

THE FEDERALISM OF OIL AND ENVIRONMENTAL POLICY IN ITALY

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Lavoro preparato per la presentazione alla XXIII Conferenza della Società Italiana di Economia Pubblica. *Crisi economica, welfare e crescita*. Pavia, lunedì 19 e martedì 20 settembre 2011

Introduction

This paper analyzes the issues deriving from allocation of the rent from non-renewable natural resources, particularly hydrocarbons, among levels of government and residents in Italy. This is a rather new topic in the panorama of fiscal federalism literature applied to Italy. The paper intends to end the neglect by providing an exploration of the issue. Clearly, Italy is not particularly rich of natural resources and has, instead, a rather diversified economy. However, the production of hydrocarbons is not marginal – Italy ranks third in Western Europe after Norway and the UK. Moreover, it appears that production could be expanded if an agreement between the different stakeholders could be reached.

A share of the rent appropriated by the public sector is assigned to subnational governments. Residents of the producing areas receive additional benefits from the producing companies and from money transfers by which the central government pays directly to them a share of its rent.

The paper does not deal directly, however, with the issue of the policy principles that should guide the allocation of the rent among levels of government and does not question the present Italian assignments. The intergovernmental assignment of the rent is the main topic of the literature dealing with oil and minerals in a federal/decentralized government framework (Mc Lure, 1983, 1994 and 2003, Otto et al. 2006; Scott, 1975). Most of this literature stresses the importance of considering both the microeconomic and the macroeconomic impact of the assignment and most of its results derive from the consideration of how the rent is likely to be spent by the beneficiary government.

The present paper rather concentrates on the interactions between environmental policy and concerns and the development of the oil production. Although the problems raised by the production of hydrocarbons do not reach the acuity experienced by most big producing countries around the world, Italy is not exempt of difficulties. While the residents of the producing regions are entitled to receive substantial benefits especially through infrastructural projects funded with the rent, their perception of these benefits is lessened by the delayed implementation of the projects, due to the highly participative process introduced for these projects, but also to inefficient and delayed spending by governments. Residents feel and fear, at the same time, the negative impact of the production on their environment and generally oppose further exploration and production. This creates conflicts between, on the one hand, the desire of the central government to expand – for national policy priorities - the domestic production of hydrocarbons, and, on the other hand, the concerns of environmental groups and the need felt by subnational governments to give adequate consideration to the worries of their citizens about the environment. Environmental groups are obviously quite active to foster these worries. Part of these problems derives from the assignment among levels of government of the responsibilities about the environment, where most powers are assigned to the central government.

To analyze these questions we organize the paper into two big sections followed by the conclusions. The first section is empirical and illustrates the situation of oil and gas production and intergovernmental sharing in Italy, giving particular attention to the case of the Region Basilicata that is by far the largest producer. The second section is analytical and policy oriented and it is focussed on the interplay between the assignment of the rent, on the one hand, and the management of environmental policy, on the other. Conclusions are tentative. They suggest the need of aligning the environmental responsibilities with the assignment of the rent. Moreover, they hint, especially in a political setting where governments are viewed as inefficient, at giving specific consideration to the direct payment of the rent to citizens as a convenient alternative to intergovernmental sharing.

I. OIL AND GAS PRODUCTION AND INTERGOVERNMENTAL SHARING OF THE RENT IN ITALY

Production and consumption

Italy is a modest producer of hydrocarbons. However, the incidence of nationally produced oil and gas on domestic consumption is not negligible: about 6 per cent for oil and 10 percent for gas. (see Tables 1 and 2 in the Statistical Annex). Proved reserves are stagnating, but there is a wide perception, especially among foreign companies, that production could be easily expanded if more exploration activities (and more foreign participation) were allowed. In fact, the production is expected to raise substantially – from 6 to 10 percent of domestic consumption - in the coming years after the signature in April 2011 of a memorandum of understanding between the central government and the regional government of Basilicata that will allow the exploitation of new fields with the participation of foreign firms (in addition to the traditionally dominating national oil company, ENI).

As it happens around the world, the production is fairly geographically concentrated: about 80 percent of national production of oil and about 50 percent of national production of gas are concentrated inside the Basilicata region (representing about 3 percent of total area of the country and 1 percent of its population). In addition, only a tiny portion of the territory of a tiny Region - basically the Val d'Agri - is affected. Sicily comes second in production, but at a sizeable distance.

Legal framework

There is no explicit constitutional provision regulating ownership and management of minerals and hydrocarbons in Italy.¹ One could naively imagine that the intergovernmental sharing issue could be settled for the good by legal and especially constitutional mandates. This is not the case of Italy. The case is no unique, however (see, Anderson, forthcoming, Brosio, 2003, Brosio and Jimenez, forthcoming). Constitutions are frequently silent on the issue, or they leave it unsettled by assigning ownership to the people. Secondly, and more importantly, ownership is not a decisive factor for the allocation of the rents. Ownership defines the entitlement to receive rent and the competence to manage, control and monitoring the use of the resources essentially through the granting of concessions to exploiting/exploiting firms. However, the entitlement to receive the rent can be thwarted by constitutional mandates referring to taxation and other policies. More specifically, the assignment of taxing powers to a level of government that does not own the natural resources allows this government to extract to its benefit part or all of the rent. This can be done also through tax instruments that are not directly related to natural resources (such as the corporate income tax). A similar result, appropriation of the rent without ownership, can derive from the assignment to a level of government – or even from the simple use even without explicit assignment – of other, in particular regulatory, policies, such as for example the regulation of the domestic markets and/or of external exchanges. The rent can also be assigned to consumers through ceilings on domestic prices, quotas on exports. In the practice this is also the pattern followed in Italy, where the central government uses its taxation and broadly regulatory powers to define the sharing of the oil rent between levels of government and consumers.

Article 117 of the Italian constitution states that regulation of energy is a concurrent responsibility of the central and the regional parliaments. However, most of the specific legal discipline does not derive from laws, but from government decrees. This is, at least, singular given the economic and political importance of the issues at stake.

In fact, management of hydrocarbons exploration and exploitation is regulated by a government decree of 26 of April 2010² that states that all decisions concerning the exploration and exploitation of hydrocarbons on shore – such as particularly the granting of permits and concessions - are the responsibility of the Ministry of Economic Activities with the agreement of the concerned regional governments. At the same time, all determinations concerning the exploration and exploitation on the continental shelf are under the exclusive responsibility of the ministry. The same decree also dictates the discipline concerning the evaluation of the environmental impact of the exploration and exploitation activities. In Italy, as in most of the EU, legislation on the environment is an

¹ A good illustration is provided by Greco, 2007.

² Ministerial Decree of April 26, 2010 “Approvazione disciplinare tipo per i permessi di prospezione e di ricerca e per le concessioni di coltivazione di idrocarburi liquidi e gassosi in terraferma, nel mare territoriale e nella piattaforma continentale”.

exclusive national responsibility, while its implementation is shared between the national and the subnational levels of government. Concerning oil and minerals, the central government retains the upper hand. The Ministry for economics activities makes the granting of oil exploration and/or production permits dependent on the presentation by the concerned company of the *Evaluation of the Environmental Impact* according to the principles defined by the European Union³. The evaluation has to clearly detail all the direct and indirect effects of the project on human, animal and vegetal activities, on landscape, climate, soil, air and water and on the cultural heritage. The document has to be presented and approved by the Ministry of the Environment and by the regional and local governments concerned, as well. When disagreements surface a conference with the participation of all interested public agencies (*Conferenza di servizi*) is called. When no agreement is reached even in this forum on the environmental implications of the new exploration and exploitation projects, the issue is brought to the Central Government Cabinet. This obviously means that the central government has the final say on the whole matter.

Intergovernmental sharing

The main instrument for the collection of the rent by the public sector are: a) the corporate profit tax, whose revenue goes to the central government and b) a royalty applying to the value (at the wellhead) of the production. Italy submits oil and gas to the ordinary corporate profit tax rate of 27,5 percent, while most producing countries levy on oil higher (and sometimes progressive) tax rates, or special cash flow taxes. The royalty is levied at a rate of 10 per cent on oil and gas produced on shore and on gas produced off-shore and at a rate of 4 % on oil produced off-shore.

The rate of the royalty is one of the lowest among those levied by producing countries around the world (Brosio, 2003). It is no point to assert, as oil companies do, that is perfectly aligned to the European standards, because most European countries do not produce hydrocarbons. Obviously, the intensity of extraction of the rent should be evaluated by taking into account all the fiscal instruments, but in general Italy is recognized to have a very favorable tax treatment of hydrocarbons production.⁴

Italian oil and gas producing Regions and Municipalities are assigned with a share of the rent collected by the public sector. More precisely, seven tenths of the royalties on oil and the entirety of the royalty on gas are allocated to subnational governments according to the sharing rates shown in the box.

³ Directive N. 1985/337/CE

⁴ See, for example, www.cygamenergy.com/index.php?option=com_content&view=article&id=4&Itemid=8

A. ROYALTIES ON OIL AND GAS PRODUCED ON-SHORE

Ordinary Statute Regions receive a share of 55% when situated in the North and Central areas of the country.

Ordinary Statute Regions receive a share of 85% when situated in the South

Special Statute Regions receive 100% of the royalties

Municipalities receive 15% of the royalties⁵.

B. ROYALTIES ON OIL PRODUCED OFF-SHORE

Bordering Regions receive 55% of the royalties while the remaining 45 % goes to the central government, if extracting wells are situated on territorial waters.

C. ROYALTIES ON PRODUCTION ON THE CONTINENTAL PLATFORM

Go completely to the central government.

According to a very recent decision of 2009, which very presumably has been taken to mollify the opposition of residents to further exploration and production activities, the remaining three tenths⁶ of the royalties levied on shore are channeled to a fund, managed by the central government, whose proceeds are used to reduce the retail price of gasoline and diesel in all the producing regions. More specifically, all possessors of a driving license who are resident of a region, where this share of the royalties amounts to more than 30 euros per capita, will receive an electronic card expendable at the gas stations. If the per capita entitlement is less than 30 euros, the corresponding sum will be channeled directly to the regional budget.

Additional funds are also accruing to the producing areas through specific agreements between the oil companies and the concerned regional governments. These agreements, or better the funds allocated through them, are meant to compensate the local population for the inconveniences deriving to it from the extraction activity. In principle, the funds should not compensate for environmental damages since in principle, or better according to legislation, their occurrence should be impeded by the existing environmental legislation. Should damages occur, however, the producing companies have the obligation of paying full compensation independently of these agreements. These agreements, which are widely used around the world, are in fact another instrument for channeling directly to the population, bypassing the public sector and its inability to spend, a share of the rent. In the case of Basilicata the regional government has signed an agreement with four oil companies - Eni, Shell, Esso and Total - operating on its territory. Two important engagements have derived. First, and clearly surprising, the companies have agreed to set up and to run –

⁵ Municipalities situated within Special Statute Region receive a share of the royalties determined by their Regional government of reference.

⁶ The royalty has been increased from 7 to 10 percent in 2009 by Law N.99 of July 23.

producing and distributing around the information - a quite sophisticated system of territorial monitoring of the environmental impact of their activities (sic!). Second, they will provide, free of charge, all the natural gas they extract from their oil wells to the local energy utility (*Società Energetica Lucana*), thus reducing the sale price of the energy the utility provides.

The territorial allocation of the royalties

During the three years period running from 2008 to 2010⁷ the royalties allocated to subnational governments amounted to 420 millions of euros, of which more than 80 percent – 332 millions went to Basilicata.

Table 2. **Royalties to Regions and Municipalities 2008-2010**⁷

Regions	Total (in €)	Per capita (in €)
Basilicata	332.153.150	564
Emilia Romagna	36.219.349	8,2
Calabria	20.765.095	10,3
Puglia	14.912.186	3,7
Piemonte	9.270.282	2,1
Molise	4.152.153	13
Sicilia	1.433.293	0,3
Abruzzo	996.632	0,7
Marche	453.674	0,3
Total	420.355.814	17,7

Source: Authors' calculations from <http://unmig.sviluppoeconomico.gov.it/unmig/royalties/royalties.asp>

The average yearly per capita allocations to Basilicata amount approximately to one/tenth of the expenditure of its regional government, which is substantial. Four municipalities within the region – namely, Viggiano, Grumento, Nova, Calvello and Montemurro – have received more than 1.000 euros per capita. More specifically, the municipality of Viggiano

⁷ Data refers to 2010 and is updated to 31/10.

has received almost 12.000 euros per capita. This ranks this small (3.000 inhabitants) Italian municipality on a par with the most oil gifted local governments around the world.

The spending of the rent in Basilicata

To spend these considerable sums the regional government has set up a rather complex planning process that entails the participation of the local governments and of a wide range of social actors (Vannini, 2011). The aim is to generate a wide consensus about the spending and to show the social usefulness of having oil in your own territory and of deriving rents from it. Money has been allocated to a large number of projects covering different areas, such as basic infrastructure, environmental protection, job creation, and the improvement of the quality of public services. However, this participatory planning process is taking its toll in terms of delays in spending. In fact, after six years after the beginning of the planning process only 30 percent of the allocations have effectively been disbursed, meaning that residents have only a vague perception of the advantages of having oil.

On the other hand, one can easily understand the environmental concern of residents. Clearly oil exploration and production does not have the devastating impact on the environment that is normally observed for mining activities. Modern technologies and careful public and government monitoring can reduce substantially the impact even in the urban areas (Los Angeles, CA, provides a good example of this). However, the issue is a very sensitive one in Basilicata, considering that oil activity is taking place in an area adjacent to a recently (2007) instituted National Park (*Parco Nazionale della Val d'Agri e del Lagonegrese*). Intensive oil extraction in the area could contribute to a clear degradation of local fauna and flora. Such effects are not easy to predict but could have a lasting impact on the regional environment. Understandably, local people view this as a huge barrier to the development of agriculture and tourism in the region.

Environmental groups have become particularly active in the region, also because their activity is enhanced by participatory procedures leading to the granting of permits and to expenditure planning. The groups argue that oil extraction in the region has high environmental impact, in all its phases, research, processes, transport and refining, with serious risks in terms of air pollution, of pollution of groundwater of the hydrological disruption, the seismic risk, not to mention the problems related to waste disposal and impacts on biodiversity. On the other hand, creation of jobs by oil activities has been quite slow, also because of the lack of the specific skills needed locally by the oil industry.

2. The analytical framework: looking to interactions between environmental policy and sharing of rents

Individuals derive utility from environmental protection and are subject to its costs. They also derive utility from appropriating and using the rents from natural resources. In principle, one has to assume that the cost of exploration and exploitation of the latter is positively related to the level and implementation of environmental standards. The higher the standards and their implementation, the lower the rent, since it is calculated as the difference between the value of the production and its cost. To be as neutral as possible in a field where values and interests have such a huge weight, we use a purely definitional notion of an optimal definition and implementation of the environmental policy. In this approach, which reflects the legal framework prevailing in Italy, the basic guidelines of this policy are defined by the central government, but the task of their implementation, which is crucial for the outcomes of the policy, can be assigned either to the central or to the local governments.

In its simplest form, the utility function for individual i can be written as:

$$U_i = m_i a_i Q_j + b_i l_j R_i$$

Where:

m_i are his/her preferences for a cleaner environment, which in turn are a function of k_i . This is a parameter expressing the distance between the place of residence of the decision-makers and the area where the effects of environmental decisions manifest themselves. That is: $m_i = f(k_i)$.

a_i is a parameter that transforms the reduction of pollution into utility.

Q_j is the reduction/prevention of environmental damages brought up by the environmental standard implemented by government j .

In turn, Q_j can be expressed as a function of the instruments chosen, S , with an efficiency transformation g ; that is, $Q_j = g S_j$, where g is an efficiency factor applied to the instruments chosen by government j ;

l_j is a parameter representing the efficiency/timeliness in the spending of the rent by the concerned level of government.

b_i is a parameter that transforms the level of appropriated rent into utility.

R_i is the level of appropriated rent.

i refers to the individuals, who can be either resident of the oil producing region or of the rest of the country

j refers to the level of government, it can be either central or local (or regional and local).

An increase in environmental protection increases the individuals' utility, through higher environmental quality. That is:

$$\delta Q / \delta S \geq 0$$

At the same time, an increase in regulation decreases utility through a reduction of the rent appropriated:

$$\delta R / \delta S \leq 0.$$

Thus, there is for each individual an optimal level of the environmental policy that maximizes his/her total utility and that is determined by equating marginal benefits from environmental regulation policy with its marginal costs. In turn, this level is dependent, in our specific case of oil production, on the proximity of the environmental impact to the residence of individuals, and on the efficiency with which the rent is spent.

To highlight the main issues and to brevity sake, we introduce a number of simplifications.

- a) the country has two regions: A and B . A is bigger than B in terms of population. This means that when decision-making is centralized preferences of A will prevail. B has oil, while A has no oil.
- b) the environmental policy consists of monitoring and enforcing standards.
- c) this policy is assigned either to central or to the regional governments.
- d) there is no overspill of oil and gas between Regions. This could be a strong assumption: it requires that B is remote from A , as it happens in quite a few cases around the world. In the present context no overspill amounts to assume that regional regulation policy is dictated only by its impact within regional boundaries, which is the content of the next assumption.
- e) citizens in each region are interested only in what happens within their region. In other words, there is no interregional interdependence in utility functions. Basically, this depends on absence of mobility between regions. It remains, however, a strongly simplifying assumption, considering that in the real world there is growing evidence that environmental quality in an area – for example, the Amazonian forest - enters, as an argument, into the

utility function of residents of other areas, either because they assign a value *per se* to it, or because they actually use (or intend to use) the forest for recreational purposes.⁸

f) preferences concerning the environment and other goods are homogenous within each region and non homogenous between regions. This is the typical fiscal federalism hypothesis, that is increasingly questioned by empirical evidence. However, in our context the non-homogeneity of preferences for the environment is dictated mostly by geographical reasons. Residents of A don't feel the brunt of environmental degradation in B , brought about by absence of regulation. Residents of A feel the entire brunt.

In the paragraphs that follow the meanings of the various parameters are analyzed and also some empirical evidence on them is presented. We start from preferences for environmental quality and thus from demand for regulation. The choice of instruments for regulation is then presented. The relative efficiency with which they are used is also briefly considered. Then, we come to the core of this paper: the various possible associations between the assignment of environmental regulation and the assignment of the rent and their impact and the level of environment policy deriving from them.

Preferences for the environment (m_A and m_B)

Most of the literature considers that a cleaner environment is as a superior good, its demand increasing when people become richer. (See Duroy, 2005 and Martinez-Alier, 1995, Magnani, 2000, for short reviews). Hence, environmental preferences differ by region $m_A \neq m_B$. However, in the present context differences in preferences depend exclusively from the distance, measured by k_p , between the place of residence of the decision-makers and the area where the effects of environmental decisions manifest themselves. To simplify to the extreme, we assume that for A the distance is infinite making $m_A = 0$, or more realistically very close to 0, meaning that residents of A are neither physically, nor mentally affected by the state of the environment of region B , because they don't live or presume to live in region B . On the other hand, m_B is clearly positive

The choice of the instruments (R_i)

The same level of pollution abatement can be obtained with very different instruments, in view also of the variety of possible environmental damages: oil and gas spills, both routine and accidental; gas flaring; discharge of polluted water, of residues of oil and chemicals; emissions of CO₂, NO_x, volatile organic compounds etc. There is a wide availability of instruments. Textbooks range them in three categories: i) bargaining/institutional

⁸ In fact, concerned citizens around the world are showing a growing willingness to pay for conservation of the Amazonian forest. There is also a rising demand for centralization in a supranational authority of regulation of forest conservation.

solutions, such as the codification of liability; ii) command and control instruments, such as controls on inputs, controls on outputs, imposition of a specific technology, output quotas, ceilings on emissions, planning and location controls and iii) market based instruments, such as taxes on products or on emissions, subsidies, marketable trading permits etc. Each instrument has a set of attributes. It can be more cost efficient or less cost efficient; it impacts in various ways on the distribution of income and wealth and has a different incentive structure. For example, the imposition of a specific production technology is considered by a majority of experts as having non favourable long term effects, since firms stick to the imposed technology and disregard the options that could enhance their long run competitiveness.

For oil exploration and production, strict - particularly in developed countries - command and control instruments are the preferred instruments.⁹ They are decided by national, when not international legislation. Monitoring and enforcement become the crucial issues. In principle, regional/local governments should have more interest and capacity in both regards.

The transformation of rent into utility: b

This is a crucial parameter because it determines the shape and type of the utility curve and in turn contributes to the choice of the environmental standard.

Obviously, it makes no sense to assume that people of different regions have different utility functions. However, assumptions about the shape of the utility function may have an impact on the choice of the appropriate level of environmental regulations.

To be more specific, if utility is proportional to income the choice of the level of environmental regulation will not be influenced, at different levels of government, by the level of the (lost) rent. This is because the, marginal, cost of regulation in terms of utility of lost income will be the same at all levels of income. At the contrary if utility increases less (or more) than proportionally to income (case of risk aversion), the choice will be influenced. This is because the cost of regulation in terms of utility of income will depend on the level of income, which depends on the rent appropriated individually. In turn, individual rent depends on number of claimants that differs from the case where the rent is appropriated by the central government to the case where the rent is appropriated locally. To simplify things we assume that utility is proportional to income.

The efficiency/timeliness in the spending of the rent by the concerned level of government

Governments can differ by their efficiency and timeliness in spending. What is at a stake here is infrastructure projects that involve usually lengthy times because, in addition to red tape, of the involvement, in the consultation process, of a large number of stakeholders,

⁹ See, for example, Joint E&P Forum/UNEP Technical Publication, 1997.

including all levels of government. It has also to be considered that most infrastructure building is presently done, in Italy as in most countries, at the subnational level. There is thus practically no choice in the assignment of this responsibility. However, delays and inefficient (high cost) in spending of the rent reduce its value for residents of the beneficiary subnational jurisdictions, amounting to a lowering of the rent sharing rate. This has, obviously, crucial implications for the choice of the intensity of environmental policy. The literature (see for example, Ahmad, Brosio, Tanzi, 2006) shows no difference between levels of government. However, a low level of efficiency in spending reduces the value of the rent (and it can make the payment of direct cash transfers to individuals more attractive).

The political mechanism

This paper does not enter into the realm of the political economy of environmental regulation and is simply based on two alternative hypotheses about the political mechanism. The first, and the main one, assumes that governments maximize a utilitarian social welfare function.

$W = \sum_{i=0}^n U_i$. Hence, environmental regulation and oil production are not constrained, among other factors, by the pressures coming from the concerned firms. This is clearly a very strong assumption, considering the enormous influence that can be exerted by firms in the oil and gas sector.

The alternative assumption, we only explore, is that governments are revenue maximizers, which implies that they will try to expand as much as possible the production of hydrocarbons.¹⁰ Of course they could be maximize the rent by increasing the level of taxation, which would be the most obvious way, but this alternative is not explored in the present paper, since it is not the present policy of the Italian government.

Interplay between assignment of responsibilities for environment and of rent

The interplay is illustrated in figure 1. There are four quadrants, corresponding to the number of possible combinations. On the vertical axis of each quadrant are represented the benefits and costs of the environmental policy accruing to the individuals that are

¹⁰ However, in a democratic setting governments are constrained by voters, or more precisely by what can be termed as political competition. This implies that governments have to maximize the difference between revenue, R, and expenditure, E, for the minimum level of public services requested by citizens. The difference can be termed, as in the bureaucratic and managerial literature, as slack and it can be spent for uses that give utility to elected and non-elected officials without implying necessarily corruption. In autocratic systems slack is maximum because of the lack of political competition. It tends to disappear in a truly competitive system – for example in the “consensual democracy” as defined by Mc Guire and Olson (1996). In this situation all tax proceeds will be spent on the public goods.

responsible for the decision. To be more precise, when the responsibility is assigned to the central government the costs and benefits are those borne/accruing to residents of region A (constituting the majority of voters); when the responsibility is assigned to the local level costs and benefits are those borne/accruing to all residents of region B. On the horizontal axis is reported the level of environmental regulation that is enforced.

First quadrant: both the environment policy and the rent are assigned to the central government

In this case, (almost) no benefit from the environmental policy is accruing to those that make the decision, hence the demand will be quite minimal (the demand curve is lying very close to the horizontal axis), while the cost – in terms of missed rent – is high. The equilibrium point will be close to the origin of the axes, signaling very low level of environmental care. This leads residents of region B, to resist any increase of oil production. In terms of equation (1), the first component of the right hand member is close to zero and all utility derives from the rent.

Second quadrant: the environment policy is local and the rent goes to central government

In this second case, (almost) all benefits from the environmental policy accrue to residents of the producing region, hence their demand will be high (the demand curve is lying distant from the horizontal axis), while the cost for them– in terms of missed rent – is zero. The equilibrium point will be very distant from the origin of the axes, signaling very high – actually the highest - level of environmental care. This will impact negatively on production because of the environmental constraints.

In terms of equation (1), we have the reverse case compared with the first case the first component of the right hand member has a huge value, while the utility derived from the rent is zero.

Third quadrant: the environment policy is central and the rent goes to local government

In this case, as in the first one, the benefits for the environmental policy are minimal originating a very low demand for it and also the cost is minimal, because the rent is going to the local government. Hence, the level of environmental policy that will be chosen will be higher than in the first case, but still minimal and much lower than in the second case.

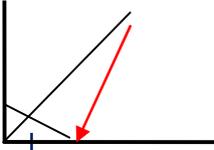
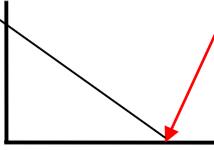
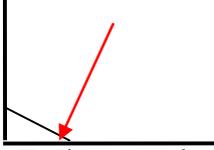
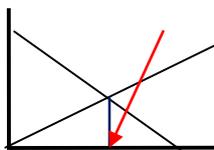
Fourth quadrant: both environment policy and rent are assigned to local government

This is clearly the most efficient case in terms of environmental policy, leading to optimal choice of its level. The choice will also be influenced by the efficiency with which the local government utilizes the rent. If the use of the rent made by the local government is inefficient, the cost of the environmental policy for residents will be smaller and they would ask for more regulation. The effectively chosen level would then be higher than in the fourth quadrant but still lower than in the second one. Increasing inefficiency would hence

make local residents increasingly recalcitrant to the production of oil and especially to its increases.

Thus if local governments are revenue maximizers, they have to be efficient in their spending.

Figure 1. Combinations of assignment of environmental policy and of oil rent

		Responsibility for enforcing standards	
		Central	Local
Assignment of the rent	Central	Benefits and costs for the responsible government  Environmental regulation 1. A_{cc}	Benefits and costs for the responsible government  Environmental regulation 2. A_{lc}
	Local	Benefits and costs for the responsible government  Environmental regulation 3. A_{cl}	Benefits and costs for the responsible government  Environmental regulation 4. A_{ll}

Conclusions

The paper has looked at the interaction, in the Italian decentralized framework, between environmental policy and oil production. Italy is modest producer of oil and gas. However, the granting of new exploration permits could possibly expand the level of production. In fact, a new round of allocation of permits took place in April 2011 and it is expected that, as a consequence, the production will considerably increase in the coming years, covering almost 10 per cent of domestic consumption. The central government has an obvious interest to expand the production, because it will reduce the dependence of the country from imports. The expansion is opposed by environmental groups and by citizens of the most affected areas, who fear the possible negative impact of the production on their environment. Although modern exploration and exploitation available technologies are capable of minimizing the risks, particularly on on-shore production, production takes place in an environmental sensitive area.

A considerable share of the oil rent accruing to the public sector is allocated to the subnational governments of the producing areas and directly to the residents to appease their fears and to compensate them for the inconveniences of being an oil producing area. However, due also to a complex participatory process, the expense of the rent going to subnational governments is delayed. Residents have, as a consequence, a perception of the risks that is definitely clearer than their perception of the advantages. This unbalance is amplified by the assignment to the central government of environmental legislation and of part of its implementation. In essence, citizens of the rest of Italy (an overwhelming majority) are more interested in the production of oil than in the preservation of the environment of the producing areas (that cover a tiny percentage of the country territory), while the opposite pattern prevails for residents. The paper does not dispute the assignment of the oil rent, but provides an exploratory analysis of the interactions between the intergovernmental assignment of responsibilities for the environment and the assignment of the rent. It does not provide clear-cut recommendations, either, since it does

not try to balance the national with the local interest in oil production. Clearly from the environmental point of view, efficiency is reached when its responsibility and the rent are assigned to the same subnational government level. It also shows that punctuality and efficiency in the spending of the rent by the beneficiary governments is crucial to allow the choice of the optimal level of environmental regulation. The direct assignment of the rent to residents may also be viewed as a convenient alternative to the assignment to governments. In fact the recent (2009) decision of the central government to allocate directly to residents its share of the royalty was clearly meant to assuage possible opposition to increases in production, by making immediate and more tangible the advantages deriving from it.

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STATISTICAL ANNEX

Table. 1. Italy: production of oil and gas. 2004-2010

Year	Oil (tn barrels)	gas (10 ³ Smc)
2004	4.463.588	2.382.070
2005	5.316.375	2.419.704
2006	5.057.032	2.341.840
2007	5.073.914	2.366.857
2008	4.685.704	2.255.627
2009	4.024.912	1.990.181
2010*	3.623.078	1.785.748
Totale	32.244.603	15.542.027

* provisional

Source: <http://unmig.sviluppoeconomico.gov.it/unmig/produzione/produzione.asp>

Table. 2. Italy: production, domestic consumption and imports of oil and gas. 2008-2009

	petrolio (10 ⁶ tonn)		gas (10 ⁶ tonn equivalenti di petrolio)	
	2008	2009	2008	2009
Production	6,59	6,21	10,90	10,27
Imports	128,38	128,65	90,56	88,75
Exports	36,18	35,73	0,25	0,16
Change in stocks	-1,22	-0,87	1,21	-1,14
Domestic consumption	100,00	100,00	100,00	100,00

Source: authors' estimates from

http://dgerm.sviluppoeconomico.gov.it/dgerm/ben/ben_2009.pdf

Table 3. The geography of Hydrocarbons in Italy

Regions	Production 2004-2010			
	Gas		Oil	
	<i>10⁶ smc</i>		<i>10³ ton</i>	<i>in % of national total.</i>
Piemonte	212,9	1,4	1.443,7	4,5
Lombardia	219,2	1,4	0,0	0,0
Veneto	24,1	0,2	0,0	0,0
Emil. Rom.	1.430,9	9,2	249,9	0,8
Toscana	9,3	0,1	0,0	0,0
Marche	518,9	3,3	0,0	0,0
Lazio	0,0	0,0	1,5	0,0
Abruzzi	358,0	2,3	0,9	0,0
Molise	614,5	4,0	177,3	0,6
Campania	0,0	0,0	0,0	0,0
Puglia	2.660,3	17,1	0,0	0,0
Basilicata	7.132,1	45,9	26.358,9	81,8

Calabria	104,4	0,7	0,0	0,0
Sicilia	2.257,2	14,5	4.012,4	12,4
totale	15.542,0	100,0	32.244,6	100,0

Source: Ministero dello Sviluppo Economico, Direzione Generale per le Risorse Minerarie ed Energetiche