

## Leisure and farmers' welfare in changing conditions

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This paper examines the background for leisure-labour decisions in agriculture and evaluates welfare effects of a shift in farmers' relief services from a state-led subsidised system to a market mechanism. Leisure provided by relief services in agriculture contributes to well-being, but the leisure-labour choice also influences the revenue. Besides conventional economic and demographic factors, we emphasize the importance of special biological bindings and continuity, as well as risk and uncertainty affecting farmers' time allocation in agricultural production. We consider structural development as an aggregate factor to explain the demand for farmers' relief services. In Finland the organisation of the services is more centralized than in the other Nordic countries or the European Union. If government subsidies for relief services were removed and a market mechanism with free price formation adopted, direct government savings would be more than enough to compensate for substantial losses to farmers. Moreover, market forces could produce economic efficiency and local flexibility of a higher degree. State subsidization may still be needed to some extent in changing conditions in order to enable the relief services to develop and serve as a support system of a social, de-coupled, and less distorting nature.

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Key words: agriculture, social security, relief services, allocation of time, welfare economics, Finland

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### Introduction

Almost 30 years ago, Gary S. BECKER (1965) wrote in his seminal work on the allocation of time that "... the allocation and efficiency of non-working time may now be more important to economic welfare than that of working time; yet the attention paid by economists to the latter dwarfs any paid to the former." We dare to suggest that Becker's argument is still very valid especially in the agricultural sector. Because interesting special characteristics of agriculture have not been assessed adequately in leisure-labour studies, our article makes an attempt to respond to an obvious need to evaluate welfare implications of leisure in agriculture.

The ultimate purpose of economic activity is to satisfy human needs and thereby increase welfare. The need for rest and leisure is determined on both the biological and social basis. Demand for leisure and e.g. access to recreational market are also influenced by economic activities. The task of social welfare policy is to allocate welfare among the members of the society equally and with justice.

Farmers' relief services represent social welfare policy of agriculture. The policy aims at improving the social position of agricultural population. Specially arranged relief services are also intended to increase farmers' welfare, when they provide farmers the possibility for leisure and recreation as well as recovery in case of e.g. sickness and accidents.

Farmers' social security has been promptly developed during recent decades in Finland.

Today, however, there are various obstacles preventing social welfare policy as a whole from being developed further. Budgetary constraints in dire economic recession and deep state indebtedness do not allow growing costs in social welfare policy. Uncertainty of the fate and shape of Finnish agriculture under both international, e.g. European integration and the General Agreement on Tariffs and Trade (GATT), and domestic pressures affects farmers' social security systems. In practice, strict economic realities require restructuring in the whole system of extensive social welfare policy.

To begin with, this article examines the welfare aspects of farmers' relief services that are used to provide access to leisure and recreation for farmers. The choice between leisure and labour is approached through the theory of consumer choice, the indifference analysis, and welfare economics. We make an attempt to extend the standard theoretical framework of wage-earners' leisure-labour choices to special characteristics of agriculture and farm enterprises. Secondly, we outline the current state of relief services in Finland, and take a brief look at the determinants of demand for and supply of leisure/relief services in changing conditions. The welfare economics approach is employed in the empirical part to evaluate the effects if relief services have to be organised, financed, and priced differently in the future. Finally, we draw conclusions on the welfare implications and applicable development strategies in changing conditions.

### **Welfare and farmers' relief services**

The economic welfare status of an individual is formally given by the individual's utility level. The utility level of an individual depends on both market and nonmarket goods and services. Consequently, the state of welfare is affected by e.g. socio-economic political system, culture, environment, and traditions. A difficulty with utility, or economic welfare is that it is not an observable variable. Thus, in addition to obvious conceptual ambiguities in terms of meaning, contents and di-

versity of welfare (e.g. VON BERGMANN-WINBERG 1987), this causes measurement problems. Economic surpluses have been defined to facilitate measurements for welfare (JUST et al. 1982). Measurements involve inherent pros and cons. Consumer surplus (CS) can be used to measure welfare effects due to, say, changes in opportunity to use recreational services, e.g. farmers' relief services. Ordinary CS is defined as a geometric area above the price line and below the Marshallian demand curve, and it can be presented as follows:

$$CS = \int_0^{Q_e} (D(Q) - p^e) dQ$$

where  $p$  is price,  $Q$  quantity,  $D(Q)$  the demand curve, and  $^e$  denotes equilibrium values. Quasi-rent, the excess of gross receipts over total variable costs, is often used to represent producers' net benefits. Geometrically, producer surplus (PS) is the area below the price line and above the supply curve. This area is (same notation as above, except  $S(Q)$  is the supply curve):

$$PS = \int_0^{Q_e} (p^e - S(Q)) dQ$$

The classical theory of consumer demand is based on the assumption that consumers maximise their utility subject to the budget constraint. Consumer's utility is often related to the number of goods consumed. BECKER (1965) revised the theory of choice by systematically incorporating the allocation of time in the traditional theory of consumer behaviour. If leisure time is the time that remains when the time for sleeping, eating, working, schooling, and housework has been deducted, the following division is applicable (see. e.g. LILJA 1982):

- the time for human physical needs: necessary obligations
- the time for wage earning and education: accepted obligations
- the time for housework
- the time for leisure

The division is not unambiguous. Subjective valuations may distort it. The individual may perceive so-called productive consumption (BECKER 1965) as leisure. This causes obvious measurement problems. E.g. in farm households the line between housework and 'pure' productive activities is vague, indeed.

Leisure becomes a more significant contributor to well-being when economic welfare in general increases. Most farmers, too, are not willing to put seven-day weeks throughout the year in order to maximise profits. Conceptual analyses of labour supply and the relation between income and leisure are familiar examples of economics textbooks (e.g. ROSEN 1985, VARIAN 1990, HIRSHLEIFER and GLAZER 1992). OWEN (1971) and LILJA (1982) represent examples of empirical analyses of demand for leisure. In agricultural economics, even conceptual analyses (e.g. RITSON 1980) have been rare, and empirical applications almost non-existent.

Common problems in analyses have been e.g. the opportunity cost of leisure, the relation between profit maximisation behaviour and leisure, and the possibility of a backwards-bending labour supply curve. It is especially difficult to determine farmers' income/leisure choices because of the delicate line between labour and leisure in entrepreneurial activities in a farm firm. Different characteristics of entrepreneurship and employees, seasonal variation, versatility, and high engagement of farm work make comparison of working hours between farmers and wage-earners difficult.

The point of departure in analyzing demand for, or expressed in the opposite way, supply of labour is the theory of consumer choice. Supply of a labour input is determined by the difference between a certain fixed time constraint and demand for leisure. Demand for leisure follows the common determinants of demand for consumer goods: demand is determined according to the exogenous income and the prices of goods. The choice between consumer goods ( $c$ ) and leisure ( $L$ ) that maximises consumer's utility can be written as follows (e.g. INGBERG et al. 1986):

$$\max U = u(c, L) \quad \text{s.t. } c = (TL-L)w + M, \\ c, L$$

where  $TL$  is the total time endowment available to consumer,  $TL-L$  is the supply of labour input,  $w$  is the wage rate, and  $M$  is exogenous income.

General conclusions from the model of consumer choice are that leisure is regarded as a normal good, i.e. consumption of leisure rises with income, and supply of labour increases with wage, at least in some income brackets (INGBERG et al. 1986). Common sense may suggest that high unemployment, which currently burdens many western European economies, may influence the demand for leisure and price of commercial recreation. In fact, OWEN (1971) has included the unemployment rate as a determinant of the price for leisure:

$$p_L = w(1-kE)$$

where  $p_L$  is price for leisure,  $w$  is the wage rate,  $E$  is the unemployment rate, and  $k$  is a constant ( $0 < k < 1/E$ ). By definition, the higher the unemployment rate, the lower becomes the price of leisure. Growing unemployment today calls special attention to this finding also in connection with the opportunity cost of leisure for a farmer.

In a farm enterprise, RITSON (1980) assumes that a decision to accept lower farm income in return for less strenuous farm work is quite rational behaviour. In fact, depending on a person's preferences, it is possible to want to work more, less or the same amount after being subject to a reduction in income. The individual's choice and preferences between work-related income ( $M$ ) and leisure ( $L$ ) can be examined by indifference curves. They are assumed to be normal, convex-to-the-origin indifference curves labeled  $U_i$  (Fig. 1). The straight lines between  $M$ - and  $L$ -axis represent the budget constraint. If the individual is price-taker with respect to the wage rate ( $w$ ), the budget line has a constant slope  $\Delta M/\Delta L = w$ . In the budget line the price of an hour of leisure is its opportunity cost, which is actually the wage. At the maximum utility point  $G^0$ , the individual spends  $0L_G$  hours on leisure, works  $L_G L_{\max}$  hours, and earns income  $0M_G$ . In a shift along a given  $U_i$ , the utility level remains the same as the individual is indifferent among the various bundles of income and leisure.

Changes in work-related income, e.g. the wage

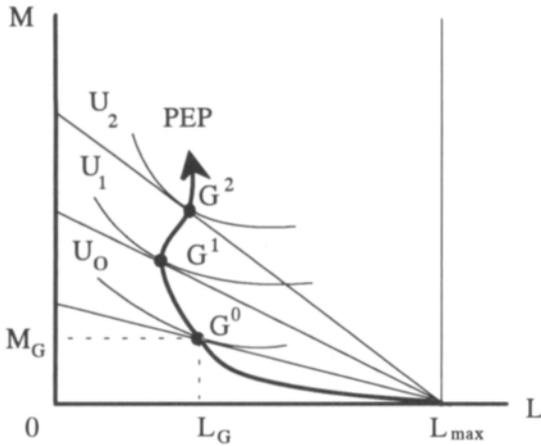


Fig. 1. The decision between work-related income and leisure: price expansion path (PEP).

rate, affect the individual's choice. If wage rises, the opportunity cost of an hour of leisure increases. The budget line rotates up around the original position, in which  $M$  is zero and  $L$  is at maximum, and a higher wage rate is associated with steeper budget line (Fig. 1). A price expansion path (PEP), consisting of all points of tangency between the budget lines and indifference curves, is generated by the successive optimum positions  $G^i$ . With the lower wage rates, the PEP has a negative slope indicating that more labour is offered at the expense of leisure. In a range of sufficiently higher wages, the PEP may reach a positive slope. Then the individual chooses to work less.

The effects of the PEP can clearly be seen in agriculture, too. Today farmers operate at a higher wage level than earlier farmer generations due to e.g. better productivity. Less work is required to reach the same income level as earlier, and more leisure is attainable without economic losses below the minimum satisfactory income level. Many people prefer more leisure to labour even at the expense of profit, provided that a minimum acceptable income level can be maintained.

Changes in non-labour income also affect the individual's choice. As endowed income increases, the budget line shifts upward parallel to itself, given  $w$  is held constant (Fig. 2). Thus, an income expansion path (IEP) is generated by the successive opti-

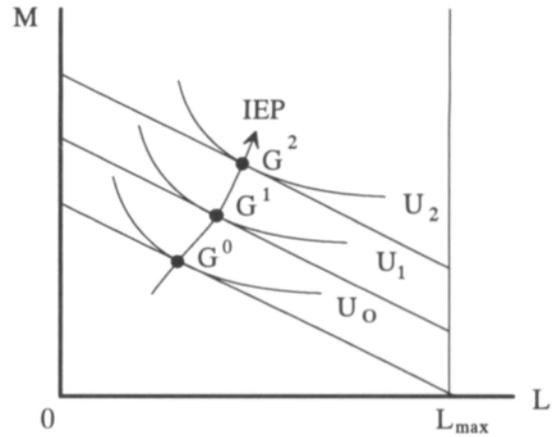


Fig. 2. Effects of increases in endowed income: income expansion path (IEP).

imum positions  $G^i$  corresponding to PEP in figure 1. The positive slope of the IEP is due to the assumption that  $M$  and  $L$  are normal goods: the optimums  $G^i$  show that both more income and more leisure will be chosen.

IEP effects related to agriculture are obvious on Finnish farms possessing considerable forest resources as a source of semi- or entirely endowed income. Demand for and price of timber is crucial for the utilisation of this income. Moreover, due to the biologically continuous production process, farm and forest income flows can be maintained for periods of certain length even without farmer-owner's labour input.

Besides economic factors, preference to more leisure among farmers has occasionally been attributed to changes in attitudes between generations. Although we believe that a more rational explanation is provided by the PEP, we also want to suggest that the preference issue could be more valid with respect to sexes in particular. A wife's indifference curve can be different from that of her husband's. In a farmer couple, the other spouse, usually a wife, in addition to farm work, is often more responsible for household work and taking care of children. Hence, additional leisure time may have a stronger weight in her utility function. She is not indifferent among work-related income and leisure in the same way as her husband. This situation may explain to

some extent the willingness of women's organisations to examine farmers' relief services in Finland and Europe.

Trade-offs between a farm firm's economic result and an entrepreneur's leisure involve substantial risk elements. These risks are absent in a wage-earner's, and even in many entrepreneur's labour-leisure decisions. Biological characteristics of farming often require the continuation of production activities and inherent costs and returns. Production has to be taken care of and managed without breaks on farms, whereas discontinuation is possible in many other enterprises. The biological continuation of production suggests that there are no foregone earnings due to production breaks in case leisure time is increased. However, foregone earnings can appear through incorrect operating and managerial decisions made by the substitute labour force hired on farms. The opportunity cost of additional leisure has to be evaluated carefully according to e.g. the degree of specialisation on farms, and how skilled replacement workers are available — labour is not of uniform quality. Although leisure is commonly regarded as a normal (superior) good, the presence of risk and uncertainty in agriculture may actually lead to leisure-averse behaviour among farmers: risk-averse farmers are easily leisure-averse, too. Hence, the traditional price and income effects usually assumed to increase demand for leisure may not remain entirely valid in agricultural production possessing certain special characteristics of e.g. biological bindings and continuity.

## Farmers' relief services in Finland

### Historical development

Women became first active in paying attention to the need for leisure and holiday arrangements and, consequently developing the relief services in Finland. This was the case also in the EC through the women committee of *Comité des Organisations Professionnelles Agricoles, COPA* (FLANDIN 1991). In the early 1960s Finnish farming women started in some regions a relief service program on a vol-

untary basis in order to alleviate leisure needs of farm women mainly engaged in animal husbandry. In the late 1960s wage-earners' weekly working hours were reduced and the holiday money allowance increased in order to improve their social and health conditions. This increased the disparity of holiday benefits between farmers and wage-earners. In order to redress the disparity, a committee (*Maatalousväestön ja pienyrittäjien lomakomitea 1973*) was founded to examine possibilities to develop annual holiday and other leisure arrangements for small entrepreneurs and farmers, especially those engaged in livestock production.

The first law concerning annual holidays entered into force in April 1974, and the law concerning substitute help next year. The experimental weekly days-off scheme became regular and extended to cover the whole country in 1985. The present contents of the relief services of farmers are based on the act and statute of relief services, which have been revised several times mainly in order to extend benefits and the application area. Today, the system includes relief services to farmers in the case of an annual holiday and weekly days-off, and substitute help in the case of illness, accidents, rehabilitation, military service or maternity.

### The present state

The annual holiday system is intended for farmers less 65 years of age who are actively engaged in animal husbandry of at least four animal units. Only two persons are entitled to holidays on the same farm. The maximum amount of days with relief services available is 22. Although the number of farmers entitled to a holiday has decreased, the total number of days done in the system has actually increased in the 1990s due to the rise in the number of days per farmer (Table 1).

A farmer who is entitled to the annual holiday system is also entitled to the weekly days-off scheme, which has been developed to relieve farmers engaged in animal husbandry from being continuously tied to their work in the enterprise. A farmer is entitled to the maximum of 12 days off a year. The common 65 years of age limit applies.

Table 1. The extent of the annual holiday system for farmers in Finland in 1974-1992.

Holiday period	Number of farmers entitled to holiday <sup>1)</sup>	Number of days done in the system <sup>1)</sup>		The holiday right <sup>1), 2)</sup>
		Altogether	Per farmer	
1974/75	130 018	780 000	6.0	6
1975/76	162 893	1 620 000	10.0	10
1976/77	163 556	1 630 000	10.0	10
1977/78	158 480	1 391 000	8.8	10
1978/79	160 158	1 360 000	8.5	10
1979/80	157 408	2 121 000	13.5	14/12 <sup>2)</sup>
1980/81	157 925	2 095 000	13.3	14/12
1981/82	153 798	2 050 000	13.3	15/13
1982/83	150 490	2 000 000	13.3	15/13
1983/84	144 682	1 910 000	13.2	15/13
1984/85	139 961	1 849 000	13.2	15/13
1985/86	132 852	1 796 000	13.5	15/15
1986/87	124 921	1 798 000	14.4	16/16
1987/88	116 223	1 790 000	15.4	17/17
1988/89	104 618	1 728 000	16.5	18/18
1989/90	101 878	1 729 000	17.0	19/19
1990/91	98 199	1 828 000	18.6	21/21
1991/92	91 942	1 888 000	20.5	22/22

<sup>1)</sup> Sources: the statistics of the Ministry of Social and Health Affairs

<sup>2)</sup> Primary/secondary person entitled to holiday

Farmers contribute to the costs of the scheme, and the amounts are determined according to the number of replacement hours and animal units.

Farmers younger than 65 years of age can get substitute help in the case of temporary disability to perform necessary farm activities. The substitute help system is more extensive than the annual holiday or weekly days-off systems, because in practice all farmers are included in the system. E.g. illness, an accident, maternity, professional training and adult education of a farmer or his/her spouse entitle to substitute help. The farmer pays for the substitute help and the amounts are determined by the municipality according to the farmer's income level. In 1991, 24 000 farmers used substitute help.

### Organisation and financing

The Ministry of Social and Health Affairs is responsible for the supreme management and monitoring of the annual holiday, weekly days-off and

substitute help systems of farmers in Finland. The administrative board has the corresponding task in the provinces. In the municipalities the relief service boards are the executive instances responsible for the practical organisation of the services. A municipality can organise the services by employing an adequate number of replacement workers by itself or in cooperation with other municipalities. It can also purchase services from another municipality or other public or private service supplier. In exceptional cases a replacement worker acquired by the farmer himself can also be accepted.

In 1991 there were about 9 500 full-time replacement workers, whose share of all days done was about 70 per cent. On the average, there were 9.5 farmers entitled to annual holiday per a replacement worker in 1991. In 1985, the corresponding figure was 24. Both the increase in the number of replacement workers and the decrease in the number of farmers has contributed to the beneficial development. Of all animal husbandry farms, 75 per cent used relief services in 1990.

The farmers' relief services and their administration is financed through the state budget. Agriculture has a collective responsibility for part of the costs through farm income. It is realised in the annual farm income negotiations between the state and the farmers' unions.

In the farm income agreements the significance of the social policy as a whole has increased during the recent years. It has been easier politically to raise farm income through social policy measures than through higher target prices (Fig. 3).

In the negotiations half of the increase in the number of holidays and one fourth of other increase in the appropriations for this purpose is regarded as contributing to farm income. Accumulatively, farm income originating from the annual holiday system is FIM 330.6 million (Table 2), or 0.4 per cent of the total farm income, in 1974-1991.

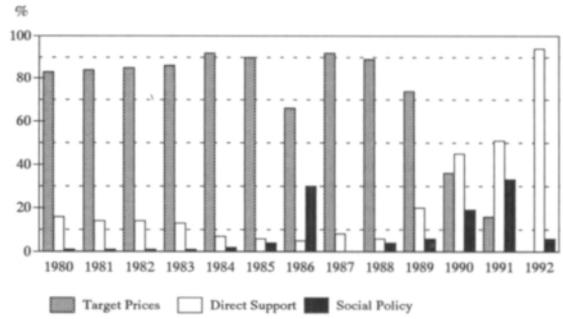


Fig. 3. The division between the means of compensation in the farm income agreements in 1980 to 1992 in Finland. Source: The farm income agreements.

The substitute help system is financed by the state, the collective input of agriculture, and the individual user payments. The payments are taken

Table 2. The costs, the share regarded as farm income, and user payments of the farmers' relief services in Finland in 1974-1991.

Year	The closing of the accounts of the state, FIM mill. <sup>1), 2)</sup>			Regarded as farm income FIM mill. <sup>2)</sup>			User payments FIM mill. <sup>3)</sup>	
	Annual holiday	Substitute help	Weekly days-off	Annual holiday	Substitute help	Weekly days-off	Substitute help	Weekly days-off
1974	50.0			25.0				
1975	120.8	10.0		35.0	2.5		-	
1976	130.0	14.0		5.0	1.0		-	
1977	133.0	17.5		0.0	0.0		-	
1978	130.0	16.3		0.0	0.0		1.4	
1979	217.0	30.0		43.5	4.0		1.9	
1980	261.0	44.0		14.0	3.0		2.5	
1981	247.5	34.6		-12.4	-2.3		2.3	
1982	369.7	73.1		47.1	10.0		4.1	
1983	400.6	122.8		8.3	12.8		6.2	
1984	409.7	156.4		4.0	3.0		9.3	
1985	452.7	190.8	23.3	10.3	6.0	5.7	15.2	8.3
1986	492.2	185.5	28.4	20.7	7.7	27.0	16.8	10.3
1987	564.5	214.5	37.6	12.1	-1.2	-14.0	18.4	11.0
1988	605.7	236.8	42.5	23.4	5.3	4.0	17.1	12.6
1989	688.0e	271.4e	46.9e	50.3	11.8	1.4	16.5	12.4
1990	761.2e	318.4e	60.8e	25.1	26.7	6.2	25.0	15.6
1991	886.2e	456.4e	91.9e	19.2	3.8	4.2	29.0	15.6

e = estimate

<sup>1)</sup> Since 1989, the closing of the accounts has been compiled under the same subsection for the systems of annual holiday, weekly days-off and substitute help. The division of the closing of the accounts between annual holiday, weekly days-off and substitute help is based on the estimation of the Ministry of Social and Health Affairs.

<sup>2)</sup> Sources: the closing of the accounts of the state, and the farm income agreements in 1974-1991.

<sup>3)</sup> Sources: the Ministry of Social and Health Affairs and the Agricultural Economics Research Institute.

into account as agricultural cost and they cover only 7 per cent of the total costs of the system. One fourth of the annual increase in the appropriations for this system is regarded as farm income in the negotiations. Accumulatively, farm income originating from the substitute help system is FIM 94.1 million (Table 2) in 1975-1991.

The share of the payments of farmers in the weekly days-off scheme has been about 25 per cent of the total costs. In the farm income calculation, the payments are taken into account as agricultural cost, and the annual increase of the appropriations in full as agricultural income. In 1985 to 1991, the accumulative sum considered farm income was FIM 34.5 million in this system (Table 2). Until 1991, the sum considered farm income of all relief service systems together was FIM 459.2 million. The state also compensates the municipalities for their necessary operating costs of organising the relief services. In the case of administrative costs the municipalities can use the general-purpose state allowance, which covers 31-64 per cent of the total costs depending on the classification by economic solvency of the municipality.

In the extent and organisation of farmers' relief services there are clear differences between the EC and Finland. The EC member states have mainly organised the services in a decentralised way at the local level with private law authorities (FLANDIN 1991). Naturally, the system varies country by country in the Community, but a common factor is the regional or infra-regional level. In Finland, and in the Nordic welfare states in general, the state plays a more central role, and a social emphasis is stronger. Yet, the private sector has been more significant in Norway and Sweden than in Finland in organising the services.

### **Determinants of demand for leisure and relief services in Finnish agriculture**

The usual determinants of demand are the price of a good, and related goods, income level, preferences, and population in case of aggregate demand. Effects of these factors on quantity demanded can be quantitatively estimated in order to obtain elas-

ticities of own price, cross-price, and income. Lack of consistent data is a usual hindrance to quantitative estimations.

Yet, equally important here is to consider the changing conditions in terms of e.g. anticipated revisions in regulations and administration of farmers' social security system, and persistent uncertainty in agricultural development. E.g. farmers' income development has been unfavourable during the recent years, and the future development depends crucially on decisions with respect to EC membership and GATT negotiations. KOLA et al. (1992) expect a drastic drop in farm income due to the application of the Common Agricultural Policy CAP. The situation is aggravated by an emerging financial crisis on highly indebted farms, especially pig farms. Thus, PEP or IEP effects on demand for leisure are not clear on Finnish farms facing changing operating conditions.

Structural development and changes in farm population are among the key factors determining the extent of demand for relief services at the macro level. Naturally, structural development also depends on microeconomic factors affecting farmers' decisions. Yet, a considerable degree of wider socio-political aspects and plain demographic factors prevail. Structural development has been rapid in Finland: there were 331 000 farms in 1959, but only 129 000 active farms in 1990, or 91 000 milk suppliers, who are primary users of relief services, in 1980, and 35 000 in 1992.

Even though not correlated in a direct proportion, the number of farmers entitled to holiday schemes has also decreased continuously since the late 1970s, and at a faster pace in the 1990s (Table 1). The division and development between different lines of production is also important, because relief services are primarily intended for livestock farms.

Although the objectives of the Ministry of Social and Health Affairs would indicate longer holidays for farmers, i.e. annual holiday of 30 days and weekly days-off of 24 days, we regard status quo a more likely situation, especially concerning budget constraints and economic uncertainties. In order to evaluate expenditure and budgetary implications, rough prediction on structural development is not

sufficient but reliable predictions on inflation, prices of relief services, and administration (organisation) and efficacy of social security services would be needed. This is a task for another study, however.

In spite of our recognition of special characteristics of farming, we emphasize the role of price in determining demand for leisure and relief services in changing conditions. The PEP and IEP should be taken into consideration. In fact, it is interesting that the extent of and expenditure on farmers' holiday schemes have increased (Table 1 and 2). This is due to, firstly, better availability of services because of e.g. legislative changes and more relief workers with better qualifications and continuity, but, secondly, also farmers' higher willingness to use services because of e.g. PEP and IEP effects. After all, the social and biological need for relief services remains very much in tact, because the length of farmers working hours have remained almost unchanged during the last decades (NIEMI and PÄÄKKÖNEN 1990). Technological advances have evidently reduced the physical exertions, but new responsibilities and requirements for special skills and knowledge have emerged.

Price also affects the supply of relief services. As budgetary constraints become tighter, higher cost efficiency is also required in organising farmers' relief services. The state and municipalities, which have this far been responsible for arranging the services, can increase efficacy through changes in organisation and financing. Savings are searched for, and if executed they will also affect the price of and demand for services. The central means to divide costs more equally between farmers and the state are an increase of payments in the systems of substitute help and weekly days-off. The Ministry of Social and Health Affairs has estimated that the increases could save FIM 124 million, but reduce the use and employment opportunities of the systems (Table 3).

The changes in the most extensive system, i.e. annual holidays, are more complicated to calculate because the division of financing is decided in the farm income negotiations (Table 2). The Ministry has, however, estimated that a mere FIM 100 million of savings would imply a substantial loss of

Table 3. Effects of increased user payments in farmers' relief services.

	Substitute help	Weekly days-off
Raise in user payments	FIM 20 (38%)	FIM 60 (48%)
Decrease in demand for services	204 000 days (25%)	40 500 days (25%)
Decrease in demand for relief workers	900 working years	190 working years
Savings (excl. [un]employment effect)	FIM 103 million	FIM 21 million

Source: Lomituspalvelutoimikunta 1993.

1 750 working years for relief workers in the annual holiday system. Implied job losses would be detrimental in numerous agriculture dominated municipalities, in which the unemployment rate exceeds even the exceptionally high national average of 19 per cent.

Because farmers' relief services are being developed as a part of farmers' social security in the farm income negotiations, the political economy of decision making affects crucially the organisation as well as demand for and supply of relief services. The pressure to reform the organisation of farmers' relief services in Finland became apparent in late 1992 when the government planned to cut the state financing of services by FIM 800 million in 1994-95. Yet, the final reduction was FIM 200 million. The amount and distribution of costs of the services, and the degree of the reform are decisive factors in the reorganisation of farmers' relief services. In the following chapter we evaluate the welfare implications of a thorough reform in farmers' relief services.

### Welfare implications of reformed relief services in Finland

The effects of the changing organisation and financing of farmers' relief services from the state-led, subsidised system to a privately organised market mechanism are examined quantitatively by

Table 4. Quantities of relief services demanded and supplied and changes in surpluses of farmers and service suppliers at different price levels in the system of reformed relief services.

Price of holiday (FIM/day)	Quantity supplied (mill. days)	Quantity demanded (mill. days)	Change in farmer surplus (CS)		Change in service supplier's surplus (FIM mill.)
			Total (FIM mill.)	Per farmer entitled to holiday (FIM)	
400 legal min	1.7	2.5	44.2	449.7	-32.2
418 basis	1.8	2.4			
495 equilibrium	2.2	2.2	-176.1	-1 793.1	153.7
650 legal max	2.8	1.8	-482.6	-4 914.8	541.7

evaluating the changes in economic surpluses of producers and consumers. The government obtains direct savings when its expenditure on and intervention in farmers' relief services are removed.

Magnitude of the effects of price changes on supply of and demand for relief services depends on price elasticities. Changes in economic surpluses indicate income transfers realised between suppliers of the services and consumers of relief services, i.e. farmers. If implementation of a policy instrument causes disequilibrium between supply and demand, resource allocation is sub-optimal. Consider the present state-led system, in which the average price of a relief service was FIM 418 per day in 1990 (SIHVOLA 1992). This subsidised price easily leads to a situation, in which demand for services is higher than supply of them (Table 4). Primarily, FIM 418 represents the cost of a service supplier, i.e. the state. In the state-led system there were also the minimum and maximum price levels, i.e. FIM 400 and 650 in 1990, respectively.

There are evident problems to estimate price elasticities of demand for leisure and supply of relief services in this particular case of farmers and agricultural production. Hence, as the starting point, we employ the price elasticity of demand,  $\eta = -0.65$ , from NYBERG's (1979) results of a Rotterdam type model (THEIL 1975), and assume the price elasticity of supply of farmers' relief services to be unit elastic,  $\epsilon = 1.0$ . Because of the obvious uncertainty with respect to the elasticities, the re-

sults of the analysis should be interpreted with care and only as an indication of directions and magnitudes of effects of certain changes or policy actions. However, the uncertainty is mitigated and applicability of the forthcoming results is improved by an essential sensitivity analysis (Table 5).

In order to estimate the welfare effects we employ constant elasticity demand  $D(p)$  and supply  $S(p)$  functions of a Cobb-Douglas type, where  $q =$  output,  $a =$  constant,  $p =$  price of relief services faced by both producers and consumers,  $\eta =$  price elasticity of demand,  $\epsilon =$  price elasticity of supply:

$$D(p): q = a_1 p_d^\eta \quad S(p): q = a_2 p_s^\epsilon$$

The equilibrium price, when  $D(p) = S(p)$ , is FIM 495 in the reformed market system. We use this price, the actual 1990 price as a basis, and the legislatively set minimum and maximum price levels of the state-led system in 1990 as outer boundaries to calculate quantities of services supplied and demanded (Table 4). Economic surpluses of farmers consuming relief services (CS) and service suppliers (PS) at different price levels (Table 4) are calculated according to the following equations:

$$CS_d = \int_{p_1}^{p_d} D(p) dp = a_1 \left\{ (1/(\eta + 1)) p_d^{(\eta + 1)} - (1/(\eta + 1)) p_1^{(\eta + 1)} \right\}$$

Table 5. Sensitivity of welfare effects to changes in price elasticities.

Price elasticity of - demand - supply	Price of a holiday (FIM/day) * = equil. price	Quantity supplied (mill. days)	Quantity demanded (mill. days)	Change in CS		Change in PS (FIM mill.)
				Total (FIM mill.)	Per farmer entitled to holiday (FIM)	
-0,35	400	1.7	2.5	43.9	446.7	-32.2
1,00	*514	2.2	2.2	-223.7	-2 277.9	195.6
	650	2.8	2.1	-516.9	-5 264.1	541.7
-0,95	400	1.7	2.5	44.4	452.6	-32.2
1,00	*483	2.1	2.1	-146.6	-1 493.3	128.0
	650	2.8	1.6	-451.3	-4 595.4	541.7
-0,65	400	1.8	2.5	44.2	449.7	-32.4
0,70	*514	2.1	2.1	-216.7	-2 207.2	189.2
	650	2.5	1.8	-482,6	-4 914.8	502.5

$$PS_d = \int_{p_1}^{p_d} S(p) dp = S(p_d) - S(p_1)$$

When compared to the extent of relief services realised in 1990 in the state-led system, the equilibrium would be reached, *ceteris paribus*, if quantity demanded were 200 000 days, or 2 days per farmer entitled to holiday, smaller, and quantity supplied were 400 000 days, or 4 days per farmer, larger. Were the relief service system to reach a market equilibrium, the average cost, and price, per vacation day would increase by 18 per cent. Naturally, the higher the price of the service, the lower farmers' surplus. The opposite is true for service suppliers, at least at this range and elasticity of prices. Because supply is more elastic than demand, the difference between the changes of surpluses increases as the price rises.

In the market system, if equilibrium does not hold and supply exceeds demand, service suppliers incur losses due to sub-optimal use of resource capacity, e.g. replacement workers, dedicated to relief services. In the case of an inadequate supply, consumer-farmers face welfare losses in the form of an impaired working ability and increased risk of accidents due to lack of relaxation and leisure. Moreover, farmers are prevented from maximising utility when the optimal L-L choice is unattainable.

In order to provide a reasonable range to evaluate

the calculated welfare effects, a sensitivity analysis with the different elasticity pairs is conducted (Table 5). Compared to the basis, the market equilibrium in a privately organised system of relief services causes reductions in surplus of about FIM 1 500 - 2 300 per farmer (Table 4 and 5). In addition, the total increase in service suppliers surplus is smaller than the total decrease in farmer surplus. Thus, a Pareto improvement according to the Kaldor-Hicks compensation criterion remains unattainable when farmers and service suppliers only are taken into account.

Net welfare gain is, however, obvious when direct government savings (see costs in Table 2) due to the reform are included in the welfare assessment. Even the proposed reduction in government expenditure of FIM 200 million would be adequate to cover the difference between farmers' losses and service suppliers gains, and maintain a net welfare gain. Hence, there is scope to use government support for farmers' relief services in a more efficient way in the market system of reformed relief services.

## Concluding observations

The significance of leisure as a contributor to well-being increases when economic welfare reaches a higher level. Leisure and recreation are social rights

and associated to many other determinants of welfare, e.g. health and social activity. In the future, farmers' leisure-labour (L-L) decisions may be influenced to an increasing extent by the need to have sufficient time for social activity in the form of political pressure and lobbying to defend e.g. farmers' social security systems. In Finland, leisure and relaxation are made available to farmers by relief services. They are a part of farmers' social security intended to guarantee the agricultural sector a just position in the society in terms of the development and allocation of welfare.

Conventionally, both economic and demographic factors affect farmers' L-L choices. Due to several special characteristics of agriculture and farm enterprises we want to emphasize the following factors in connection to farmers' L-L choices: (a) the importance of price and income effects (see the PEP and IEP analysis) exceeds that of inter-generational changes in attitudes, to which farmers' stronger preference to leisure is too often referred, (b) biological bindings and continuity of agricultural production has special repercussions on farmers' L-L choices, and (c) the L-L choice involves considerable risk especially in agricultural production. These three arguments suggest that farm income development, the degree of specialization, and availability of skilled and reliable relief workers have to be taken into account in the determination of the opportunity cost of leisure for a farmer. The leisure-labour choice is often a choice between economic result and foregone earnings.

Structural development in agriculture is an important factor in explaining the demand for relief services. On the one hand, the rapid decrease in the number of farmers has reduced the demand. But, on the other hand, improved availability and increased use of the possibility to hire relief workers have increased the number of relief days done in the systems. Income and price effects are, however, crucial in conditions that are changing — conditions bearing the impression of great uncertainty. Pressure to reform is apparent in both agricultural and the entire social security system due to economic recession, budgetary constraints, and, apparently, possible EU membership.

We conclude that the following broadly defined factors crucially affect demand for farmers' leisure and relief services: (a) structural development in agriculture, (b) structural reform of the social security system as a whole, (c) the form of administration, organisation, and financing of services, (d) affordability of services with respect to income and price implications, and (e) European integration and legislative harmonisation.

The welfare analysis implies that increases in farmers' costs and user payments would lead to substantial losses for farmers, and a decline in the demand for services. However, direct government savings would abundantly suffice to compensate for farmers losses, and still maintain net welfare gain in the reform of the relief service system. Moreover, a shift from a heavily administered state-led system to a market oriented system could produce economic benefits and efficiency through better local organisation and increased flexibility between suppliers and consumers of relief services.

When the number of farms decreases and diversity in the needs for relief services increases, a local, multipurpose enterprise could be the most efficient and flexible in meeting the changing demand of farmers for relief services. This would also facilitate a shift towards the practice common in many EU countries. State subsidization, either to a service supplier or a farmer according to services actually used, could still be required in order to lower farmers' cost of services and to maintain the systems in operation. Problems may persist, however, between diverse objectives of social (welfare) policy and agricultural policy.

In European integration farmers' relief services could be developed as an allowed mechanism of national support, if so desired, to secure a fair standard of living for farmers. Moreover, farmers can be both users and suppliers of relief services. The reformed relief services can generate an appropriate source to increase farmers' welfare by, conventionally, transferring support of a de-coupled, non-distorting, social policy nature to farmers, and, more contemporarily, creating additional income and employment opportunities in rural areas through service-supplier farm firms.

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SELOSTUS

**Vapaa-aika ja viljelijöiden hyvinvointi muuttuvissa olosuhteissa**

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Artikkelissa tarkastellaan työ-vapaa-aika -valintaa maataloudessa ja arvioidaan hyvinvointivaikutuksia siirryttäessä valtiojohtoisesta tuetusta järjestelmästä kohti markkinamekanismeja. Lomituspalveluiden avulla järjestetty vapaa-aika on tärkeä viljelijöiden hyvinvoinnin osatekijä, mutta työ-vapaa-aika -valinta vaikuttaa myös tilan taloudelliseen tulokseen.

Taloudellisten ja demografisten tekijöiden lisäksi artikkelissa tarkastellaan maataloustuotannon biologista sidonnaisuutta ja jatkuvuutta sekä riskiä ja epävarmuutta, jotka vaikuttavat viljelijöiden ajankäyttöön. Lomituspalveluiden kysynnän kehittymistä selitetään maatalouden rakennemuutoksella.

Suomessa lomituspalveluiden organisointi on keskitetympää

kuin muissa Pohjoismaissa tai Euroopan yhteisössä. Hyvinvointitaloustieteellisellä laskelmalla arvioidaan vaikutuksia, mikäli lomituspalveluiden valtiontuki poistettaisiin Suomessa ja järjestelmä toimisi vapaasti markkinoilla. Laskelman mukaan suorat valtion säästöt olisivat riittäviä kompensimaan viljelijöiden hyvinvoinnin menetyksiä. Vapaasti toimivat markkinat toisivat taloudellista tehokkuutta ja joustavuutta. Jonkinasteista valtion tukea muuttuvissa olosuhteissa saatetaan kuitenkin tarvita, jotta palvelut kehittyisivät ja palvelisivat tukijärjestelmänä, joka on luonteeltaan sosiaalinen ja kilpailua vääristämätön.