

A Note on “Anticommons” on Aquaculture Projects Approval

José António Filipe^{#1}, Manuel Coelho*, Manuel Alberto M. Ferreira^{#2}

[#]Instituto Universitário de Lisboa (ISCTE-IUL), BRU – IUL, Portugal

¹*jose.filipe@iscte.pt*

²*manuel.ferreira@iscte.pt*

*ISEG/UTL & SOCIUS, Portugal

coelho@iseg.utl.pt

Abstract – A set of texts on the theory of anti-commons have been published in the last decades concerning the study of property rights. When “anti-commons” emerge resources are prone to be underused because there are too many rights of exclusion. This may be seen in many areas, either social or economic. In Portugal, the processes of aquaculture projects approval depend on too many people (and institutions) decisions. This dependence in the approval process of too many people leads to the sub-utilization of the resources that promoters aim to exploit, because the time used for its approval becomes too long and the project implementation would be too late.

Keywords - *Anti-commons, Anti-commons Tragedy, Property Rights, Exclusion Rights.*

1. Introduction.

Last decades have shown many problems arisen from the emergence of commons mismanagement and under-defined property rights (see, for example, Filipe, 2006 and Filipe *et al*, 2006). This lack of definition and the way commons have been exploited have brought many tragedies around the world. Hardin (1968) tried to explain problems about human overpopulation, about the overexploitation of species and about species extinction and yet about air pollution.

As people do not have incentives to preserve the commons, they overuse the resources. A resource is prone to be overused when too many people have the privilege to use it and no one has the right to exclude others from the use of the resource.

In the 80s, another problem has been posed by Michelman (1982) about the excessive fragmentation of property rights. Michelman has created the concept of “anticommons” to explain “a type of property in which everyone always has rights respecting the

objects in the regime, and no one, consequently, is ever privileged to use any of them except as particularly authorized by others”.

For Heller (1998), “anticommons” is seen as a property regime in which multiple owners hold effective rights of exclusion in a scarce resource. So, the coexistence of multiple exclusion rights creates conditions for suboptimal use of the common resource. Actually, property rights are often under-defined in many situations and in what anticommons concerns, the undefined limits for property rights generate several problems that are expressed by the under-use of the resources and by loss of value, as well.

We can become aware of anticommons as producing tragedies seen as the mirror effect when they are compared with the tragedies of the commons. When multiple agents have the right to exclude others from the use of a scarce resource and no one of them has an effective privilege to use it, we are in presence of a “tragedy of the anticommons”.

When several agents may take decisions about how to use a specific resource, jointly hold by all of them, and when one of them may impose his/her own decision to the others, imposing his/her veto power, we are in presence of this kind of anticommons problem. In this situation, all the agents have to agree about the utilization that they have to give to the resource they hold together. If not, the resource simply may be not used or may be underused.

A possible solution for the emergence of an “anticommons” is to convert the resource in such a way that all the property rights are convertible to a usable private property. Anyway, often this seems to

be too slow and complex.

The “tragedy of the anticommons” happens when resources remain idle even in the economic region of positive marginal productivity. Acting under conditions of individualistic competition, exclusion rights will be exercised even when the use of the common resource by one party could yield net social benefits.

2. An Example of Anti-commons Emergence

Considering that it is interesting to present a case in which an anti-commons may occur, let’s see a following mathematical approach of an anticommons problem, which illustrates the following case.

Let’s consider $V_i(x_i, x_j)$ as the value of the common resource to agent i and let’s consider the typical anti-commons situation (for simplification) in which two agents (co-owners) hold exclusion rights that limit each other’s to use the common property¹. No one agent may use the resource without the consent of the other agent. Agent i grants agent j the right to use the common resource. Agent j owns a complementary right to exclude agent i from the use of the common resource. The two agents may independently grant each other some limited right of use the common resource. So, the respective grants will be denoted as x_i and x_j . The profit that agent i derives from this joint project is $V_i(x_i, x_j)$ and the positive externality that agent j exerts on i ’s value can be modeled as

$$\frac{\partial V_i}{\partial x_j}(x_i, x_j) > 0$$

If we consider now the case of exclusion rights exercised simultaneously and independently by the various right holders, we’ll for this anti-commons situation where multiple owners exercise their veto on equal terms and symmetrically. So,

$$V_i(x_i, x_j) = V_j(x_j, x_i)$$

There will be uncoordinated choices and the Nash equilibrium will be given by

$$\frac{\partial V_1}{\partial x_1}(x_1, x_2) = 0$$

and

$$\frac{\partial V_2}{\partial x_2}(x_2, x_1) = 0$$

It is natural to assume that V_i is concave in x_i . We should expect a symmetric equilibrium, as a consequence of the symmetry assumption, in the form $x_1 = x^c = x_2$.

Comparing with the efficient choices of x_i , those that maximize $V_1 + V_2$, we’ll have the first order conditions:

$$\frac{\partial V_1}{\partial x_1}(x_1, x_2) + \frac{\partial V_2}{\partial x_1}(x_2, x_1) = 0$$

and

$$\frac{\partial V_2}{\partial x_2}(x_2, x_1) + \frac{\partial V_1}{\partial x_2}(x_1, x_2) = 0$$

As well, it is natural to assume that $V_1 + V_2$ is concave and that this admits a symmetric solution $x_1 = x^s = x_2$.

We can show that $x^s > x^c$. This means that the uncoordinated choices of two agents lead to underutilization of the common resource. So, the uncoordinated exercise of exclusion rights leads to underutilization of a common resource.

Anyway, if authorities determine themselves that resources must have quotes to be used and the quotes must be kept in lower levels than the optimum, the direct effect is virtually the same. In fact, there are exclusion rights that some agents (regulators) use to restrict the use of a resource exploited by others.

3. Projects Approval in Aquaculture: Final Notes

The problem of anticommons may be studied for projects in aquaculture area (let’s consider the case of Portugal). We can see that there are too many entities, to whom it is necessary to require their approval for the project and that all the administrative procedures motivate a situation of late global authorization (see Filipe *et al*, 2006). We conclude that interesting projects, profitable and friends of fishing, possible and viable, simply will not begin to be exploited, just because there are too many rights to exclude, too many entities to which is required the permission to exploit the project. There is an agent that wants to exploit a resource with important economic, biological and social consequences, and administrative procedures simply make the project unviable.

¹ As proposed by Parisi, Schulz & Depoorter (2005).

We conclude that there is an important loss of value. In fact, this process has destroyed value because the presented project has required financial resources and there is no created value because project had a too late approval. The agent who supported the project loses an important period of time to implement the project and he loses money because there is an important period without producing. In many situations, projects are not implemented because the favourable and the appropriate time has simply gone.

Acknowledgments

This work was financially supported by FCT through the Strategic Project PEst-OE/EGE/UI0315/2011.

References

- [1] Buchanan and Yoon (2000), Symmetric Tragedies: Commons and Anticommons, *Journal of Law and Economics*, 43 (1), pp.1-13.
- [2] Filipe, J. A. (2006), *O Drama dos Recursos Comuns. Um caso de Aplicação da Teoria dos Jogos aos Comuns da Pesca. Estudo da Cooperação aplicada à pesca da sardinha nas Divisões VIIIc e IXa do ICES*. PhD Thesis presented at ISCTE. Lisboa.
- [3] Filipe, J. A., Coelho, M. and Ferreira, M.A.M. (2006), *A Tragédia dos Anti-Comuns: um novo problema na gestão da pesca?*. ISEG. UTL. Seminário do Departamento de Economia (Nº15/2005/2006). Working paper.
- [4] Filipe, J. A., Coelho, M. and Ferreira, M.A.M. (2006), *The Drama of the Commons: an application of Cournot-Nash Model to the sardine in Portuguese Waters*. Thirteen Annual International Conference on Advances in Management (ICAM 2006). Proceedings. <http://icam2006.eg.iscte.pt/>. Lisbon.
- [5] Hardin (1968), The Tragedy of the Commons, *Science*, 162, pp.124-148.
- [6] Heller, M. A. (1998), The tragedy of the anticommons: property in the transition from Marx to markets, *Harvard Law Review* 111.
- [7] Michelman, F. I. (1982), Ethics, economics and the law of property, in J. R. Pennock and J. W. Chapman, eds. *Nomos XXIV: Ethics, Economics and the Law*, New York University Press, New York.
- [8] Parisi, F., Depoorter, B. and Schulz, N. (2005). Duality in Property: commons and anti-commons, *International Review of Law and Economics* 25(4), 1-25.