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**Multifunctional agriculture and the design of  
policy instruments: Application to the  
WTO negotiations on agriculture**

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- Research and analyses on agricultural policy, food industry, commodity trade, economics, farm management and rural development.
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- Publication of research reports and analyses. Development of tools for farm management and accountancy.
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# Preface

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The ongoing WTO negotiations will most certainly lead to further liberalisation of the global agricultural trade. Related to this, many national governments place substantial emphasis on the so-called non-trade concerns or multifunctional agriculture. The focus in this working paper is on policy measures to enhance a multifunctional agriculture with minimal trade-distortion.

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# Contents

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1 INTRODUCTION .....	3
2 MARKET FAILURE AND THE CONCEPTS OF EXTERNALITIES AND PUBLIC GOODS .....	5
2.1 Externalities/public goods in agriculture.....	6
3 TRADE LIBERALISATION, INCOMES AND PRODUCTION.....	9
4 WTO, MULTIFUNCTIONALITY AND THE USE OF POLICY MEASURES .....	13
5 SOCIAL VALUES OF LAND USE AND THE CHOICE OF POLICY MEASURES .....	15
6 DIFFERENT VIEWS ON AGRICULTURAL EXTERNALITIES AND CORRECTIVE POLICY MEASURES.....	19
7 COMBINING FREE TRADE WITH OPTIMUM SUBSIDY POLICY .....	23
8 A PRAGMATIC APPROACH TO WTO TRADE RULES .....	29
8.1 The actual development of the WTO negotiations compared to my proposed WTO rules .....	31
9 CONCLUSION.....	33



# Abstract

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*Norway, Switzerland, the European Union, Korea, Japan and some other countries place substantial emphasis on the so-called non-trade concerns in the ongoing WTO negotiations on further agricultural trade liberalisation. In addition to the production of food and fibre, agriculture also may provide national food security, environmental benefits, and viable rural areas. The term “multifunctional agriculture” has been increasingly applied to describe these additional functions. This working paper focuses on how to achieve the multifunctional goals that nations may have with minimal trade-distortion. In this study, the economic concepts of externalities and public goods are used to analyse non-trade concerns and multifunctional agriculture. It is argued that just as a tax is widely accepted as the optimum policy for a negative externality, so should the use of a production-tied subsidy or payment be accepted as optimum policy for a positive externality or public good that is produced jointly with or complementary to agricultural production. The study concludes with suggestions for international trade rules to prevent such policies from becoming a form of protectionism.*





# 1 Introduction

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In the ongoing negotiations in the World Trade Organization (WTO) on further agricultural trade liberalisation, a number of issues are to be taken into consideration, including the so-called *non-trade concerns*, special and differential treatment to developing country members, and the objective to establish a fair and market-oriented agricultural trading system. The preamble of the Uruguay Round's Agreement on Agriculture defines non-trade concerns as; *inter alia, food security and the need to protect the environment*. During the Uruguay Round, some countries also stressed the *viability of rural areas* as an important non-trade concern to be addressed in the reform process. According to Anderson (1998, p. 5), it is not surprising that the WTO is being confronted with these agricultural non-trade concerns. They are, after all, simply a subset of domestic policy issues that are interfacing increasingly with international policies as the globalisation of the world economy proceeds. Non-trade concerns are also reflected in the negotiation proposals submitted by the European Union (or strictly speaking the European Community), Norway and some other countries.

Agriculture provides, or may provide, more than just food and fibre—such as national food security, food safety, environmental benefits (cultural landscape<sup>1</sup>, land conservation, flood control, biodiversity, recreation), cultural heritage, and viable rural areas. The terms “multifunctional agriculture” or “the European Model of Agriculture” are increasingly applied to describe these additional functions; especially Norway, the European Union, Switzerland, Japan and Korea have put a lot of emphasis in this. Multifunctionality has lately also become an important subject matter within the OECD (OECD, 2001).

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<sup>1</sup> According to Olsson and Rønningen (1999, p. 3), “*The concept of cultural landscape goes back to the German Kulturlandschaft, meaning ‘landscape formed or influenced by human activity’.* ... . *Within English speaking countries, ‘countryside’ is the term normally used for the agricultural landscape. However, recently it seems that the term ‘cultural landscape’ has also become more frequently used within Britain.*”

One of the questions debated in the WTO is whether “trade-distorting” subsidies, or subsidies outside the “green box”<sup>2</sup>, are needed in order to provide governments significant scope to pursue important non-trade concerns and a multifunctional agriculture. According to the WTO Agreement on Agriculture, “green box” policies have to meet the fundamental requirement that they have no, or at most minimal, trade-distorting effects or effects on production (WTO, 2003a). In addition, the policies must be provided through publicly-funded government programmes and not subject to transfers from consumers, and they must not have the effect of providing price support to producers. The European Union, Switzerland, Norway and Japan take the view that multifunctionality justifies domestic support linked to agricultural production as well as trade policies to meet domestic objectives (Paarlberg et al., 2002, p. 322-323). These nations argue that the “green box” criteria requiring that policies be minimally trade-distorting prevents them from meeting domestic objectives, and they call for an expansion of the “green box” (Bohman et al., 1999, p. 6). Opponents, such as the United States and the Cairns Group<sup>3</sup>, argue that support to agriculture should be decoupled from production levels and that domestic objectives do not warrant trade interventions (Paarlberg et al., 2002, p. 323), i.e., they tend to see multifunctionality as disguised protection.

In this study, I take the view that the economic concepts of *externalities*, *public goods*, and *market failure* should be used to analyse non-trade concerns and multifunctional agriculture. In the following, that conceptual framework will be developed, especially with reference to agriculture’s impact on the environment and for viable rural areas, after first having looked briefly into the relationships between trade liberalisation, incomes and production. The study focuses on how to achieve the multifunctional goals that nations may have with minimal trade-distortion. It is argued that multifunctionality hardly can justify the use of market support while it may justify production-related budget support if the positive externalities are produced jointly with or complementary to agricultural production. I conclude the study with suggestions for international trade rules that may allow countries to meet domestic policy objectives with minimal trade-distortion.

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<sup>2</sup> In WTO terminology subsidies in general are identified by “boxes” which is given the colours of traffic lights: green (permitted), amber (slow down—i.e., to be reduced), red (forbidden). According to the Agriculture Agreement, quantitative import restrictions are forbidden; i.e., they are labelled as “red”. Also, domestic support exceeding the reduction commitment levels in the “amber box” is prohibited. In addition, the Agriculture Agreement has a “blue box” for subsidies that are tied to programmes that limit production. “Blue box” support is exempt from reduction commitments.

<sup>3</sup> The Cairns Group is a coalition of 17 agricultural exporting countries who account for one-third of the world’s agricultural exports (The Cairns Group, 2003). Members of the group are: Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Paraguay, Philippines, South Africa, Thailand, and Uruguay.

## 2 Market failure and the concepts of externalities and public goods

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According to neo-classical economic theory, under given assumptions such as homogeneous products, free factor mobility, full information, and zero transaction costs the allocation of resources obtained in perfectly competitive markets will be Pareto-efficient. The role of governments should, according to this, only be to ensure private ownership and the rules of the game. However, economic theory also tells us that public intervention may be desirable in the case of market failure. Gravelle and Rees (1986, p. 3) put forward that many economists have seen cases of market failure as a legitimate basis for governmental policy (for interventions) that goes beyond that of providing the legal infrastructure for the economy. Market failures in an economy are caused by externalities, public goods, and economies of scale (Bohm, 1988, p. 44; MacLaren, 1991, p. 256). The literature on market failure can be cast in the rigorous tradition of Arrow and Debreu, and include propositions suggesting that policy can be Pareto-enhancing (Alves et al., 1991, p. 197). In the tradition of Pigou, the government is seen as an omniscient, benevolent dictator that intervenes in the economy to correct market failures. The state produces public goods, internalises social costs and benefits, regulates decreasing-cost industries effectively, and redistributes income Pareto-optimally (McCormick and Tollison, 1981).

A frequently used definition of externalities is that they are unintended impacts on other agents' production or consumption possibilities that are unaccounted for in existing prices or payment schemes. Positive externalities often have the character of public goods defined by two characteristics: undepletability (consumption of a good by one person does not reduce the consumption available to anyone else) and non-excludability (once the good has been provided for one consumer, it is not possible to prevent other people from consuming it) (Baumol and Oates, 1988, p. 18–19). The cultural landscape, for instance, confers benefits on all viewers of the landscape. At the same time, it is generally not possible to prevent people from appreciating an existing landscape (Hodge, 1991, p. 180–181). Compared to private goods, with well-functioning markets and correct pricing, the market adaptation of public goods is far more difficult. Some-

times, the public goods/positive externalities will be automatically “produced” as a by-product of food and fibre production, and without additional costs. In other cases, these goods will not be produced, or will be produced in sub optimal quantities, unless an “extra payment” is assured. Consequently, in a free market situation a positive externality or public good, as the cultural landscape, could be provided for below its optimum level (Dillman and Bergstrom, 1991, p. 262); i.e., we would have a domestic distortion or market failure.

## 2.1 Externalities/public goods in agriculture

Agricultural production may result in negative external effects, such as nutrient runoff, erosion, and pollution from pesticide and herbicide use. Economists often speak in favour of trade liberalisation since reduced prices and budget support can lead to less intensive agricultural production methods and hence reduced pollution of soil, water and atmosphere, and increased biodiversity (Buckwell, 1996, p. 204–205; Ervin, 1997, p. 10). Sumelius (1997, p. 80) agrees partly with this view, but also puts forward that there are negative external effects of freer trade. These may well include the loss of open landscapes and the loss of species dependent upon semi-natural ecotypes. Ervin (1997, p. 10) also recognises that in some areas land abandonment will cause environmental loss from degraded landscapes. Latacz-Lohman and Hodge (2001, p. 43) argue that “*If government policies reduce agriculture to areas competitive at world prices, the associated loss of countryside benefits may be substantial and may outweigh the (politically less visible) gains from freer trade*”.

Choice of production system may affect landscape values. Changes in agricultural landscapes over time show a polarization with intensification in some areas and abandonment in others, while varied farming landscapes, with small-scale landscape elements, generally provide richer habitats and higher aesthetic and recreational values (Fjellstad et al., 1999). Where agriculture is scarce, farming generally increases regional biodiversity. Potter et al. (1999, p. 7) argue that “*while liberalization may open up new opportunities for the refashioning and rebalancing of land use, particularly in upland areas, it must be regarded as a high risk strategy so far as the maintenance of a multi-functional countryside is concerned. Some further agricultural restructuring is inevitable for demographic and social reasons that are beyond policy control, but there will be limits beyond which the welfare gains from liberalization are outweighed by the social and environmental costs of the resulting depopulation and deskilling of rural areas.*”

Summing up the situation in the European Union (EU) before the CAP-reform in 1992, Buckwell (1996, p. 204) argues that the policy, which was founded on the need to stimulate an undercapitalised, peasant agriculture at a time of food insecurity, had served its purpose and was ripe for change. He argues that in a situation where the EU had grown into the world’s largest player in the international food markets, the agricultural strategy had to change by moving away from market price support to a system of support which better balances and integrates the desire for farmers to play their full role as competitive providers of wholesome food and also providers of public environmental goods and balanced rural development (Buckwell, 1996, p. 211).

However, although lack of food security mainly is a problem for poor people and poor nations, and that rich nations do not need to strive for self-sufficiency since they can buy what they need on international markets (see Parikh (1991, p. 30)), food security may still be found as justification for policy intervention even in rich countries (Bredahl, Holleran and Northen, 1999; Flaten, 1999). From a national perspective food security might be defined as a situation in which “*the entire population in a country has access to enough and healthy food in times of a crises or a war either national*

or international” (Flaten, 1999, p. 9)<sup>4</sup>. These crises can include environmental crises, crop and animal diseases, extensive radioactive fallout, or major changes in global supply and demand. Even though the risks may be small, enough food is essential for all humans, which may justify policies regarding the issue. The public costs for such policies should therefore be a function of the population’s risk aversion and its willingness to pay for such “insurance” (Lindland, 1998). According to Flaten (1999, p. 21), national food security can be obtained through the following strategies (after Sturgess (1992)): change in diet, food stocks, maintenance of agricultural inputs (e.g., land, animals, knowledge), safeguarding of foreign deliveries, and current production.

Depopulation is an increasing problem in many rural areas. Many countries therefore have the political objective of maintaining and supporting the viability of rural areas. In general, a minimum of economic activity, and therewith a certain population basis, is necessary in order to secure viable rural societies. In OECD (1998, p. 57), it is found that the agro–food sector has significant economic linkages to other sectors of the economy and constitutes an important generator of employment in rural economies. Harvey (1999, p. 12) argues that the contribution of the agricultural sector to rural development can come from “(a) activities of a world-competitive farming through its supply and marketing chains; (b) activities of “re-creational” farming<sup>5</sup> through its land and rural resources management, supporting the delivery of Conservation, Amenity, Recreation and Environment (CARE) goods and the associated tourism, lifestyle and living/working space demands; (c) release of capital and labour presently associated with uncompetitive farming to the local economy for other more productive and socially desirable uses”. Other linkages between agriculture and the viability of rural areas occur through the pluriactivity of farm families (Bryden et al., 1993; Jervell, 1999).

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<sup>4</sup> Own translation from Norwegian.

<sup>5</sup> “Re-creational farming – the parts of farming which, by virtue of their means and structure of production rather than their ends and products, provide for: environmental maintenance and re-creation; amenity and recreation; cultural integrity, re-creation of rural values and a creative foundation for rural development” (Harvey, 1999, p. 12).



### 3 Trade liberalisation, incomes and production

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It can be said that neo-classical economic theory is concerned with economic efficiency, and not with income distribution. According to neo-classical economic theory, a free market (without market failures) will give a Pareto-optimal outcome. Normative trade theory has its basis in this aspect of neo-classical economic theory. According to Cor-den (1984, p. 69), “*The central proposition of normative trade theory is that there are gains from trade and, more specifically, that given certain assumptions not only is free trade Pareto-superior to autarky but it is also Pareto-efficient, being superior to various degrees of trade restriction*”. MacLaren (1991) claims that this proposition provides the intellectual basis for the case in favour of moves towards freer trade and against that of protectionism in agriculture. However, economic theory also implies that there will be many possible Pareto-optimal outcomes of a free market, with unequal income distribution. The welfare theory in itself cannot tell which income distribution is “just”. Gravelle and Rees (1986, p. 521) argue that the aim of government policy in addition to the correcting of market failures can be the achievement of what would be regarded as a desirable distribution of real income.

Rayner et al. (1993, p. 68) find agricultural policy in the OECD countries as largely defensive by nature. Major objectives are the maintenance of farm incomes, the stabilisation of prices and income, support of rural communities and ensuring the security and stability of food supply. The two major objectives underlying this defensive assistance to agriculture are to redistribute domestic wealth in favour of farm producers and to insulate domestic food markets from trade shocks. Rayner et al. (1993, p. 68) argue that the redistribute or adjustment assistance programmes have been linked to the so-called “farm income problem” or “agricultural adjustment problem” in recognition that agriculture is a declining sector in an economy experiencing modern economic growth. Rising agricultural productivity on a par with productivity growth on other major sectors of the economy, and shifts in relative demand away from food products (Engel’s law), are the roots in this process where agricultural resources, especially labour, move out of the rural sector and into the growth sectors of the economy. If there is imperfect mobility of resources, there is a possibility of a structural disequilibrium known as the “agricultural adjustment problem”. This “problem” is typified by an income gap between urban and farm sectors. Cochrane (1958) has seen this as a farm problem where the farmers are

caught in a treadmill, and also as an argument for agricultural income support. However, if lacking mobility of labour is the main problem, it would be reasonable to support structural changes, for example support to fast retirement of older farmers, retraining of farmers and agricultural workers, etc., see for example Tweeten (1989).

According to Harvey (1999, p. 1), both economic logic and the history of farm returns (in the UK) clearly show that supporting farm product prices and receipts does not increase farm incomes. The reason why is that increasing farm receipts encourages more people to stay in farming than otherwise and encourages more use of inputs than otherwise. Harvey (1999, p. 1) argues:

*“Both these effects tend to increase costs, leaving farm incomes (as the difference between receipts and costs) no higher than before. Since people will only remain in farming so long as their incomes (and lifestyles) are expected to be more attractive than those elsewhere, farm incomes are more determined by what people can earn elsewhere than by the receipts from farming”.*

So these policies cannot, in the end, do much to increase farm incomes. The effects of agricultural support are simply to increase the number of people trying to earn a full time living from the industry – people who would otherwise have left (or gone part-time) because they could earn more (or more easily) elsewhere now stay in the industry (Harvey, 2000). Matthews (2000, p. 79) points out that without farm support there would be fewer farmers (in Ireland), but that it is unlikely that they would work for a lower income. On the other hand, in my view, if nations have an objective to support rural communities and prevent depopulation then this may justify some agricultural support, especially if this support is targeted toward those areas that are most in danger of depopulation and desertification.

If a nation has as an objective to improve the income of farmers compared to other groups in the society, it can be argued that this could be done better through direct income support (or tax relieves). Corden (1974, p. 51) has shown that if there is a divergence between the actual and the socially desired income distribution, the optimal policy to achieve this policy goal is an income subsidy. It follows from this that income support should be “decoupled” from production (MacLaren, 1991, p. 259). The use of market support (tariffs and export subsidies) and budget price support in the OECD countries should according to this be abolished and the income support should instead be given as non-trade distorting support payments. OECD (1990) also strongly recommends direct payments to farmers if governments wish to provide income support to agriculture.

However, there is another argument often put forward by several farmers and farmers’ representatives, many politicians, and some governments in the OECD area, and that is that market support is needed in order to sustain agricultural activities/production at present levels and therewith also the alleged multifunctional benefits of agriculture. Although the view that the multifunctional benefits of agriculture is dependent upon keeping agricultural activities/production at the current levels is highly debateable, let us here for simplicity take that view as “given”. By using some basic welfare economics and comparing the economic efficiency of two different systems of support, budget price support, and tariffs, that leads to the same producer price and hence the same domestic production level, it can be shown that the import tariff system is *less economic efficient* than the budget price support system, see for example Harvey (2000). So, the conclusion that the import tariff system is less economic efficient than the budget price support system, indicates that multifunctionality does not justify trade barriers. In addition, the import under the import tariff system is lower than under the budget price sup-



port system, i.e., the import tariff system is more trade-distorting than the budget price support system.

Changes in a country's trade policy towards freer trade will normally not be Pareto-efficient, there will be both winners and losers. If the winners can compensate the losers fully and still be better off, the change in trade policy is said to be an improvement even if compensation is actually not paid according to the Kaldor-Hicks principle. However, MacLaren (1991, p. 256) argues that the gains from trade only are potential unless compensation is actually paid to the losers. If effective redistribution (in the form of lump-sum transfers) of income does not take place, then different groups in society, in pursuing their own self-interest, may or may not support a change of trade policy. In Harvey (1999, p. 18–19) it is argued that, on both theoretical and practical grounds, changes in government policy cannot be regarded as optimal or politically practical unless the losers are at least partially compensated through production/product neutral compensation payments. In addition to the direct income losses for farmers due to a possible substantial reduction in agricultural support as a result of the WTO negotiations, another effect would be a reduction in the value of assets currently employed in agriculture, which would restrict the adjustment possibilities of the owners (farmers). To provide compensation payments would improve their capability to adjust. It is also worth noticing that the reduction in the value of assets would be beneficial to new entrants to the agricultural industry.

The individual risk-averse agent in an economy will wish to reduce the risk of reduced income. If there is lack of complete risk markets, we will have a market failure. The lack of complete risk markets can be caused by asymmetric or imperfect information associated with individual risk, i.e., unobservable outcomes, moral hazard and adverse selection (MacLaren, 1991, p. 274). Ingersent (2002, p. 30) points out that instability of prices and incomes, and the consequent economic uncertainty, result in inefficient resource utilization and discourage investment. This gives the standard (a priori) economic case for government intervention for stabilising producer prices and farm incomes. Market stabilisation also formed one of the four elements of the proposal for a new CAP (named CARPE) recommended to the EU Commission by the authors of the Buckwell Report (Buckwell et al., 1997). According to Rayner et al. (1993, p. 69), insulating policies shield the domestic market from fluctuations in international prices and reduce instability in internal prices. Such a policy can as a result, reduce the variability of agricultural gross income and provide benefits to risk-averse farmers. Due to these arguments tariffs on agricultural products should presumably not be reduced to zero, but to a level of for example 20–25% in the next WTO agreement on agriculture to prevent big domestic price fluctuations due to changing world market prices, which might be a result of substantial tariff reductions.



## 4 WTO, multifunctionality and the use of policy measures

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Historically, income objectives have perhaps been the main objectives of agricultural policy in the OECD countries. This has changed in some OECD countries where the focus has shifted somewhat towards policy intervention with the aim to correct market failures caused by externalities or public goods. This can also be expressed in the word multifunctionality of agriculture. One central point in my analysis is that we have to make a clear distinction between policies with the aim to improve farmers' income or welfare situation and policies to enhance a multifunctional agriculture (see Prestegard (1992). In other words, we should not mix the focus on the farmers' consumption abilities (income concerns) and the focus on the farmers as producers of both private and public goods. Unfortunately, these two aspects are still more or less mixed in the agricultural policies of the different OECD countries. If a country wants to give income support to farmers, this support should be "decoupled" from production. However, decoupling is not an obvious criterion for the desirability of domestic policy that does not have farm income as its (sole) objective (Josling, 2003).

A central question will then be how to achieve the multifunctional goals that nations may have in a minimally trade-distorting way, or, more precisely:

- How to formulate the policy instruments?
- How to determine the level of support?
- Which policy instruments should be accepted as minimally trade-distorting within the WTO (i.e., accepted as "green box" support)?

However, before looking into these questions it should be emphasised that there in some circumstances may exist possibilities to transform positive externalities/public goods into marketable private goods. To the extent that "public good" effects of agricultural activity can be privatised directly or used as inputs in the production of other private goods and services (for example agro-tourism), the need for public support to provide these goods can be reduced. Another argument is that voluntary organisations, or conservation, amenity and recreation trusts (carts) as Dwyer and Hodge (1996) term them,

may contribute directly to the provision of non-commodity outputs and externalities. Winter (2001) points out that one possibility is through the direct ownership of land, a second is entering into agreements with farmers and the third is influencing farmers to enter into agri-environmental schemes. However, though this may be a possible way of providing non-commodity outputs in the UK with its historic tradition of many, large and often powerful voluntary organisations as the National Trust, and the Royal Society for the Protection of Birds, the situation may be different in other OECD countries that do not have that type of voluntary organisations and historic traditions for peoples' involvement in taking care of the countryside. In my view, there is no doubt that, even if there are some possibilities for transforming externalities/public goods into marketable goods and that voluntary organisations may play a certain role in providing positive externalities/public goods, there will still exist a significant role for governmental support programmes to enhance a multifunctional agriculture in OECD countries.

There are two principle ways for the state to stimulate the production of non-food agricultural goods or services, regulation or economic incentives. Regulations can zone land use or restrict production practices, while the state can stimulate the provision of countryside benefits by offering economic incentives for adoption of specified actions (Hodge, 1991, p. 184–187). You need at least one policy instrument for each policy objective. This follows the Tindbergen results for policy optimisation, namely that to achieve several objectives simultaneously you need at least as many policy instruments as there are objectives. Of course, a given policy instrument can have effects on more than one objective, both positive and negative. In addition, the policy instruments will influence each other, and therefore it will often be useful to set up (and evaluate) packages of policy instruments to obtain an efficient policy to provide optimal outputs of both private and public goods (Romstad et al., 2000, p. 3), while at the same time minimise the trade-distorting effects.

## 5 Social values of land use and the choice of policy measures

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Studies in different countries have shown that there is a willingness to pay (WTP) for the maintenance of agricultural landscapes and other rural environmental goods and services, see for example Navrud (1992). When determining the appropriate level of agricultural support, it is of importance to try to estimate how much society is willing to pay for environmental and rural goods and services provided by agriculture. In these quantification studies, a survey is conducted where the public is questioned about its WTP (or willingness to accept compensation, WTAC) for certain hypothetical changes in the environmental quality, or about choices between different “packages” of environmental quality and the price of each package (Hanley et al., 2001, p. 47). The most used method within the stated preference approach is the contingent valuation method (CVM). For example, Drake (1992), Pruckner (1995), Bergland (1998), and Rosenberger and Walsh (1997) all used CVM to quantify non-agricultural amenity values of farmland. Other valuation methods are based on revealed preferences, for example the hedonic pricing method and the travel costs method. Le Goffe (2000), for example, used hedonic pricing to value externalities in agriculture and forestry in Brittany, located in western France. He examined the renting price of rural self-catering cottages, or *gîtes*. Le Goffe (2000, p. 400) found that it appears that the price of *gîtes* is negatively influenced by intensive fodder and livestock farming, and positively related to permanent grassland.

Drake (1992) used CVM to examine the Swedes’ WTP for the preservation of the agricultural landscape. He found that the Swedes seemed willing to pay about 541 SEK per person per year (78 ECU) or 975 SEK per hectare per year (140 ECU) (May 1986). Drake (1992) claims that this was more than the net value of agricultural production in most parts of Sweden. The most important motive to preserve the agricultural landscape is that ‘many animals and plants depend on the agricultural landscape’. Another important motive is that ‘the landscape is beautiful’. Another result was that the WTP per hectare differs significantly between different forms of land use, for example the WTP per hectare for grazing land was approximately twice as high as the WTP per hectare for

grain production. The WTP per hectare also varied due to location, from 700 SEK (101 ECU) in the southern parts to 1300 SEK (187 ECU) in the northern parts of Sweden. Drake (1992) argues that the policy implication could be that the government should pay the farmers for the production of the collective 'open and varied landscape'. He further argues that subsidies based on acreage instead of price support may be an adequate political solution.

In a study from Rhode Island in the United States, Kline and Wilhelmns (1996, p. 424) found that local residents were generally positive to preserving farmland and open space. The reason was that they saw such preservation as beneficial to ensure the continuation of "rural character" (in the form of land use and cultural patterns that prevailed in Rhode Island when they were young) and "quality of life" in the state (access to open space, preservation of scenic quality (pretty landscapes), clean water and abundant wildlife).

Brunstad et al. (1999) investigated the relationship between the agricultural production and the optimal level of landscape preservation. They claim that the non-market value of the agricultural landscape is a notion that seems to be gaining common acceptance. Brunstad et al. (1999, p. 539) argue that compared to the competitive equilibrium, a positive valuation of the agricultural landscape is an argument for increasing the agricultural activity, and that the amount of increase should depend on the WTP. According to Brunstad et al. (1999, p. 539), a production-related subsidy in form of a subsidy per unit of land use is needed to reach the optimal solution regarding agricultural activity (land use) and landscape preservation.

In an Austrian study, Pruckner (1995) evaluated the economic benefits (non-commodity outputs) associated with agricultural landscape-cultivating services provided as an input on behalf of the tourism sector. Applying the contingent valuation method, tourists spending vacations in Austria were asked about their WTP for these landscape-cultivating services across the country. The values varied according to the tourists' nationality, with highest values registered by Austrian tourists and by Swiss tourists. The study also revealed that Austrian people did not consider recreation the only purpose of landscape-cultivating services, but also services as maintaining the living space by ensuring protection from avalanches, landslides, erosion and rockslides. This may be an explanation for the higher WTP of respondents from Austria.

In a recent Norwegian study, Bergland (1998) investigated peoples WTP for various landscape elements in a relatively intensively farmed arable area. Manipulated photos of the same landscape were presented to various groups of people. Zone vegetations along with open streams and paths, in combination, were seen as the most important landscape elements. WTP per household was NOK 175 for only stream; NOK 225 for only zone vegetations; and NOK 625 for both.

However, Bohm (1988, p. 70) argues that it is difficult to determine people's real value of public goods through investigations on the willingness to pay because of the free-rider problem. In lack of a general solution, he points out that "informed guesses" by the elected parliament have had to be the basis for decisions on production and payments for public goods. However, in my view, studies where scientific quantification methods (as those mentioned above) are used to value the positive externalities/public goods would be of great help for the politicians in the decision-making process even though such studies may suffer from methodical problems, see for example Hutchinson et al. (1995) for some critical comments on the contingent valuation method. It should be emphasised that if the social value of the positive externalities or public goods in question turn out to be rather low public intervention to correct for these benefits may not be justified unless the costs of such intervention are quite low (Dillman and Bergstrom, 1991, p. 263).

Buckwell (1996, p. 211) argues that Europe is taking the lead in showing how agriculture can play the dual role as a provider of both food and rural environmental and cultural services:

*“These different outputs of European agriculture are, and always have been, inextricably intertwined, much more so than in the Americas and Oceania. ... . European society is well aware of its rural roots and values the natural environment and cultural heritage of rural areas. ... . Now it has been realised that not only must there be specific public actions to protect natural resources and enhance the environment, but that these actions must be integrated with other dimensions of agricultural and rural policy.”* (Buckwell, 1996, p. 211)

According to Harvey (2003), the twin focus of sustainable policies should be to get the price of biomass “right” (without distorting and supporting it, as under the Common Agricultural Policy in the European Union), and to “properly” reflect the public or social values of the conservation, amenity, and rural environment (CARE) goods (including pollution) back to landowners and users. However, Harvey (2003) emphasises that both social valuations and the underlying technical relationships vary between different regions and locations. Accordingly, appropriate policy prescriptions are likely to be highly site-specific. Another central point made by Harvey (1996, p. 29) is that *“attempts to define ‘level playing fields’ in terms of common definitions of environmental practices (either within countries or, a fortiori, between them) is also a violation of the very concept of sustainability as advanced here. The ‘level playing field’ concept does not mean that trading nations (or regions) should have identical environmental conditions or identical social valuations (and hence opportunity costs) of environmental assets, any more than it means that they should have identical costs of land, labour or capital. In fact, it is regional and national differences in these resource endowments, capabilities and social valuations which provide the very basis for economic gains from trade.”* Krugman (1997) advocates the same type of economic thoughts as Harvey above. These arguments by Harvey (and Krugman) may imply that since rural environmental amenities typically have a national or local (regional) character and that the social valuations may differ between regions and countries, the decisions on the production of and payment for these positive externalities or public goods should also be taken at a national or local (regional) level and not internationally in the WTO (directly or even indirectly). Dillman and Bergstrom (1991, p. 264) also argue that the value of farm land amenity benefits are likely to vary between regions, and therefore region specific valuation studies are needed to obtain the most accurate estimates of the economic values of environmental amenity benefits of agricultural land retention for a particular planning or policy region.

Since the social valuation of rural employment is typically higher in more remote, sparsely populated areas of a country, this may be an argument for a policy to enhance a more low-intensive agriculture regarding land use in these areas than elsewhere. It may also be an argument for a more labour-intensive agriculture in remote areas with few other job opportunities than elsewhere. For example, some argue that this can be an argument for promoting organic agriculture in less favoured areas that are more labour-intensive than conventional, or modern agriculture. In this respect, it is interesting to notice that Swinbank (2001, p. 11) argues that whether or not a scheme would have a minimal trade-distorting effect, would probably hinge on its geographical coverage. He argues that a scheme applied in clearly defined regions, with well defined objectives, might pass the test of being minimal trade-distorting, while schemes that provide blanket coverage to all a country’s farmers regardless of their situation, or schemes simply devised to offset additional costs of production caused by adverse terrain or climate, would probably not pass. Accordingly, the suggestion should be that the “green box” might

be widened to include measures that are production-linked providing they are confined to very specific regions and are not applied as a nation-wide policy (Swinbank, 2001, p. 11).

Flåm and Vårdal (1990) claim that subsidies given as product-specific support, either by supporting farm inputs or products easily lead to inefficient resource utilization. Instead, they suggest allocating necessary income support as a special tax allowance on farm-based income, in addition to a lump-sum payment. If farm income should be less than the calculated tax allowance, they propose the payment of a lump-sum in addition to the farmers' tax advantage. In practical terms, their proposal represents a kind of "subsidy per farm". This tax-based policy instrument may, in addition to the general income effect, be of interest in a regional policy context since it allows the differentiation of the tax allowance and the lump-sum payments on the basis of farm size, region, topography or climate.

Prestegard (1992) analysed the effects of a regional support differentiated only by the alternative value of labour and not according to farm size structure (or regional differences in conditions for farming), by using a recursive linear programming model over Norwegian agriculture. This regional subsidy thus increases with decreasing possibilities for alternative employment. All farms within any given region receive the same amount of support, which thus represents a type of non-product-specific policy instrument (as "per-farm payments"). Prestegard concludes that such a regional support policy based on alternative employment potential seems to have a much stronger regional policy effect (greater number of farms in operation, especially small, part-time farms) than structurally differentiated regional deficiency payments.

In OECD (1998, p. 57), several reports on the connection between agriculture and the rural economy in the OECD countries is analysed, and the primary sector is found to have the largest income and employment multipliers in both predominantly rural and significantly rural regions. However, Doyle et al. (1997, p. 530-531) argue that the presumption that agricultural support is an effective means for promoting social and economic development in rural areas is largely untested. To be true, two conditions must be satisfied (Doyle et al., 1997, p. 531):

*"First, agriculture must have a high degree of interdependence with other sectors of the local economy so that any support-induced increase in farm output create significant numbers of jobs outside agriculture. Second, the wider economic benefits arising from public assistance to agriculture should be concentrated in rural areas."*

In a study of a region in Scotland (Dumfries and Galloway), Doyle et al. (1997, p. 545-545) find that their results indicate that agricultural-support payments are effective in stimulating social and economic development of rural areas. However, they find that a considerable proportion of the ultimate economic benefits accrue to urban areas.

Some economists argue that support to enhance rural employment should not be given as specific agricultural support, but as general support to all economic activities within specified regions. Theoretically, this is a highly valid argument. However, due to competition rules within the WTO, and within the European Economic Area, EEA (EU-15 + Iceland, Norway and Liechtenstein), it may be difficult or even impossible to shift support from agriculture to other economic activities in specific regions within countries belonging to the EEA. Another possibility, which may have positive effects on employment and settlement in regions that suffers from depopulation and unemployment, is to give tax allowances to all citizens living in such areas. Such tax allowances are hitherto not covered by WTO rules or rules within the EEA, i.e., they are not regulated. Actually, Norway provides citizens living in the northern most county Finnmark and parts of the county Troms a special tax allowance compared to citizens living elsewhere in Norway.



## 6 Different views on agricultural externalities and corrective policy measures

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The demand for or need to preserve cultural landscapes, other environmental amenities, and viable rural areas is widely recognized in Switzerland, Norway, the European Union, Japan, Korea and many other (mainly importing) countries; in contrast, it is not an important element of agricultural and rural policy in (mainly exporting) countries with large areas of arable land, such as the USA and the Cairns Group. Ian Hodge contrasts two alternative models or perspectives of the way “*in which the issue of rural environmental values is assumed to enter into agricultural policy analysis*” (Hodge, 2000, p. 264). The first, “input model” postulates an “*inevitable and clear relationship between output prices and environmental quality*”, and that “*a reduction in the level of price support inevitably leads to a reduced intensity of production and thus to an improvement in environmental quality*” (Hodge, 2000, p.264). Many North American, Australian and New Zealand agricultural economists favour this approach or model (Bredahl, Nersten and Prestegard, 1999). The second, although not necessarily conflicting model, “*emphasises marketed food and environmental quality as separate products of the land .... These are often seen as joint products that can be produced in varying combinations*” (Hodge, 2000, p. 264). Many European and Japanese agricultural economists favour this second alternative<sup>6</sup>, which Hodge calls the “output model”. Economists following the “input model” predict degradation in the environment if agricultural policies lead to increased prices and production. Conversely, economists favouring the “output model” can rationalise an increase in environmental benefits from policies leading to increased agricultural output.

In Figure 2, the issues discussed by Hodge (2000) are “translated” into a graphical representation<sup>7</sup> of positive and negative externalities of agricultural production (intensity). At low levels of output (intensity), agricultural output and environmental services

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<sup>6</sup> As good examples hereof, see Potter and Burney (2002), Latacz–Lohman (2000), and Latacz–Lohman and Hodge (2001).

<sup>7</sup> Whittaker et al. (1991) used a quite similar graphical representation of marginal private and social costs and benefits of agricultural production in an economic analysis of environmental management agreements in the UK.

are joint or complementary, which is shown as a positive externality in Figure 6.1 The marginal social cost of agricultural production lies below the marginal private cost of agricultural production. Beyond some level of output (intensity), agricultural production reduces the level of countryside services or the quality of the environment, i.e., further output creates a negative externality. In this respect, it is worth noticing that Le Goffe (2000, p. 397) argues that monoculture and intensification of production often leads to the simultaneous appearance of negative externalities and the cancellation of positive services provided by agriculture. Agricultural economists in North America, Australia and New Zealand often promote the “polluter pays” principle and the levying of taxes to correct for negative externalities, such as environmental pollution. These agricultural economists have been less keen when proposing policies to produce the optimum level of a positive externality, and for a good reason; agricultural activities in those countries are seldom perceived to produce positive externalities, such as for example a cultural landscape (Bredahl, Nersten and Prestegard, 1999).

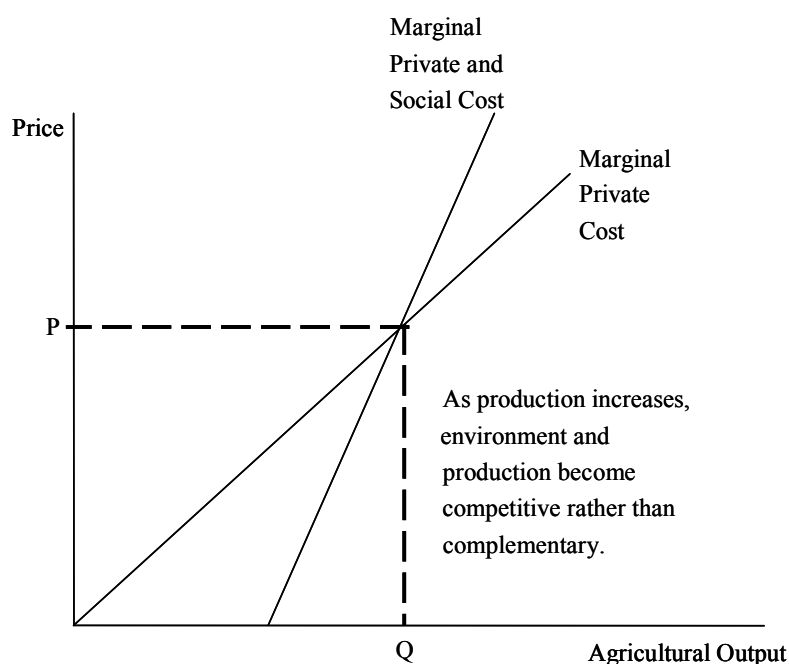


Figure 6.1 Representation of positive and negative externalities of agricultural production levels (intensity)

Source: Bredahl, Nersten and Prestegard (1999)

Pigou suggested already in 1920 the use of taxes on negative external effects and subsidies on positive external effects to correct allocative distortions<sup>8</sup>. Bhagwati (1971- 76-

<sup>8</sup> However, there is an opposite view that is a reaction to the Pigovian approach. This political economy approach rejects the all-knowing, benevolent government view and questions the assumption of correcting market failures in a perfect and costless manner. In trying to correct market failures, the government may find itself subject to «failure» because politicians and bureaucrats have their own self-interest (Swinnen and van der Zee, 1993, p. 263).

80) and Bhagwati and Ramaswami (1998, p. 86–87) “confirm” Pigou’s view that in case of a domestic market distortion caused by a pure production externality the first best policy will be an optimum production subsidy (or an equivalent tax-cum-subsidy). The second best policy will be either tariff (trade subsidy) or factor tax-cum-subsidies. Corden (1997, p. 7-9) also argues that a price subsidy will be an optimum policy in case of a domestic distortion/divergence caused by a positive production externality. However, Corden (1997, p. 33) argues that this result is based on the four assumptions of the theory of domestic divergence:

- (1) Subsidies can be financed by “nondistorting” taxes.
- (2) Taxation involves no collection costs.
- (3) There are no costs of disbursement of subsidies.
- (4) The income distribution effects of various policies (such as the redistribution from taxpayers to subsidy recipients) can be neglected.

In Corden (1997) each of these assumptions is considered. The conclusions are that though the analysis has to be modified, the central argument is unshaken by the removal of assumptions (1) and (4). Removal of assumption (2) will slightly dent it, while removal of assumption (3) will affect it (a tariff may be first-best policy) (Corden, 1997, p. 33). However, Corden (1997, p. 39) also concludes that in developed countries subsidy disbursement costs are unlikely to be high.

It follows from Bhagwati (1971), Bhagwati and Ramaswami (1998), and Corden (1997) that a simple rejection of the possible use of a production subsidy as a corrective measure in case of a domestic market distortion caused by a positive agricultural production externality (which in principle is done in the WTO since a budget price subsidy is not allowed within the existing “green box”), is not consistent with economic theory. It is also worth noting that the question of possible trade-distortion effects of such price interventions in domestic markets is not mentioned at all by Bhagwati (1971), Bhagwati and Ramaswami (1998), or Corden (1997), while it is a major issue within the WTO. Presumably, that reflects that this issue has more to do with political economy (and international politics) than with economic theory in itself<sup>9</sup>. In this connection, Burrell (2001, p. 13) puts forward some interesting comments:

*“On the question of whether it actually make sense for corrective policies to be minimally distorting, Blandford (2001, p.52) observes that in the presence of an unmarketable externality, the market is already distorted. If direct payments are made to farmers to correct for market failure and to remunerate externalities, it is hardly logical to require that they should have no effect on production and trade. This discussion highlights the need for a better definition of a minimally distorting policy. If the distortion is measured against a “first-best” situation, it generally involves reference to market supply and demand functions that can only be discovered econometrically, and hence can always be disputed. Alternatively, if the*

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<sup>9</sup> In fact, there is something «puzzling» about the debate on trade negotiations and trade liberalisation. Often, it seems that the debate has more to do with what Krugman (1997, p. 114–115) calls a mercantilist theory, or mercantilist language of trade negotiations, than with the economic case for free trade. Krugman (1997, p. 114) emphasizes:

*“Anyone who has tried to make sense of international trade negotiations eventually realizes that they can only be understood by realizing that they are a game scored according to mercantilist rules, in which an increase in export—no matter how expensive to produce in terms of other opportunities foregone—is a victory, and an increase in import—no matter how many resources it releases for other uses—is a defeat.”*

*change in production is measured against the current (distorted) level, why should it be zero?"*

Viewed in this light, it is surprising that the clarification of non-distorting measures does not seem to play any significant role in the ongoing WTO negotiations.

## 7 Combining free trade with optimum subsidy policy

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In Figure 7.1, the opening of a small (protected) economy to free trade while simultaneously adopting an optimum policy to correct for a positive externality or public good is illustrated in a partial equilibrium supply-demand framework often used in analysing trade impacts of domestic policies. The diagram depicts Hodge's "output model", that is countryside services, or viable rural areas, as a joint product of agricultural production. (Of course, Figure 7.1 represents a simplification of the real world since the jointness between agricultural production (output) and positive externalities/public goods seldom will be exactly 1:1.) In the domestic market the marginal private cost of agricultural production is shown as the S(MPC) curve, while that adjusted for the positive externality is shown as the marginal social cost curve S(MSC). Because we are dealing with a positive externality, the marginal social cost curve lies below the marginal private cost curve.

The autarky, no trade, equilibrium quantity is indicated by  $Q_a$ , and the equilibrium supply-and-demand price is  $P_a$ . Under free trade (world market price is  $P_w$ ), with no allowance for the positive externality,  $Q_s$  is supplied and  $Q_d$  is demanded. The quantity imported is the difference between  $Q_d$  and  $Q_s$ . The welfare effects of this policy compared to autarky is:

Gain in consumer surplus:	+ABIF
Loss in producer surplus:	-ABGF
Loss in externality:	-GBEJ
The net welfare effect is:	+BIHE -GHJ (which may be positive or negative)

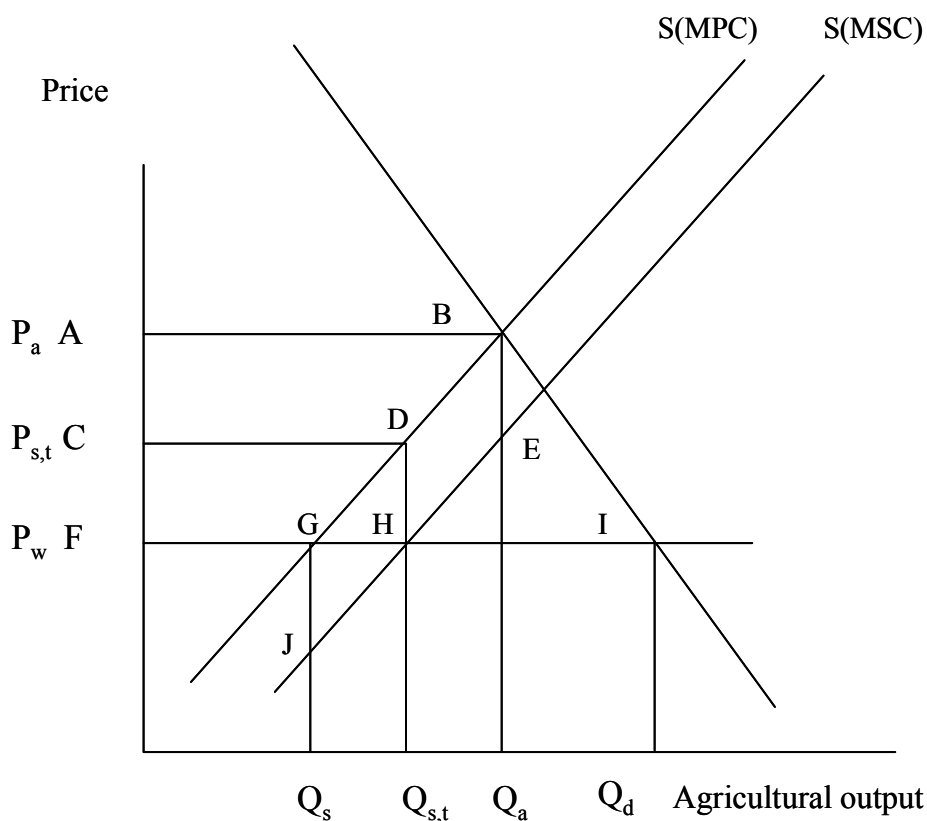


Figure 7.1 Illustration of trade liberalisation for a small (protected) economy and adoption of any optimum environmental and/or rural subsidy policy

The optimum subsidy policy equates  $S(MSC)$  with the marginal revenue ( $P_w$ ). Under this subsidy policy, output expands to  $Q_{s,t}$ . The optimum (per unit) subsidy is the difference between the world market price,  $P_w$ , and the supply price,  $P_{s,t}$ . Demand remains unaltered at  $Q_d$  (because of the small country assumption). The quantity imported is the difference between  $Q_d$  and  $Q_{s,t}$ . The welfare effect of this subsidy policy compared to autarky is:

Gain in consumer surplus:	+ABIF
Loss in producer surplus:	-ABDC
Loss in externality:	-DBEH
Taxpayers' costs:	-CDHF
<hr/>	
The net welfare effect is:	+BIHE

Clearly, the nation is better off with this subsidy policy than simply opening its markets to trade and ignoring the potential benefits of the positive externality/public good (gains GHJ). The exporting countries also gain from the liberalisation of trade, but not as much as they would gain if the importing country did not subsidise production.

Farmers in the importing country, however, may lobby for additional income support. The reason is that opening the economy to trade eliminates the economic rents received through market price support. However, this unwarranted rent seeking may be prevented by implementing a rule that limits the quantity supported to the current level of output, or to some proportion of the current level. It would also mean that the increase in consumption must necessarily result in increased imports. Gaisford and Kerr

(2001, p. 102) argue that the trade-distorting effects and inefficiencies associated with production subsidies themselves could be reduced by making subsidy payments subject to quantity limits. For example, they argue that headage payments could be based on a fixed maximum number of animals and acreage payments on a fixed maximum area planted. In addition, they mention that another possibility is to have subsidy payments based on historic, rather than current, level of production.

In the analysis above, the optimum subsidy has been referred to as a production subsidy (linked to output). Depending on the actual degree of jointness or complementarity between agricultural production and the positive externality or public good in question, the optimum subsidy may be a subsidy on output (possibly also a regionalised price subsidy), but it may also be a subsidy linked to factors of production or otherwise linked to agricultural production processes. In deciding which policies (measures) to use, one also has to keep in mind that there will always be a trade-off between precision and transaction costs (i.e., costs of information gathering, decision making, contracting and controlling) regarding any policy (Vatn, 2002). Taking this into consideration, in some cases the simple solution from an administrative perspective—production support—may be targeted enough (Vatn, 1999, p. 12).

Hodge (2000) also argues that the objectives of multifunctionality in agriculture admits some level of production-related support if: countryside services are produced as complementary joint products with agricultural production, where production of agricultural products necessarily entails production of countryside services; these countryside services have significant public good characteristics and hence suffer missing markets; and if the attributes of the services are either impossible to separately identify and impractically difficult and costly to measure. In these circumstances, Hodge (2000, p. 271) argues that payments to farmers can represent the correction of a market failure rather than a distortion to trading relationships. Hodge thus concludes that such payments should not be included in an Aggregate Measurement of Support (AMS) as far as trade negotiations are concerned—in other words that such payments should be treated as “green” (as allowed support). Hodge (2000, p. 271-272) suggests that the criteria against which claims for such “green box” status for payments to farmers for farming are valid should include; *“whether the provision of the value is regarded as an external benefit, such that the Provider Gets Principle applies; whether in the absence of that payment, the environmental value would be below the level demanded; whether there is a demonstrable link between the action that is supported through the payment and the specific external benefits; whether the policy mechanism is targeted on the most appropriate indicator.”* Hodge (2000, p. 272) admits that these criteria will often be difficult to determine unambiguously, and that transparency with regard to these issues will thus be an important factor in assessing particular policy measures.

In their analysis, Paarlberg et al. (2002) are using a conceptual model that clarifies the effects of multifunctionality by modifying the social utility function to incorporate externalities. Their conclusions and proposals are:

*“First, multifunctionality never justifies trade barriers. Second, multifunctionality may justify domestic output subsidies or taxes if the level of the externality is tied to output levels. Third, the extent of support to domestic agriculture varies by nation. Fourth, nations have the incentive to inflate the importance of multifunctionality to disguise protection, so strong disciplines must be negotiated. Three criteria for Green Box commodity policy intervention due to multifunctionality are proposed to reduce the problem of disguised protection and to improve transparency. First, a nation would need to explicitly identify the externalities due to multifunctionality. Second, a nation would need to value those externalities using standard market and nonmarket valuation techniques. Third, the*

*values of the externalities would have to be explicitly linked to commodity output levels.*”(Paarlberg et al., 2002, p. 332–333)

However, could the same, or even more valued landscapes be obtained with other types of agricultural production methods than are common today? Kuiper (1997), Rossi and Nota (2000), and Hendriks et al. (2000), for example, suggest that organic farms can have more positive effects on landscape values than conventional farms (greater diversity of landscapes, ecosystems and species). Or could an entirely different usage of farmland, e.g. golf courses, be equally, or even more valued? (Anderson, 1998). On the other hand, will the people value a landscape that merely forms the backdrop for their daily lives as much as a landscape based on “normal” or “real” agricultural production? In an Austrian study, over 4000 tourists spending vacations in Austria were questioned whether a well-kept landscape was the decisive factor in spending a vacation in Austria. Pruckner (1995, p. 178) found that 84% of the respondents answered “yes”. Respondents were also asked if farmers or other specialists should provide landscape-related services. Two-thirds voted in favour of the farmers, while another 7% expressed indifference between the two groups (Pruckner, 1995, p. 178). Notice also Potter and Burney (2002, p. 43) who argue; “ *there are few alternative management regimes which can mimic the conservation benefits of grazing, mowing, burning or harvesting in the absence of farming*”.

A study by Romstad et al. (2000) provides insights into the optimal mix of policy instruments given the existence of jointness in production. In their analysis of multifunctionality in agriculture, Romstad et al. (2000, p. xv) conclude that under Norwegian conditions a policy should include payments for public goods/positive externalities and taxes (or other regulations) to reduce negative externalities, and the use of regionally differentiated product prices including some import levies. This study then is much in line with Hodge (2000) and Paarlberg et al. (2002); however, the argument for some use of import levies in formulating a good policy package for a multifunctional agriculture is not.

Although some economists argue that jointness between agricultural production and positive externalities/public goods may justify production-related support or payments, other economists are highly sceptical towards this. These economists argue that even if there is jointness the payments for the provision of public goods should be totally decoupled from agricultural production<sup>10</sup>, i.e., that the payments should be linked directly to the public goods provision (see for example Bohman et al. (1999) and Gaisford and Kerr (2001, p. 104–105)). Certainly, in my view, for positive externalities/public goods such as hedgerows, stonewalls, water polls, streams, and specific habitats for wildlife and plants in the agricultural landscape, farmers should be paid directly for the preservation and cultivation of these landscape elements in accordance with society’s wants, i.e., the payments should be decoupled from agricultural production. The reason why is that these externalities/public goods are not strictly joint to the private good production (food and fibre), actually they are often competitive; especially at high intensity levels of agricultural production. Such environmental payments would probably often be based on specific contracts between the farmer or group of farmers and the (local or regional) authorities. Such programs would naturally be “deep and narrow” and may have high transactions costs, i.e., costs of information gathering, decision making, contract formulation, controlling, etc.

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<sup>10</sup> However, Josling (2000, p. 777) points out that “*there is no such thing as a production-neutral payment, however much decoupled from current output decisions, unless output is controlled as a condition for payment.*”



However, regarding the cultural landscape in a broader sense, such as for example the open landscapes created by agricultural activities, or viable rural areas, where there exist some jointness or complementarity between agricultural production activities and these externalities or public goods, totally decoupled support would not be economic effective, as shown above. It would be better to use rather “broad and shallow” programs such as a rather general acreage payment programme where farmers have to follow/admit to certain rules regarding agricultural activities/practices to preserve and take care of the totality of the agricultural landscapes due to environmental values and recreational values, to be eligible for these payments (“cross compliance”). The same arguments may go for the use of general “per-farm payments” to enhance settlement and activity in rural areas suffering from depopulation and desertification, or for headage payment programmes to enhance grazing, or to enhance an environmental and animal welfare friendly husbandry in general, or for headage programmes to preserve and take care of rare animal breeds. Typically, such payment programmes would have rather low transactions costs since they normally would be based on national programmes without specific contracts with individual farmers.

Swinbank (2001, p. 12) points out that the “green box” requirements for environmental payments insist that as well as forming a clearly defined governmental environmental or conservation programme and being dependent on the fulfilment of specific conditions, the actual subsidy should be limited to extra costs or loss of income involved in complying with the government programme. He continues by arguing that if carried to excess, with farm or location specific requirements with respect to the setting and monitoring of obligations and payment levels, administrative (transactions) costs for the regulator and the regulated could escalate, and that consequently some balance between generic and site-specific programmes must be found.



## 8 A pragmatic approach to WTO trade rules

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Sovereign countries have the right to decide upon their own agricultural objectives regarding non-trade concerns such as food security, cultural landscape, land conservation, biodiversity, recreation, cultural heritage, animal welfare, and viable rural areas, etc. In my view, based on Figure 7.1 and the adjacent analysis, and other research results presented here, countries should be allowed to use production-related support or payment programmes to help agriculture perform its many roles (i.e., to enhance a multifunctional agriculture) according to certain carefully described WTO rules, which will be presented and discussed below. Clearly, policies to obtain the production of the optimum quantity of cultural landscape, other countryside services, or viable rural areas must distort trade to some degree. I argue, however, that just as a tax is widely accepted as the optimum policy for a negative externality, so should the use of a production-tied subsidy or payment be accepted as optimum policy for a positive externality or public good that is produced jointly with or complementary to agricultural production. From another perspective, it is foolish to undertake those policies that secure the production of positive externalities or public goods free of trade reprisals. Of course, to do so requires the development of carefully specified international rules to prevent such policies from becoming a form of protectionism.

An essential element of my approach, and the first of my proposed rules, is that nations cannot subsidise exports or place import tariffs on any agricultural and food products<sup>11</sup>. As shown in Figure 7.1, this results in an expansion of consumption, and imports for trading partners. This removal of market support in a country should, according to the discussion earlier on compensation for farmers income and assets losses, be accompanied by finite lump-sum payments to the farmers over a certain number of years to

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<sup>11</sup> However, there is an argument to retain a small tariff of for example 20-25%, to avoid big price fluctuations domestically due to changing world market prices, and thereby giving benefits to risk-averse farmers. In addition, there may also still be arguments for retaining the Special Safeguard Mechanism for agriculture, though possibly in a modified form.

compensate for the losses (at least partly), regardless of what they may do after the removal<sup>12</sup>.

But, the level of optimum subsidy or payment and associated level of output after trade are not known. A nation could respond to producer pressure and introduce subsidies giving rise to a level of output equal to the level of consumption at the free trade price. However, limiting the quantity supported to the current levels of outputs (or input uses), or to some proportion of the current levels, would allow the nation to meet its objectives for positive externalities or public goods like the cultural landscape and viable rural areas, and would mean that the increase in consumption must necessarily result in increased imports.

As a kind of trade-off in the WTO negotiations between (mainly) exporting countries (as the United States, the Cairns group, and several developing countries)—for the removal of market support—and (mainly) importing countries—for the abilities to enhance a multifunctional agriculture—the maximum level of allowed acreage payments and headage payments could for example respectively be set to 85–90% of the current planted area and of current numbers of animals, and the maximum level of agricultural budget price support could possibly be set at for example 75–80 % of current outputs (budget price support are more trade-distorting than both headage and acreage payments). The actual percentages would, of course, need to be a result of the WTO negotiations.

By implementing such a 75–80 % level for maximum allowed agricultural support on outputs, we would also avoid that arguments for food security are misused to achieve full self-sufficiency (i.e., to prevent imports). However, food security concerns may give arguments for keeping an active agricultural production in all parts of a country. This may imply that budget price supports should be regionally differentiated. Regionalised budget price supports may also be beneficial for the up keeping of agricultural activity in areas that suffers from depopulation and few other job opportunities. Of course, the acreage payments may also be regionally differentiated due to the same arguments. Regional differentiation of acreage payments may also be justified due to regional differences in the social valuation of the cultural landscape and other public environmental goods and services.

One effect of a removal of all border measures is that we would get rid of all current TRQs (current access quotas and minimal access quotas) in the WTO. All currently bilateral agreements with preferential tariffs would at the same time lose their effects/importance. This would result in a less complicated WTO agreement and in increased transparency and reduced transactions costs in international trade, which would be beneficial to actors in international trade and for the overall welfare level in the world.

My second condition, in addition to the elimination of border measures, requires a reformulation of “green box” criteria. “Green box” criteria would need to explicitly include production-tied support or payment programmes<sup>13</sup> that meet certain carefully pre-

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<sup>12</sup> Some economists have proposed a slightly different compensation scheme; the so-called bond scheme (Tangermann (1991), Harvey (1998, p. 421-422), and Swinbank and Tangermann (2001), see also Ingersent (2002) for a sceptical view on the bond scheme proposal, and with a reply by Alan Swinbank and Stefan Tangermann).

<sup>13</sup> Latacz-Lohman (2000) also argues that policy options to enhance the provision of multifunctional benefits, should not be constrained by arbitrary rules preventing any actions that have any significant effects on production and trade. Latacz-Lohman (2000) and Latacz-Lohman and Hodge (2001, p. 44) also call for a widening of the “green box” to accommodate jointness of production and propose an extended set of “green box” criteria to ensure that only “trade-correcting measures” can pass.

scribed requirements, i.e., that meet the proposed limitations for budget price support, and for the use of acreage payments and headage payments, given above. Alternatively, the “blue box” with its present room for support or payment programmes that limit production, and which actually are close to my proposed WTO rules, should be maintained without limitations.

## 8.1 The actual development of the WTO negotiations compared to my proposed WTO rules

Compared to my findings and suggestions for WTO trade rules as presented above, what is then the actual development and status of the WTO negotiations? The chairperson of the WTO negotiations on agriculture, Stuart Harbinson, presented a draft on modalities for the further commitments in February 2003 (WTO, 2003b). Harbinson proposed substantial reductions in tariffs, especially for tariffs above 90 % ad valorem. Regarding export subsidies, he proposed an abolishment within 9 years. Further, the proposal was that AMS<sup>14</sup> (Aggregate Measurement of Support) should be reduced by 60 % and the “blue box” support by 50 % over a period of 5 years, while the existing “green box” criteria should be extended (only minor changes were proposed). This draft was regarded by some countries as going too far (for example the European Community (EC), Norway and Japan), and by others (the Cairns Group, the United States and several developing countries) as going too short in removing trade distortions. In a joint statement on non-trade concerns on 28 February 2003, Bulgaria, Chinese Taipei, Iceland, Israel, Liechtenstein, Mauritius, Norway and Switzerland emphasised that “*On domestic support we foresee the continuation of the Green and Blue boxes without limitations, based on the existing framework and with necessary adjustments to take non-trade concerns duly into account*” (Norwegian Ministry of Agriculture, 2003).

On 13 August 2003 a joint EC - U.S. paper on agriculture was released. One element of the joint paper is that direct payments under the “blue box” “*shall not exceed 5% of the total value of agriculture production by the end of the implementation period*” (U.S. Department of State, 2003). It must be seen as a clear movement by the EC away from its former negotiation position that the “blue box” should be maintained (i.e., not reduced). Probably, it is a consequence of the Common Agricultural Policy (CAP) reform decision by the EC Council in June 2003 that will make it possible for the EC to “transfer” large parts of their acreage and headage payments from their current position in the “blue box” to the “green box” in the form of (more) decoupled “per-farm payments”.

At the Fifth WTO Ministerial Conference in Cancún, Mexico, in September 2003, the chairperson Luis Ernesto Derbez presented a draft Cancún Ministerial Text also containing a framework for establishing modalities for the further negotiations on agriculture. The draft asked for commitments for substantial reductions in tariffs and trade-distorting domestic support, but only one explicit figure was mentioned: The draft proposed that the “blue box” support “*shall not exceed 5% of the total value of agriculture production in the 2000-2002 period by [...]. Subsequently, such support shall be subject to an annual linear reduction of [...] % for a further period of [...] years*” (WTO, 2003c). In addition, the proposal was that the “*Green Box criteria shall be reviewed with a view to ensuring that Green Box measures have no, or at most minimal, trade-distorting effects or effects on production*” (WTO, 2003c).

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<sup>14</sup> AMS is a measure of the “amber box” support.

The Cancún Ministerial Conference ended with a breakdown on 14 September 2003 after developed and developing countries failed to resolve the conflict on the “Singapore issues”, i.e., investment, competition, public procurement and trade facilitation. The agricultural negotiations were also an area of substantial conflict, but some progress was made. The WTO members agreed to continue the trade negotiations at the WTO headquarter in Geneva.

To sum up, the actual development in the WTO negotiations on agriculture are rather contrary to my findings and suggestions for WTO trade rules presented above. In addition, it does not seem that the issue of non-trade concerns and multifunctional agriculture play any significant role in the negotiations, while these issues certainly deserve attention according to neo-classical economic theory.

## 9 Conclusion

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A clear distinction should be made between policies that aim to improve farmers' income situation and policies intended to enhance a multifunctional agriculture. In other words, we should not mix the focus on the farmers' consumption abilities (income concerns) and the focus on the farmers as producers of both private and public goods. Income support to farmers should be decoupled from production. Decoupling is, however, not an obvious criterion for the desirability of domestic policy that does not have farm income as its objective, such as for example an objective for enhancing a multifunctional agriculture. However, multifunctionality can hardly justify the use of market support while it may justify budget support. Clearly, policies to obtain the production of the optimum quantity of cultural landscape or other countryside services must distort trade to some degree. I argue, however, that just as a tax is widely accepted as the optimum policy for a negative externality, so should the use of a production-related subsidy or payment be accepted as optimum policy for a positive externality or public good that is produced jointly with or complementary to agricultural production. To prevent such policies from becoming a form of protectionism, some carefully prescribed WTO trade rules should be implemented.

The first rule is that nations cannot subsidise exports or place import tariffs on any agricultural and food products. Secondly, the budget support should be limited to the current levels of outputs or input uses, or to some proportion of the current levels. This would still to a substantial degree, allow the nation to meet its domestic policy objectives for the provision of positive externalities or public goods such as the cultural landscape or viable rural areas. This would also mean that the increase in consumption must necessarily result in increased imports from trading partners. In addition to the elimination of border measures (tariffs and export subsidies), a reformulation of "green box" criteria is required. "Green box" criteria would need to explicitly include production-related support or payment programmes that meet the proposed limitations for budget support, as presented above. Alternatively, the "blue box" with its present room for support or payment programmes that limit production, and which actually are close to my proposed WTO rules, should be maintained without limitations.

Clearly, the development in the WTO negotiations and the latest draft proposal by Luis Ernesto Derbez with its strong focus on very large reduction in "blue box" support

(presumably, with a view of phasing such support out) and a possible tightening of the rules on “green box” support, is contrary to my findings and suggestions for WTO trade rules as presented above. I find the “tough” attitude towards large reductions in domestic support, and in particular the proposals for very large reductions in “blue box” support, while at the same time being rather “vague” on suggesting substantial reduction in market support, rather surprising and contrary to neo-classical economic theory. (Market support is less economic efficient than budget support to correct for domestic distortions, and also more trade-distorting.) In fact, I cannot help wondering if the ongoing WTO agricultural trade negotiations actually “prove” that Krugman (1997, p. 114) is right when he argues that an implicit mercantilist theory underlies international trade negotiations rather than the economic case for free trade. My proposal, to eliminate all border measures and to change the “green box” criteria to allow tightly prescribed production-related subsidies or payment programmes, or, alternatively that the “blue box” is maintained without limitations, may provide a better way forward towards a balanced WTO agriculture agreement<sup>15</sup>.

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<sup>15</sup> The focus in this paper has been on developed countries. History shows us that every developed country during its developing process has supported agriculture, and still does extensively. It is hardly logical to deny developing countries this opportunity. Therefore, the developing countries should be given special and differential treatment as provided for in Article 20 of the Uruguay Round’s Agreement on Agriculture.



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