation of the existing organisation to changed circumstances.

The scale of utilisation of multiple income sources

The extent to which the exploitation of multiple income sources appears in official statistics which define means of gaining a livelihood in terms of jobs must obviously be limited. In the case of Norwegian statistics there are a number of possibilities for assessing the extent to which individuals obtain income from more than one occupation or an occupation and another source, such as a pension. One can thus estimate the relative importance of the multiple income source household economy as compared with those based on one major income source.

However problems of definitionand classification according to the criteria used in compiling the statistics are such that there is room for a large margin of error.

The most comprehensive source of data on second job holding in Norway is contained in the 1960 Population Census, from which Table 1 has been compiled. Comparable data from the 1970 Population Census is not available, any change in the proportion of the labour force with second jobs can only be estimated from changes in its composition.

Table 1. Secondary occupations by work status and industry. Men. 1960.

	% with secondary occupation[1]	Secondary occupation is: Sole occupation part of year	Secondary occupation is: additional to main occupation	Total (n=100)
Self-employed:				
with employees	16.6	6.9	3.9	97,878
without employees	29.3	16.6	12.7	149,373
Employees	8.4	2.5	5.5	837,624
Agriculture	24.4	13.0	10.3	176,175
Forestry	24.3	10.9	12.2	30,891
Fishing	31.7	17.2	12.5	54,353
Manufacturing	6.0	1.3	4.5	311,174
Building & constr.	11.4	4.1	6.7	130,987
commerce	6.5	1.1	5.1	112,878
Transport	6.5	1.8	4.4	147,371
Services	10.4	1.5	[illegible]	116,055
Not stated	5.1	2.8	2.0	4,991
Total	12.0	4.7	6.8	1,034,375

1) Includes persons with a secondary occupation not specified as seasonal or part-time.

Source: Central Bureau of Statistics, 1964, pp.255-260, Table XV.

Table 1 shows that in 1960 12% of the male labour force in Norway was recorded as having a second occupation in addition to their main one. For women, who made up almost 23% of the economically active population, the proportion with an additional paid occupation was only 1.3%. There is an obvious preponderance of second job holding among the self-employed, 24% of the entire category (the pattern is similar for women), that is the group which has the greatest freedom to determine how to allocate its time. However, those without employees, who are presumably the smaller scale operators, are more likely to engage in different occupations at different times of the year, whereas in all other groups it is more usual for two occupations to be pursued concurrently.

Subdivision by industrial sectors shows that relatively high rates of second job holding are found in sectors where the proportions of self-employed are high and where work is seasonal or distributed unevenly over the year. This is particularly the case in the primary sector, where secondary occupations are most often seasonal, and in building and construction. Within sectors certain categories, notably education, banking, posts and telegraphs and coastal sea transport showed unusually high proportions with additional occupations. It would appear that

occupations within these categories also possess characteristics such as work hours which allow time for additional activities or an uneven distribution of work throughout the year.

By 1970 the proportion of the male labour force which was self-employed had fallen from 22.8% to 17.4% (Central Bureau of Statistics, 1975b, p.222, Table 19), and the proportion in the primary industries from 24.1% to 16.1% (Central Bureau of Statistics, 1975b, p.118, Table 14). The proportion with a second occupation might therefore have declined by as much as a quarter to less than 10%, assuming that the proportion in each occupational group has remained constant. One might therefore assume that something like 10% of Norwegian households, in absolute terms 150,000, base their household economy on income from two or more occupations.

The very approximate nature of these figures becomes apparent when one compares the results of the Population Census with those of the Agricultural and Fishing Censuses, and also when account is taken of forms of diversification of income sources which do not appear in published statistics.

The Agricultural and Fishing Censuses give lower totals than the Population Census for those whose sole or main occupation or source of livelihood is in either of these sectors. However, the proportions of these totals for whom agriculture or fishing was the more important of two occupations in 1959 and 1960 respectively, were 32.7% in agriculture (Central Bureau of Statistics, 1972a, p.23, Table 4) and 52.7% in fishing (Central Bureau of Statistics, 1973b, p.106, Table 143), which suggests that the Population Census figures might be too low. The comparable percentages for 1969 (agriculture) and 1971 (fishing) were 23.0% (Central Bureau of Statistics, 1972a, p.23, Table 4) and 36.0% (Central Bureau of Statistics, 1975a, p.106, Table 149). In the light of these figures, even allowing for the absolute decline in the numbers engaged in the primary sector, the estimate of about 10% of the working population having more than one occupation in 1970 does not seem unrealistic.

However, to this total must be added the households which exploit other sources of income. A source of growing importance is social benefits. The only occupational group for whom statistics are available of income from pensions and other benefits (not counting children's allowances) is people engaged in agriculture. In 1969 13.5% of farmers were in receipt of social benefits, as compared with 7.7% in 1959 (Central Bureau of Statistics, 1972a, p.26, Table 8), which was equivalent to 1.9% of the total economically active population. Overall the proportion would be higher still, as it would include recipients of pensions who worked in other industries, though these were likely to be fewer than in agriculture. In 1960 almost 8% of male pensioners engaged in some kind of employment (Central Bureau of Statistics, 1964, p.260, Table XV).

The proportion of households exploiting multiple income sources is further increased by the quite considerable number, though one which it is not possible to guess with any accuracy, which exploit natural resources such as wild berries, fish and game. While these may appear to be of trivial importance, for an enterprising household in an area well endowed with these resources, they might well represent a significant source of income in kind, whether measured quantitatively or qualitatively, for a large number of households.

Account ought also be taken of occupations which can include a number of of quite different activities, but which, because they are carried on in the same place, orhave been added to the range of activities originally defined as that occupation, are not generally considered as separate occupations. The best documented examples of this are in agriculture. A person classified as having agriculture as his sole occupation could also be engaging in forestry, hunting or fresh water fishing, or might rent out cabins or fishing or hunting rights on his land. In 1969 77% of all holdings included an area of forest, but in relation to agricultural area it was greater on average on holdings run as a sole occupation than on others (Central Bureau of Statistics, 1972a,p.54), so that in effect these farmers too combined two occupations. About 15% of holdings had income from cabins, fishing and hunting, though for the majority this was only small (Central Bureau of Statistics, 1972b, pp.130-131, Table 13).

A further source of diversification of income available to agricultural and fishing households is the possibility of obtaining income in kind, either by extending their range of activities or by using a portion of produce intended for sale. An indication of the scale of agricultural production primarily for the household's consumption is given by the number of holdings which have casual, as opposed to regular, sales of certain products. The proportion with casual sales of meat in 1969 was 17.6%, timber and firewood 16.4% and potatoes 14.8% (there were 154,977 holdings)(Central Bureau of Statistics, 1973a, p.161, Table 142 and p.167, Table 149). However, taking account of those holdings which never sell certain kinds of produce, the real level of production solely for the household's consumption will be higher. In 1970 the value of subsistence production was equal to 11.4% ofthe net income of a sample of North Norwegian farms (Norges landbruksökonomiske institutt, 1971a, p.165, Table 8 and p.172, Table 11). Some years earlier, in 1954, when the importance of subsistence production was probably greater than it is now, a survey of farm households found that in North Norway, subsistence production valued at purchase price accounted for about a quarter of household expenditure. It was equal to about half the expenditure on food and slightly more than half the expenditure on fuel (Central Bureau of Statistics, 1957, p.30, Table 10 and pp.28-29, Table 98).

It seems likely, therefore, that the estimate of 10% of households exploiting multiple income sources was not too high, and could well be too low. The extent of this practice is thus sufficient for it to be given serious consideration.

The North Norwegian situation

The exploitation of multiple income sources in North Norway [2] is commonly attributed to a paucity of natural resources in a harsh environment. It is argued that due to the topography, the area of cultivable land is limited, the climate places narrow limits on what can be produced, and agricultural holdings have been subdivided to such an extent that they cannot provide an adequate income for a household. Furthermore this type of household organisation is a relic from the past, when poor communications made it necessary to be as self-sufficient as possible.

However a case can also be made out that, as several resources were available, a household could exploit any, or even all, of them as it chose, so as to best meet its requirements. Had there been a scarcity of resources, then those which were available would have been exploited to the limit, but that was not so. For example, maps of agricultural resources produced in 1971 showed that there were areas of potentially

cultivable land which remained unused adjacent to fishing settlements (Jorddirektoratet, 1971, sheet 1635). But where there are other resources available it is not necessary to extract the maximum agricultural production possible, " in fjords rich in fish cultivation potential is only moderately exploited" (Mathiesen, 1963). Similarly it was found in one of the more favoured parts of North Norway, Ballangen in Nordland, in a survey in 1961, that income from agriculture was lower than the average for North Norway, as were yields per dekar. However, total net income reached about the same level as the regional average due to the level of incomes obtained from other work (Elstrand and Robbestad, 1963, p.17). At that time there was mining activity in Ballangen, and the combination of agriculture and mining was very usual. In the latter 1960's mining ceased. According to the 1969 Agricultural Census, which is not strictly comparable with the survey data, incomes from paid employment in Ballangen were considerably lower than the average for North Norway (Central Bureau of Statistics, 1972c, p.15, Table 2). While income from agriculture was also below average, the discrepancy was smaller than in 1961, which might indicate that agricultural production was being increased to compensate for the loss of mining as a source of income.

The area considered necessary for a rational family farm in North Norway is 150 to 200 dekar of infield (Norges landbruksökonomiske institutt, 1971b, p. II-3). Less than 6% have as much as 100 dekar at present and the median is less than 35 dekar (Central Bureau of Statistics, 1973a, p.38, Table 6). However, the small size of holdings is not necessarily the cause of the practice of exploiting more than one resource, but rather a consequence. Holdings are only divided when the resulting parts will be large enough for a household's (perceived) needs. In localities where further subdivision would jeopardize the economic position of any of the households in a community, restrictions are placed on new household formation which effectively avoid the need for further subdivision (Brox, 1964, p.39).

Of greater importance than natural and local conditions for the composition of the income spectrum is, to use Benvenuti's concept, the "Technological and Administrative Task Environment" (TATE) (Benvenuti, 1974). This he defined as a "social constellation within which a farm operator technically acts". For the purpose of this paper it is more useful to expand the concept to include any household decision maker. Economic development and other changes originating from the outside, government measures for example, change the range of alternatives available in any particular area at any one time, and the relative value of the resources exploited, one to another. An example of a change of the latter type would be a change in taxation, whereby produce consumed by the household is valued at purchase rather than sales price. An example of the former type would be a change in the distribution of subsidies between industries or products which favour large scale, as opposed to small scale operators, such as offering loans for large, but not small, fishing boats.

A household which exploits more than one income source has the advantage of not being entirely constrained by the section of the TATE associated with any one of them. Generally it has enough flexibility to alter the ballance of its activities if circumstances change. For this reason it is difficult to predict accurately the effects of policy changes in individual sectors of the economy.

The nature of occupational combinations

An example has already been cited of an occupation, farming, within which which a range of income sources is commonly exploited (see above p.6). The activities within that occupation can be so varied as to

constitute a number of different occupations. In such a situation the addition of a further income source to the existing income spectrum, even if it is off the farm, can be seen not so much as a change in the nature of occupational activity, but as an extension of its range.

The best known combination of occupations is that of agriculture and fishing. The impression that it predominates tends to be reinforced by the greater availability of statistics on occupational combination in agriculture and fishing than in other industries. However, as Table 2 shows, combination of an occupation in the primary sector with one in the secondary or tertiary sectors is more common than the combination of agriculture with fishing.

Table 2. Most important additional occupation. Agriculture and Fishing. Men.

	Nation		North Norway		
	Total econ. active 1970	Fishing 1971	Agric-ulture 1969	Agric-ulture 1969	Total econ. active 1970
Agriculture & forestry	10	39.5	14.7	10.5	3.9
Fishing	3	4.3	12.8	11.6	35.0
Manufacturing	32	21.7	19.7	22.2	11.0
Bding & constr.	12	16.1	26.3	12.8	27.7
Transport	13	11.9	10.6	15.3	10.1
Other	30	6.5	15.9	27.6	12.3
Total (n=100)	1057765	15045	75384	121707	19186

Sources: Central Bureau of Statistics, 1973a, p.64, Table 33, 1973b, p.75, Table 102, 1975a, p.106, Table 149, 1975b, p.49, Table 6, p.154, Table 15, pp.170-173, Table 16.

There are also combinations, not shown here, which include neither agriculture nor fishing. The major limitation of these statistics is that they are confined to the most important supplementary occupation, measured by the size of its contribution to total income. Incomes from primary occupations tend to be lower than those from others, particularly if that income is obtained partly in kind, therefore the importance ofthese occupations might be underestimated. A reasonably full analysis of the contributions of the various sectors to occupational combinations would need to take account of at least the three or four most important occupations of each individual. Table 4 shows, therefore, not the proportions of farmers or fishermen who have additional employment in each sector, but the proportions for whom each sector is only the main additional source of employment.

The distribution shows some complementarity to Table 1, in particular in the high proportion of both groups engaged in building and construction and the relatively low proportion in manufacturing. Furthermore, in the case of fishing, about three-quarters of those in manufacturing have work which is in some way connected with the fisheries. Part of the reason for the low proportions in manufacturing is the difficulty of combining work in industry, where work hours are inflexible, with other work. In 1968-69 the average number of days worked off the farm in manufacturing , 217, was higher than in any other sector, and well above the average for all sectors, which was 182 days (Central Bureau

of Statistics, 1972b, p.23, Table 2). But the proportions working in the different sectors are also influenced by the location of work opportunities in relation to the location of the agricultural and fishing population. Table 3 illustrates how location affected choice of additional occupations in the North Norwegian cohty of Troms in 1959.

Table 3. Additional occupations by sector. Farmers in Troms 1959. Fishermen in North Troms 1960. Men.

	Farmers					Fishermen
	Islands	Coast	Fjords and valleys	Inland areas	Troms total	
Agriculture & forestry	1.2	0.8	1.8	3.2	1.5	72.4
Fishing	51.4	39.9	35.3	4.8	40.2	0.2
Manufacturing	4.8	5.8	3.3	4.3	4.4	14.4
Bding & constr.	11.6	18.4	23.8	37.3	18.8	21.6
Commerce	2.0	2.2	1.4	1.4	1.8	0.8
Transport	5.4	5.5	4.9	13.6	5.7	4.3
Other services	1.5	1.2	1.1	3.2	1.4	0.9
Pensions etc.	4.9	6.0	6.5	11.3	6.1	11.2
Not stated	10.7	15.0	15.5	17.5	13.8	2.1
Total (n=100)	4003	1914	4114	662	10693	2092

Sources: Central Bureau of Statistics, 1962a, Table 20, 1962b, Table 14.

For 40.2% of the farmers with an additional occupation in the county that occupation was fishing, but the percentage ranged from 51.4% on the islands to 4.8% in the inland areas. In building and construction the situation was the reverse, with the highest level of employment in the inland areas, where there was much construction activity at that time, and lowest on the islands. The apparent discrepancy between the proportionsof farmers who fish and fishermen who farm is due primarily to the difference in the absolute numbers who engage in each occupation.

Changes over time

The income spectrum exploited by a single household does not remain constant, but changes over time, perhaps from year to year. Both the needs of the household and the resources at its disposal vary from one stage of the family cycle to another, its values and therefore its consumption aspirations might also change. The influence of the latter on the means of obtaining incomewill depend on the composition of types of income, rather than absolute amount of income. As has been pointed out elsewhere, a "qualitative" increase in consumption could lead a rural household to 'bonsume itself out of its.....adaptation" (Paine, Skolnik and Wadel, 1969, p.6). It would then be necessary to change to a different one.

Factors external to the household, and the household's perception of them also change, whether they be weather conditions, the nature of the fishing season or TATE. Consideration will be confined here to changes in this last category. Even over a short space of time these external factors can bring about the disappearance of certain income sources and the emergence of others, as well as radically changing the profitability of any single one. To take just one example, until the last war, inhabitants of the inland areas of North Norway, as well as those

of the coast, regularly took part in seasonal fisheries (in the last century farmers from North Finland did so too). This practice has now been abandoned in favour of other forms of paid employment, in particular in building and construction.

Some income sources disappear because resources are exhausted, as in the case of Ballangen, already cited (see above p.7). In recent years income sources have disappeared as a rcult of government policies of rationalisation, which are part of a value system which considers a full-time job preferable to exploitation of multiple income sources. One such policy has been that of creating year-round jobs in forestry, which has resulted in a relatively small work force being employed for most of the year, instead of the former pattern of seasonal employment for larger numbers (Christoffersen, 1972, pp.23-25).

Other sources of supplementary income are part-time tasks in service occupations, including the public sector. These can be subject to rationalisation, either by centralisation of, for example, schools, which lead to the closing of country schools and loss of the income opportunities represented by jobs for caretakers and cleaners, or by reorganisation which replaces part-time employees with fewer full-time ones. An example of this is the Norwegian post office, which between 1967 and 1972 reduced the number of post offices at the lowest levels by over 800, or more than 20%, and replaced many of them with mobile postmen (Postdirektoratet, 1971, pp.30-41 and 1973, pp.34-43, Schilbred-Eriksen, 1973, p.103). At the very lowest level (brevhus) such post offices were run on a part-time basis and provided a valuable supplementary source of income to a household which combined it with other activities. If a member of such a household were to undertake the full-time mobile postman's job, it would probably necessitate a considerable reorganisation of the other activities.

However external factors have also resulted in extension of the income spectrum. It was anticipated that the expansion of manufacturing industry in recent decades would provide full-time jobs and thus promote further occupational specialisation. However the spread effects of new industrial development have not always occurred as was expected. It was found, for example, that instead of the development of specialised agriculture in an area around a new steel works in North Norway, due to the emergence of a new market and the availability of full-time employment, agricultural activity continued much as before. Industrial employment was perceived as an addition to the existing income spectrum, rather than an alternative, and it was combined with the traditional form of agriculture. (Solli, 1961 and 1969, pp.33-34).

Another possible extension of the income spectrum is the perception of the value of a previously ignored asset for the first time. Paine has documented the cultivation of land previously regarded as worthless and the inclusion of agriculture in the income spectra of households in a fjord in the county of Finnmark inhabited by sea lapps, as a compensation for the decline of fishing, which was previously of overriding importance, and hunting (Paine, 1953, pp.177-182, 185-186).

Additional income sources of the TATE include not only employment, but may also take the form of an increase in the range of social benefits. The introduction of a disability pension in 1960 must inevitably account for part of the increase in the proportion of farmers receiving benefits between the agricultural censuses of 1959 and 1969, the remainder is due to the aging of the farm population (see above p.5). In one of the North Norwegian counties, Troms, the number of farmers with incomes from pensions was probably less than 600 (of 11963) (Central

Bureau of Statistics, 1962a, Table 5). By 1969 the number of farmers had fallen to 8099, but the number receiving social benefits had more than doubled to 1459 (Central Bureau of Statistics, 1973a, p.63, Table 32).

The response to changes in the income spectrum will vary from one household to another, depending on the situationof each one, and there will be considerable variations, therefore, within a single occupational group, as well as between groups. One possible adjustment is to adapt the household's consumption pattern to a change in income composition. However, if, as has been suggested (see above p.3), the decisive factor in economic decision making is the household's preferred consumption pattern, then it is more likely that the household will redistribute its efforts within a changed income spectrum so as to maintain it.

The level of income obtained from multiple sources

The wide variation in the ways in which households obtain income raises the question of how levels of income from the different combinations of sources compare. Table 4 shows in simplified form the composition of income of 86 households on the island of Vega, in Nordland, grouped according to major income sources. The amounts of income obtained from

Table 4. Composition of income by occupational source. Vega. 1966.

	Agriculture						Fishing		
	Sole occupation Size of holding, da.			& other occupation					
	< 50	50-70	> 75	Paid empl-oyment	Fishing Seas-onal	Year round	Boat owner < 25'	> 25'	Crew member
1)									
No. households	8	12	15	8	7	15	7	10	4
Average size of holding, dekar.	38.1	64.3	93.3	25.5	44.9	20.2			
					Kroner				
Net farm income	8227	11207	12738	3984	7996	3721			
Average annual income, fishing, 1964-66					5229	8861	14902	16269	12412
Paid employment	1960	1397	1842	13134					
Misc. income	166	288	313	75	836	1097	1081	1566	1417
Interest repayments	457	-673	-1089	-363	-427	-171	-201	-1053	-217
Total net income	9896	12219	13804	16830	13634	13507	15782	16782	13612

1) In agriculture, number of holdings, in fishing, number of fishermen.

Source, Bratgjerd and Ringaker, 1970, pp. 19, 28, 31.

individual sources vary widely between groups, as one would expect. However, even though the largest total income is 60% greater than the smallest, the most striking feature about the table is the degree of similarity in levels of total income. A similar finding was made by Dyke in Newfoundland in 1968 (Dyke, 1968, p.48)

There is also a remarkable similarity between the levels of income

obtained per year's work, irrespective of the activities among which it was distributed. This is illustrated by Table 5, which comes from the same Vega survey. The number of years work is the total for agriculture and fishing in each case. The higher the year's work total is

Table 5. Net income and year's work by type of occupational combination. Vega. 1966.

		Local fishing		Year round fishing	
		Seasonal	Year round	Boats < 25'	Boats > 25'
Hay for sale	Net income, Kr.	8400	12100	17500	19500
	No. year's work	0.5-0.6	0.7-0.8	1.0-1.1	1.0-1.1
Hay and potatoes	Net income, Kr.	11300	15000	20400	22400
	No. year's work	0.6-0.7	0.8-0.9	1.1-1.2	1.1-1.2
Sheep rearing	Net income, Kr.	11400	15100	20500	22500
	No. year's work	0.6-0.8	0.8-1.1	1.1-1.3	1.1-1.3
Milk production	Net income, Kr.	15000	18700	24100	26100
	No. year's work	0.9-1.0	1.1-1.2	1.4-1.5	1.4-1.5

Source: Norges landbruksökonomiske institutt, 1971b, p.III.16.

the more likely it is that the household contains more than one full time working adult, and therefore probably has relatively high cash income requirements.

However, no account is taken here of occupations other than agriculture and fishing. A year's work total of less than 1.0 does not necessarily mean that a farmer-fisherman is unemployed for the remainder of the time, but rather that he engages in other work besides. Additional employment might consist of either a part time job for a few hours a week, or casual employment for periods of varying length. In small communities tasks, for example in service provision, which in a larger place could employ full time workers, can often be accomplished in a few hours. Some combinations of occupations and enterprises have a high demand for labour at certain seasons. At such times members of households with different combinations will be employed, perhaps for a few days, or only for a few hours. Thus a household which at certain times obtains part of its income from outside employment, might at other times employ additional labour.

A household which has time to spare over and above that needed for its main economic activities can use it in a variety of ways. One of there is the exploitation of natural resources already referred to (see above p.5). Data from the 1954 farm household survey showed that, in North Norway, the amount of wild berries consumed per consumption unit (a measure of the number of memberso of a household weighted according to their different levels of consumption) was, on average, greatest on the smallest holdings and declined progressively with increasing size (Central Bureau of Statistics, 1957, pp.252-253, Table VIII). This is not necessarily due to the fact that households with smaller holdings have greater need of this supplementary income, but rather that they have more time available for what is quite a time consuming activity. The same trend is apparent for fish and fish products, though it is not possible to distinguish between the proportions gained from fresh water fishing and those obtained in the course of fishing as an occup-

ation.

Alternatively the household might prefer to work less in order to have more free time, leisure. Its leisure pursuits frequently cost nothing, and besides, as in the case of fishing and berry picking, result in a supplement to the household income. A survey of workers' families in 1952 found that they spent 4.1% of their income on entertainment and sport. The corresponding figures from the agriculture and fishing households' surveys of 1954, respectively, were 1.7% and 1.9% of incomes equal to about 90% and 70% of those of the workers (Central Bureau of Statistics, 1957, p.74, Table 49).

An evaluation of the importance of minor income sources, while apparently of little significance individually, might, when taken together, weigh heavily in a household's decision making. However, due to lack of adequate data, they will have to be ignored in what follows.

The income structure of individual households

The following examples of individual households are taken from a coastal and an inland area of North Norway, about 400 km. further north than Vega. They do not constitute a representative selection, but merely illustrate some of the varieties of income combination, and the influence of the composition of the household and some of the resources at its disposal on the composition and level of its income.

Table 6 is based on information given by the respective heads of households, and there is every reason to consider it reliable. Some details were added from the register of fishing vessels (Fiskeridirektoratet, 1966) and from unpublished data in the state housing bank. A major shortcoming of the figures is that they are based on net income. The gross income has been reduced both by the sum of expenses incurred and an amount allowed for the depreciation of assets. However, some households holds make further investment at a rate lower than that allowed for and some do not invest at all, therefore the amount they devote to consumption is higher than the figures suggest. Other households, on the other hand, may make comparatively high investments in a given year, and will therefore have a correspondingly lower level of consumption. Expenditure on housing, in the form of repayment of a loan, is also an item which affects the amount of income available for all other expenditure. Therefore a household which already owns its house outright (entered in the table as "none") will have an effective disposable income equivalent to the amount of expenditure saved on housing, which would be about Kr. 1500 per year.

The value of subsistence production is considerably understated. Only those products which might otherwise have been sold, milk and milk products, meat, eggs and fish, have been included. The amounts are estimates, and in reality should probably be higher (c.f. Brox and Seierstad, 1966, p.72). They are based on sales, not purchase price, though the value to the household is the latter. Furthermore, no account is taken of the value added when, for example, a household turns some of the meat it has produced into sausages. A further source of subsistence income which these households can be assumed to obtain is firewood, which in these northern latitudes is needed in large quantities. It is taken for granted to such an extent that a householder (not included among the examples given here) who did not have access to a supply of firewood on his own land was careful to point out that he had to buy fuel.

As one would expect, when individual households are considered, the

Table 6. The income structure of some North Norwegian households.

Household	1	2			3		
Household composition:							
No. pensioners							
No. adults	1	2			3		
No. children		1			3		
Agricultural assets	cows horse	48 dekar infield heifer, 12 sheep, lambs.			5 sheep lambs		
House loan	None	House loan			None		
Earner	H	H	W		H	D	
Occupation	Small-holder	Lorry driver			Fisher-man		
Other assets		lorry					
Income: % by source and earner							
Agriculture for sale	70.7	-28.0			7.4		
Subsist. agriculture	19.0	10.5					
Firewood	10.3						
Total agriculture	100			-17.5			7.4
Fisherman's share					19.9		
Boat share							
Other fishing							
Local fishing							
Subsist. fishing					1.6		
Total fishing							21.5
Net own business		106.7		106.7			
Paid employment			7.2	7.2	2.0	51.3	53.3
Pensions etc							
Childrens allowances		3.6		3.6	17.8		17.8
Total soc. benefits							
% income per earner	100	92.8	7.2		48.7	51.3	
Total household income (=100%) Kr.	3900	6900			10,200		
Income per consumption unit, Kr.	3900	2590			2170		

Key to earners:

H - head of household; W - wife; D - daughter; S - son;
M - mother or mother in law

Table 6 continued

4				5		6				
3 -				2 4		1 3 -				
69 dekar infield, tractor horse, 6 cows, heifers, calves, 8 sheep, lambs, 12 hens.						3 0 dekar infield, 12 sheep, lambs.				
None				None		House loan				
H Farmer	W	D		H Labourer		M	S1	S2	S3	Fishermen
								Open boat 18'		
0.8 14.8				1.7			2.3 2.3	2.3 2.3	2.4 2.3	
			15.0		1.7					13.9
								21.7		
							10.3 0.9	1.9	11.8	
										46.6
18.0	39.3	27.7	85.0	86.7	86.7			4.1	12.9	17.0
						20.5	2.0			
				11.6	11.6					22.5
33.0	39.3	27.7		100		20.5	17.8	32.3	29.4	
	14,700			17,300				18,400		
	5525			3560				4805		

Subsistence income is calculated from the gross value, production for sale from net value.

Table 6 continued

Household	7		8	
Household composition:				
No. pensioners	1			
No. adults	2		2	
No. children	6		2	
Agricultural assets	1 cow, calf		14 dekar infield 1 cow, 2 sheep, lambs	
House loan	None		House loan	
Earner	M	H	H	
Occupation		Labourer	commune employee	
Other assets				
Income: % by source and earner				
Agriculture for sale		1.3	2.7	
Subsist. agriculture		8.6	4.7	
Firewood				
Total agriculture		9.9		7.4
Fishermans share				
Boat share				
Other fishing		19.9		
Local fishing				
Subsist. fishing				
Total fishing		19.9		
Net own business				
Paid employment		17.9 17.9	87.9	87.9
Pensions etc.	23.8			
Childrens allowances		28.5	4.7	
Total soc. benefits		52.3		4.7
% income per earner	23.8	76.2	100	
Total household income (=100%) Kr.		19,300	21,000	
Income per consumption unit Kr.		3035	6730	

Table 6 continued

	9	10
	- 3 -	- 6 -
	49 dekar infield, tractor 5 cows, calf, 6 sheep, lambs	50 dekar infield, cow, calves, 17 sheep tractor
	None	None
	H Sawmill owner	H small-holder
	S Labourer	S1 fisher-man
		S2 fisher-man
		S3 Labourer
	sawmill machinery	open boat 17'
		½ share boat 45' fishing gear
		car
	-2.5 8.0	-1.5 3.8
	5.5	2.3
		2.3
		34.4
		13.4
		31.3
		1.6
		0.3
		83.3
	62.5	62.5
	0.7 31.3	32.0
	0.6	0.1 13.7
	68.7 31.3	5.5 47.8 31.4 15.3
	24,500	55,700
	8650	9850

level of income varies more than in previous examples, which gave average figures for a number of households. However, when income is calculated per consumption unit, there is a remarkable similarity of levels, except at the upper and lower extremes.

All these examples are taken from the same year, 1964. Had comparable data been presented for a different year, say 1963 or 1965, then income composition would have been different. Incomes from all primary occupations, perhaps most of all from fishing, fluctuates considerably from one year to another. For example, in 1965, which was a good year for fishing in North Norway, the average fisherman's share of the amount earned by the catch of a fishing boat of between 40 and 50 feet was about 60% higher than it had been the previous year. There were similar increases for boats of other size categories (Fiskeridirektoren, 1967, p.31. Table 19). The fisherman's share, in Norwegian fiskerlodd, is the amount received by the crew member of a fishing boat for a season's fishing.

Total incomes are therefore also likely to fluctuate, but not necessarily to the same degree. A household will try to compensate in other spheres for a reduction of income from one or other source. Alternately, an unusually high income, as from a good fishing season, might result in some other source's not being exploited for a year or so, or being exploited less intensively. If the income obtained by a household from any activity in a certain year is lower than was anticipated, due to miscalculations, then a change in strategy is likely in the following year.

Changes are constantly taking place in the individual households, as examples from the households in table 6 show. Early in 1965 one of the households slaughtered its cow and began to buy milk in cartons from the local dairy. This increased cash expenditure, but reduced the work load of the housewife, who had a young family to look after, while the head of the household was away from home working. The household income in 1965 would include subsistence income equal to the value of the slaughtered cow, instead of the value of milk consumed in 1964. In 1966 there would no longer be any subsistence income. Another household built a new house and obtained a loan from the state housing bank, thereby increasing its necessary cash expenditure considerably. The eldest child of another household left home to work in the nearest town and thus became self-supporting, while the son of the house in yet another household married and set up a separate household.

On the whole, the most prosperous households were those with two or three adults obtaining incomes other than social benefits, and where there are few non-working dependants in relation to earners. These are followed by households whose income is obtained in quite a substantial part from social benefits. Households with the smallest incomes include those which direct a relatively large proportion of their effort into agriculture. The low levels of income can be attributed, at least in part, to the undervaluation of the contribution of subsistence products to the total income level. The same applies to the value of fish consumed by the households of fishermen.

The wide differences in both the composition of incomes and in the proportions contributed by individual members of the household illustrate the flexibility of this type of household economy. In part, the variations are due to the differences in household structure, and thus in the numbers of people able to earn, or to qualify by reason of age for social benefits. The households also differ in their possession of assets which can be used to exploit certain sources of income. In this

respect the strategies available have been limited by past decisions.

The framework of household decision making

Decisions about the strategy adopted will be those which are considered likely to maximise the household's overall utility, of which income in cash or kind is only the most easily quantifiable part. The efficiency or otherwise of operations in any, even all, sectors is secondary to considerations of the efficiency of the entire combination in providing the desired mix of goods and services, without imposing costs which the household is not prepared to bear. Perceived costs might, for example include careful decision making, so that a household will accept a a lower than optimum income in preference to expending the effort of planning which is necessary to optimise it.

It is inevitable that some income sources will be exploited intensively, some not. Seen from a narrow sectoral point of view, non-intensive exploitation of resources is inefficient, and is therefore considered not to be in the best interests of the people engaged in the industry concerned. Sucha view often underlies agricultural policy, as in this example from a Norwegian policy document. "Special weight must be given to all measures which can increase efficiency in our agriculture" and " agricultural policy measures should be formulated so that they can promote a rational development of the industry and thus contribute to a durable improvement of the social conditions of the agricultural population" (Landbruksdepartementet, 1964, pp. 116-117). A farm household which does not maximise its agricultural production is sometimes (disparagingly) labelled a "satisficer" (Symes, 1972, p.34) rather than a maximiser. However, it is argued here that, in terms of the values of the household, an increase in efficiency in a particular sector does not necessarily bring about an increase in welfare, and an inefficient household might, in fact, be maximising its overall utility.

The value attributed to attaining efficiency in a particular economic sector must be due in part to the analogy which is sometimes drawn between the self-employed household and the firm. But such an analogy is misleading. A firm comes into existence for one prime aim, to provide goods and services in such a way as to obtain the greatest profit, other aims, other aims are subsidiary to that. A household has a multiplicity of goals. It can be assumed that it is impossible to fully attain all of them. The relative degrees to which the respective goals are pursued are decided, subject to certain constraints, according to the household's subjective priorities. To the extent to which it is the household has to take the consequences of its decisions this is justifiable. Consideration of consequences for society is another question, which will not be taken up here.

A second objection to the analogy of the firm is that a firm which ceases to be profitable can go into liquidation. As Manning Nash has pointed out, a household cannot do this (Nash, 1961, p.189), for even if it should cease to function as a unit, its members still have to be provided with at least the basic necessities of life.

A more appropriate analogy is with a political unit. A state too cannot go into liquidation, though perhaps one might argue that a state is more likely to have access to credit facilities than many households. Within a political unit the requirements of individual sectoral interests can be, and often are, subordinated to an overall welfare criterion, as defined by the prevailing system of values. Restrictions on location of industry in certain places which would be favourable to it provide

an example. As in the case of the household, policies for obtaining, or creating, wealth are derived from the desired composition of that wealth, that is the mix of outputs, rather than simply the volume.

The structure of a national economy can be expressed in terms of an input-output matrix. This allows specification not only of the total value of inputs and outputs, but of their composition. The structure of a household economy can be conceptualised in the same way. The household itself is taken as the political unit, transactions with the market are equivalent to exports and imports. Subsistence production is entered in the endogenous, household sector of the final demand column. If no produce from any sector is consumed directly by the household, then that line is left empty in the household column. Transactions with the larger political unit, the state, are treated in the same way as subsistence production (see above p.3). The household is an integral part of the larger unit, and not separate from it. It therefore receives its share of benefits available to the whole of the larger unit and makes its share of contributions. A matrix representing the household shown in figure 3 (p.2 above), would be, in outline, like the one below (figure 4). If sufficient data were available, it could be much more detailed. Inputs are the actual commodities (or in the case of the state, services) which are transferred between sectors. Outputs can be expressed in money terms, but if their composition is to be appreciated, then they ought rather to be represented in terms of the contribution they make to the household's total wellbeing.

Figure 4.

	Agriculture	Forestry	Fishing	State	Final demand: Household	Final demand: Net market transactions	Total
Agriculture							
Forestry							
Fishing							
State							
Household						1)	

1) Goods and services obtained in return for labour sold on the market.

This technique can be a particularly useful tool for analysing the structure of the economy of a household which utilises a broad income spectrum. Not only can one show the relationship between particular kinds of output and the inputs necessary to obtain them, but it can also show the interrelationships between the individual activities engaged in. Compared with figure 3, an input-output table allows one to trace possible resource allocation decisions, assuming a fixed quantity and composition of available inputs, and the mix of outputs which can be obtained from them. Alternately, assuming a fixed structure of desired outputs, the resource allocations most likely to attain it can be calculated.

The interest of this form of analysis does not lie in the possibility of defining and comparing the amount of inputs used for each individual output, for even if inputs are measured in units of equal size, they do not necessarily represent equal values. For example, the cost of individual outputs cannot necessarily be compared in terms of hours worked, as the hours used to produce the outputs most costly in terms of time might otherwise not have been put to productive use at all. Rather, by showing the part played by the individual inputs, both the direct and indirect consequences for the composition of consumption of, for example, changes in resource availability and the appearance and disappearance of income sources can be traced. It provides a framework for the decision making of households such as have been described in this paper, without in any way implying that this is the way in which any households actually do make decisions.

A more realistic and satisfactory model would be a dynamic one which would show the extent to which current income was due to past investment and how much of its income was being invested in the future well-being of the household. This is another sphere in which the interdependence of the individual sectors of the household economy becomes apparent. One source of income might be exploited so as to provide a relatively high cash income for a year or two, then the money obtained will be invested in another sector. Housing, shown in Table 6 and in studies by other authors (Arnljot, 1972 and Dyke, 1968) as an item of current expenditure or expenditure saved, would also be more accurately represented as return on investment, or not, as the case may be.

Further applications of the model

However, a static model, for all its limitations can still be a useful tool for comparing households with different types of economic structure, in different social and economic systems or in different historical periods. To do this, the scope of the matrix used would have to be wide enough to accommodate the equivalents of each form of input and output of each household type in the other. This would necessitate subdivision of sectors so as to be able to show the different combinations of contributions to the household's welfare made by apparently equivalent sectors. It would then be possible to overcome a major obstacle to comparison between types, the differences of definition and content of the concepts of income work and occupation. For example, to compare an occupation which includes an element of recreation with one which is no more than a means of obtaining a necessary cash income is not to compare like with like (c.f. Parker, 1965). By entering the components of each type in a matrix, one can clarify the different roles played by the respective occupations in the lives of the individuals or households concerned.

There are obvious practical difficulties in obtaining the detailed data required for such a matrix, but this does not prevent its being used as a conceptual tool. For any household, if one first establishes the pattern of consumption of goods and services, then establishes the inputs which were used to obtain it, the pattern of an income spectrum can be built up. It would include, besides the most obvious forms of income and items of expenditure saved, the role of mutual family or community obligations, and such things as productive leisure pursuits. Viewed in this way, the income spectrum of many types of household might prove to be considerably wider than is at first apparent.

A matrix constructed for a household with an economic structure like that shown in figure I would include time use outside what are normally considered as work hours and sources of well-being (income) which the

household obtains from sources outside the main occupation, or occupations, of its members. The most obvious source of additional income in this type of economy is a second job. But although through the use of the term job, one might expect this to be primarily an activity performed to obtain additional cash income, it can also have a leisure function, and income in cash may well be lower than in the principle job (Yates, 1972, pp.401-402). There are also informal income sources, tasks which bring a return in cash, but which are performed on too casual a basis to constitute a job (e.g. Hart, 1973, p.67). These too are not necessarily undertaken solely to obtain income in cash, but might, for example, be a means of relieving boredom (Henry, 1976). In some circumstances income in kind is obtained by town dwellers in the same way as in multiple income source rural households, as has been documented for sawmill workers in North Sweden (Daun, 1969, pp.84-89), and as in the case of allotment holders.

Other leisure pursuits, for example, all those in the do-it-yourself field, result in income to the household in the form of saved expenditure on certain kinds of service provision, such as property maintenance. Since the advent of mass production, one might perhaps argue that there has been a shift from subsistence production of goods to subsistence production of services, which have become relatively more expensive. It is, for example, possible to regard private motoring as a form of subsistence service provision. It is relatively costly, if one takes into account the time and effort expended on driving, but it provides a service qualitatively superior to public transport, and in some cases a service where no other exists. It is therefore considered to be worth the amount of inputs necessary to obtain it.

Viewed in this way, the different household economic structures appear as different strategies for obtaining similar ends. By contrast, a comparison based on, for example, social or economic indicators would tend to exaggerate differences. Definitions are almost inevitably culture specific, and each indicator has to be clearly delimited. Use of a matrix allows for overlapping between sectors, accommodates interrelationships between them and enables them to be understood in context.

Kelvin J. Lancaster has argued that "goods aren't goods". The conclusion of this paper must be that income isn't income and occupations aren't occupations. Not only does the distribution within occupational categories change as part of the process of developmet, but the areas of life and the activities which are included in the concept of occupation also change. (Lancaster, 1966)

To sum up, this paper has sought to demonstrate two things. Firstly, that occupational specialisation does not always occur as a necessary consequence of economic development. Secondly, that by adopting an analytical tool which accommodates the variations in the content of concepts used in describing the components of a household economy, it is possible to make comparisons between households of disparate types. As a result of these comparisons, it appears that even when occupational specialisation has occurred, the change has not been as radical as might have been assumed.

Notes

1) Figures 1 and 2 are based on Solli (1969) pp.34-35.

2) The three northernmost counties, Nordland, Troms and Finnmark, all of which, with the exception of southern Nordland, lie north of the Arctic Circle.

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