

SURVEY ON EXISTING AND FORESEENABLE FOREST INCENTIVES

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Abstract

In a frame of falling forest revenues in front of growing environmental awareness of the public the risk of an insufficient financial allocation able to assure sustainable and multifunctional forest management is a very actual issue, especially in forests with a high level of protection functions (Alpine, Mediterranean forests). The different options for improving the forest review are identified firstly and later on analysed including pros and cons and existing examples of them. The conclusions advocate for a flexible policy mix of different instruments supported by efficient forest statistics and research in order to adapt interactively the process.

Keywords: Forest incentives, forest policy, subvention, environmental economy, environmental primes.

1 Introduction: The socio-economic frame of forestry in Europe¹

The socio-economic frame of forestry in Europe may be characterized by a decreasing level of relative wealth creation capacity in the whole forest chain (owners, labour, professionals, industry, etc.). In all the European countries the forest sector seems not been able to succeed in keeping the development of the rest of the economy. Nevertheless, this period overlaps with an increasing social awareness of nature and forests in particular that generates more and more demands without a market instrument that assures the needed reinvestment (economic sustainability).

This situation asks not only to keep the forests in a high level of quality far away from what would be suitable due to present levels of profitability but also to succeed in each new demand that challenges forest sustainability. Whereas a classical vertical sector has to follow a very a limited number of overlapping elements, the new cross-sectorial nature of forests makes them

¹) See Rojas (1999a).

grow exponentially overcoming the political and social strength of the classical forest sector that has to assume alone the costs.

GRAPHIC 1 & 2

But this also has a key economic consequence. Whereas in negative externalities like pollution, due to macrodecoupling, the more the externalities grow, the more a misallocation of resources increases by generating a unreal profitability charging others with the costs of the produced externalities, in the case of positive like forests assure, the inverse process called microdecoupling is observed (Mendes 1999). The higher the degree of produced externalities like in the Mountain or Mediterranean forests undoubtedly, the lower the allocation of resources through the market works. This has as a consequence that the forest abandonment clearly observed through the continent is more generalized in those forests where the importance of their externalities should devote a higher degree of attention.

In the specific case of the Mediterranean forests the threaten of forest fires it should be take into consideration, a process that is clearly linked to land abandonment (Mendes 1999, Vélez 2001).

2 Methodology

The different theoretical options of incentives are identified and described including applied examples. A general overview includes pros and cons of each previous to draw some first conclusions.

3 Options for incentives

If actions should be taken, two options exist. First the use of regulatory mechanism and secondly the use of incentive ones. The first option has been strongly used in the last decades and has not solved the problem as an active management can not be forced by regulations if forestry is not profitable (Rada 1964, Ortuño & Ceballos 1977 and Mendes 1999).

In the case of incentives, the theoretical possibilities are the following:

Table 1: Theoretical options for land management including forest incentives

$$\mathbf{FR = LH \times UP - (RC - SRC) - (I - SI) - (FC - IC) - T - (R - CR) + ERS + EP}$$

FR: Forest revenue

LH: Level of harvesting

UP: Unit price

RC: Running costs

SRC: Subvention to running costs

I: Investments

SI: Subvention to investments

FC: Financial costs

IC: Incentived credits

T: Taxes

R: Risks

CR: Compensations of risks

ERS: Environmental and recreational services

EP: Environmental primes

GRAPHICS 3, 4 & 5

4 Pros and cons of the different incentive types including pros and cons

In the following table the different types of possible options of incentives are characterized including existing examples of them.

Table 2: Pros and cons of the identified incentive options²

Kind of incentive	Pros	Cons	Observations
Increase level of harvesting	Low level of fellings in Europe (<65% of growing) Risks by wind and fire	Unsustainable on the long run Important volume available but mainly in non profitable dimensions (small dimension wood)	Market approach
Intervened market (increase of forest product prices)	Easy to handle (reductions of transfers)	Impossibility by the present EU and WTO regulations Highly inefficient (incentives high productive locations) ³ Does not solve the problems of the most threatened forests (Alpine, Mediterranean, protected areas)	This track has been followed by the agricultural policy of the EU and many other countries with extreme high dysfunctions and is now under deep revision
Subvention of running costs	Keeps easily the revenue situation for some time acceptable Most common incentive model in other fields (social, sanitary, education)	Insufficient for threatened areas Prefinance Strengthens productive aims more then multifunctionality Strong difference between dense and wealthy populated areas and rural areas (Maslow) ⁴ Difficulties to prioritise forest subventions in front of other priorities (social, infrastructure, cultural, urgent agricultural troubles, etc.) ⁵ Brakes rationalization and keeps too labour intensive practices High transfer costs and low efficiency No subjective right High dependence of private forestry in Europe from external factors (EU-CAP)	Most usual option in forest policy (Germany, Switzerland, UK after 1988, etc.)
Subvention of	Needed element in order		The difference be-

²) See Rojas (1999b).

³) See Graphic 3

⁴) See Graphic 4 and 5.

⁵) An example of it has been the situation in France after the EU Court decision to derogate the tax on wood that financed the Fond Forestière National (Bianco, 1998).

investments (see subvention of running costs)	to ensure high costly investments (afforestations, road construction) in non state land		tween running costs and investments is not always clear Examples UK after 1988, Spain, France, Germany, etc.
Incentived credits	Needed instrument in situations of difficulties in the credit system (high inflation, etc.)	Less importance under normal circumstances and low interest rates Long lasting credits needed	Model used in France for long years (credits 25-30 years and 0,25% interest rate), interesting for CIT and developing countries
Tax release a) Reductions of tax level	Needed instrument in order to avoid overtaxation of forests (high ratio capital/revenue, externalities, risks, social commitment, etc.) Land and wealth tax are generally a duplication in comparison with stock market investments Takes into account the social commitment of forest ownership	Insufficient alone except in existing capitalized productive forests Lacking figures to incentive non ownership linked investments in productive forestry (funds) Less important in countries with low direct taxation	Priority: Inheritance and land tax. Income tax has to take into account the difficulties to calculate the previous investments and the exceptional duration of the forest production periods Example: Germany, Spain (recent evolution)
b) Overall release for non forest incomes	Independent from forest service budgetary restrictions Attracts external capital	Low potential with falling income taxes Land tenure changes as prerequisites Forest owners on the long run very social restrictive class Does not take into account externalities	Instrument strongly used in the UK between 1950 and 1988
Compensations of risks a) Fire	Risks are in general highly important restrictions for private forest management Fire in the Mediterranean Regis reaches a level that influences very negatively forest management (abandonment, premature felling) The causes of the fires are external	Could favour the fires if too generously designed Insufficient to mobilise the management alone	Three damages are identified: loss in wood quality and price, regeneration cost and revenue loss Two options are applied: a) Direct forest fire risk compensation by the forest service (Germany) either in the form of incentive or compensa-

			<p>tion right</p> <p>b) Incentive of a part of the insurance costs (agriculture, Catalonia)</p> <p>The first option brings a high degree of uncertainty and fluctuation to forest budgets after big fires, whereas the insurance allows to keep costs even</p> <p>Different examples show that a common insurance in this issue may drop importantly the costs</p>
<p>Compensations of risks</p> <p>b) Pollution</p>	<p>Damages due to pollution are always externally and frequently without a specific individual responsible to demand compensation</p> <p>Emissions are increasingly charged with taxes</p> <p>Restoration of this forests drain means from forest budget</p>		
<p>Compensations of risks</p> <p>c) Storm</p>	<p>Storm events have natural origin but have increased recently due to climate change whereas forestry is contributing to mitigate it⁶</p>	<p>It could, if too generously design, avoid changes in the forest management</p>	<p>Compensation for storm damages may be operated via subventions or via insurances. The most frequent option is subvention. It has, as in the previous case, draining effect on the forest budgets</p>
<p>Compensations of risks</p> <p>d) Restrictions</p>	<p>Restrictions on forest management further than acceptable forest standards should in principle be compensated</p>	<p>Low forest and nature protection budgets</p> <p>The restricting social demand is frequently not assuming the costs⁷</p>	<p>The borderline of compensation is not always very clear</p> <p>Operative options are:</p> <p>a) Formal compensation procedure</p> <p>b) Contractual solutions⁸</p>

⁶) It is a clear case of reflected costs (Niesslein, 1985).

⁷) See Bianco's (1998) proposal "Who restricts should pay".

			c) Incentives Options b) and c) have less transfer costs
Compensations of risks e) Civil responsibility (access)	Civil responsibility is a clear ownership burden. Nevertheless, public access' responsibilities cannot be seen as a normal ownership commitment. Most conflicts arising from access are linked to this question	A clear differentiation between the linked and the suffered civil responsibility is needed in order to avoid irresponsible behaviour	Several countries that allow public access into private forests assume at least partially the consequences of civil responsibility Different examples (France) show that a common insurance in this issue may drop importantly the costs
Environmental and recreational services	There are big business possibilities in selling recreational services to the public asking for green ⁹	The possibilities to sell this services require important know how, are not even distributed, leave important environmental services out (biodiversity), need deep legal changes and important management sizes	Redefinition of rights and duties as a prerequisite (ownership rights on volatile products, access right, image right, etc.) Option: bonds handled in the stock market for building rights or CO ₂ fixation
Environmental primes	Most efficient option to include pure externalities in the forest management Progress in certification (criteria and indicator) may help to gather the information and to apply it for the point system ¹⁰ Low transfer costs in a running model Does not incentive productive forestry No prefinance needed No change in ownership asked No additional demands on forest budgets if financed by environmental tax revenue	How to weight different externalities between them If not adequate design, very high cost in building up the model	The new agricultural policies strengthen this kind of option. The options are: a) Subventions b) Contractual solutions ¹¹ c) Strict primes on the bases of points

⁸) Best option for assuring cross-compliance (agri-environmental incentives of the CAP).

⁹) See Merlo & Rojas (2000).

¹⁰) See Rojas (2001).

¹¹) Best option for assuring cross-compliance (see agri-environmental incentives of the CAP).

5 Conclusions

Table 2 shows the complexity of examples and options for forest incentives. This opens the possibility to adapt in forest programmes the incentives to the specific conditions and objectives. In any case, successful strategy will always need to include a flexible and adaptable policy mix not only of incentives but also of other forest policy instruments like regulatory, administrative, planning or informative ones. An efficient forest information system (statistic, inventory, etc.) and an applied research activity may help to adequate interactively the combination and intensity of the incentives used in order to increase their efficiency by learning from the experience.

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